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**State-Building without Taxation.
The Political Economy of Government Finance in
the Eighteenth-Century Republic of Bern**

PhD Thesis

Economic History Department,
London School of Economics and Political Science

Final Version, including Minor Amendments
as Requested by the Examiners

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Declaration:

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The word count for the body of the text is c. 96,200 (incl. footnotes, excl. appendix and references).

This is the final version of the thesis that was originally submitted on 28 October 2006. It includes all minor amendments of the agreed list from the PhD viva on 18 January 2007. I thank my examiners, Prof Richard Bonney and Prof Thomas David for their insightful comments.

Stefan Altorfer-Ong,

London/Zurich, 1 February 2007

Abstract

The paradigm of early modern European state-building is predominantly derived from the experience of warring states and their attempts to increase revenue extraction. The Swiss republic of Bern offers an illuminating counter-example. Being free from major wars for over two centuries (1589-1798) offered a conducive situation that allowed the state to run consistent budget surpluses while minimising the tax burden on its citizens. The thesis explores the functions which the Bernese republic performed in the absence of warfare. I am particularly interested in the effect of redistribution of resources by the government, both directly through the fiscal constitution of the state and indirectly through institutions such as property rights, regulation and economic policy.

My methodology is based on models from New Institutional Economic History (North 1990; Epstein 2000), fiscal history (Schumpeter 195; Körner 1981; Bonney 1995/1999) and historical sociology (Tilly 1992; Ertman 1997). At the core of the thesis is an empirical analysis of fiscal redistribution, based on data from contemporary accounts of the state which I have collected from the archives. The Bernese republic is analysed in the context of a surplus state model, in which the following elements are mutually dependent and reinforcing: budget surpluses, low defence expenditure, the absence of a national debt, investments and low level of taxation. Overall the canton followed a niche strategy to state building which proved to be cost-effective compared to more coercive fiscal regimes. However, this strategy ultimately depended on the external effects of sustained warfare, taxation and public debts elsewhere in Europe.

A particular focus is on how the Bernese state used its structure as a surplus state to invest money on capital markets at home and abroad after 1710. I will use approaches from microeconomics and investor behaviour to analyse the canton's portfolio investments.

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Table of Contents:

Abstract	2
Acknowledgements	3
List of Figures and Tables.....	6
I Introduction.....	10
I-1 The Puzzle: State-building without Taxation	10
I-2 Early Modern State-Building as You Know It	15
I-3 Analysing the Mismatch: My Hypotheses.....	33
I-4 Methodology and Sources for Empirical Evidence	42
I-5 The Organisation of my Thesis.....	48
II Res Publica Bernensis	49
II-1 Introduction, Chapter Overview and Historiography	49
II-2 Bern as a State.....	52
II-3 Territory, Population and Economy.....	58
II-4 Government and Administration	66
II-5 Geopolitics and Military Organisation	81
II-6 The State as Provider of Non-Financial Public Goods.....	87
II-7 The Fiscal Constitution.....	94
II-8 Conclusion: An Assessment of Patrician Rule	102
III Bernese State Finance in the Eighteenth Century (Analysis of Long-Term Developments)	105
III-1 Chapter Content and Analytical Framework	105
III-2 A Framework for Analysing Financial Developments.....	107
III-3 The Bernese Accounting System.....	111
III-4 Long-Run Analysis of <i>General-Bilanzen</i>	117
III-5 The State's Assets	136
III-6 Grain Sales by Bailiffs.....	163
III-7 Conclusion: Bern as a Surplus State	173
IV Fiscal Redistribution (Structural Analysis).....	175
IV-1 Introduction and Chapter Contents.....	175
IV-2 Data Selection and Conversions	179
IV-3 Redistribution by Nature of Transaction	188
IV-4 Functional, Sectoral and Regional Redistribution	203
IV-5 The Fiscal Burden and Militia Transactions.....	222
IV-6 Conclusion: Fiscal Redistribution.....	233

V	The State as an Overseas Investor	236
V-1	Chapter Content and Background.....	236
V-2	Towards a Productive Use of the Cash Reserve	238
V-3	Reaction to Crises: The South Sea Bubble	252
V-4	Portfolio Administration as a Principal-Agent Problem.....	260
V-5	Early Modern Portfolio Analysis	267
V-6	Conclusion: An Assessment of Bernese Overseas Investments	279
VI	Conclusion: State-Building without Taxation	282
VI-1	Bern as a Surplus State	282
VI-2	The Tithes that Bound.....	287
VI-3	An Alternative Way of State-building: Fossil or Free-Rider?	292
VII	Appendix.....	298
VII-1	Abbreviations.....	298
VII-2	Glossary (Translations of German Words).....	299
VII-3	Original Texts Quoted in Chapter II.....	300
VII-4	Categories of the <i>Deutsch-Standesrechnung</i> 1732	301
VII-5	The <i>Restanzen</i> System	302
VII-6	The Long-Run Database	309
VII-7	Additional Graphs and Analyses to Chapter III.....	311
VII-8	Categorisation of the General-Tabllen and Special-Tabellen.....	316
VII-9	Data Selection	319
VII-10	Comparing Data for 1732 and 1782 with the Long-run Database.....	328
VII-11	Error Quotas of the Database.....	329
VII-12	Data Categorisation.....	330
VII-13	Measurements and Conversions	333
VII-14	Different Ways of Measuring Inflation	346
VII-15	Database Queries	348
VII-16	The Categorisation of Salt Transactions	357
VII-17	The Structure of a Bailiff's Account (Aarberg 1782).....	359
VII-18	Functional Breakdown of Revenue and Expenditure	360
VII-19	Comparative Figures on Expenditure	361
VII-20	Communal Finance	364
VII-21	Appendix to Chapter V	365
VII-22	References.....	366

List of Figures and Tables

Figure I-1: Ertman's Explanandum, or the Situation in Eighteenth-Century Europe.....	23
Figure I-2: Positive Equilibrium in Bernese State Finance (Surplus State Model)	37
Figure I-3: Selective Connections between Elements of the Surplus State Model.....	39
Figure I-4: Determining Values in Non-Market Societies.....	45
Figure II-1: Seal of the Res Publica Bernensis	49
Figure II-2: Levels of State Activity and Main Tasks in Eighteenth-Century Bern	53
Figure II-3: Map of Eighteenth-Century Bern with Districts.....	59
Figure II-4: The Government of Bern.....	67
Figure II-5: Families with Bernese Citizenship, 1650-1795.....	70
Figure II-6: Families in the Great Council, 1691 and 1795	71
Figure II-7: Government Chambers in Eighteenth-Century Bern (Ranked by Date)	76
Figure II-8: Income Distribution of Government and Administrative Positions	80
Figure II-9: Bernese Mercenary Troops, 1700-1797 (Effective Number).....	85
Figure III-1: Analytical Framework: Nature of Transactions.....	109
Figure III-2: Profit, Net Investment and Budget Surplus.....	110
Figure III-3: The Bernese <i>Standesrechnung</i> : Main Categories Used in Contemporary Accounts	113
Figure III-4: The Bernese <i>Standesrechnung</i> : Types of Revenue by Nature of Account	114
Figure III-5: Types of Bernese Accounts.....	115
Figure III-6: Revenue, Expenditure and Budget Surplus Rate, 1700-1796	119
Figure III-7: Current and Inventory Transactions, 1700-1796.....	120
Figure III-8: Current Revenue, Expenditure and Revenue per Capita, 1700-1796.....	121
Figure III-9: Revenue by Account, 1700-1796 (5-Year Averages)	123
Figure III-10: Expenditure by Account, 1700-1796 (5-Year Averages).....	124
Figure III-11: Categories for Analysing <i>General-Bilanzen</i>	125
Figure III-12: Revenue by Category, 1700-1794 (5-Year Averages).....	126
Figure III-13: Expenditure by Category, 1700-1794 (5-Year Averages).....	127
Figure III-14: Net Contributions by Category, 1700-1796 (5-Year Averages)	128
Figure III-15: Monetary Revenue and Expenditure, 1785-1794 (Yearly Average).....	130
Figure III-16: Revenue and Expenditure by Category, 1784-95 (Yearly Average).....	131
Figure III-17: Revenue and Expenditure by Category, Bailiff Accounts of Counties in <i>Special-Tabellen</i> , 1784-95 (Yearly Average).....	132
Figure III-18: Revenue and Expenditure by Category, Counties in <i>Special-Tabellen</i> , 1784-95	133
Figure III-19: Total Revenue and Expenditure for Counties from <i>Special-Tabellen</i> , 1785-1794	133
Figure III-20: Bernese Tithe Revenue by Weight and Value, 1755-1796	134
Figure III-21: Tithe Revenue by Weight and Value (including Linear Trend), 1700- 1796	135
Figure III-22: Investments and Divestments by Category, 1750-1790 (Yearly Average)....	137
Figure III-23: Accumulated Cash Reserve, 1700-1798 (Estimate).....	141
Figure III-24: Inflows and Outflows of Cash Reserve, 1750-1790	142
Figure III-25: Overseas Capital Investments and Revenue, 1710-1797	146
Figure III-26: Overseas Capital Investment and Accumulated Transfers from Foreign Funds, 1710-1797	147
Figure III-27: Total Revenue, Expenditure and Surplus Rate of Salt Account, 1700- 1797	149
Figure III-28: Assignations from Salt Account by Destination, 1764-1775	150
Figure III-29: Salt Inventory in m Bz and as a Share of Salt Sales	151
Figure III-30: Profits and Salt Sales, 1700-1797	152
Figure III-31: Grain Restanzen in <i>Standesrechnungen</i> by Weight and Value, 1730-35 and 1780-85	156

Figure III-32: Grain <i>Restanzen</i> in the County of Aarberg by Value and Weight, 1700-1797	157
Figure III-33: Grain Inventory in Vaud by Weight, 1771-1796	158
Figure III-34: Grain Inventory in Vaud by Weight and Value, 1771-1796	159
Figure III-35: Grain Inventory of Kornherr Account by Weight, 1760-1796.....	160
Figure III-36: Grain Inventory of Kornherr Account by Weight and Value, 1760-1796	161
Figure III-37: Wine Inventory in Vaud, 1781-1798 (Semi-Annual Figures).....	162
Figure III-38: Grain Prices in Nidau: Market and Bailiff, 1738-1786	165
Figure III-39: Grain Sales by Month, Nidau 1738-1785 (Averages, Harvest Year).....	166
Figure III-40: Grain Sold by Bailiff, Nidau 1735-1785: Total and Average (Harvest Year)	167
Figure III-41: Grain Sold per Price (Scatter Plot), Bailiff and Market, Nidau 1738-1785	168
Figure III-42: Grain Sales and Tithes, Nidau 1738-85	169
Figure III-43: Wheat Revenue, Granary and Bailiff Sales, Nidau 1759-1783.....	170
Figure III-44: Wheat Prices in Bern, Market and Kornherr, 1765-1790.....	171
Figure III-45: Wheat Sold per Price (Scatter Plot), Kornherr 1765-1790.....	172
Figure IV-1: Dimensions for Fiscal Redistribution by Government Transactions	176
Figure IV-2: Analytical Framework for Fiscal Redistribution	178
Figure IV-3: Database, Summary Accounts and Extended Database.....	180
Figure IV-4: Accounts Included in Database (by Type).....	181
Figure IV-5: Revenue and Expenditure by Currency, 1732 and 1782.....	185
Figure IV-6: Grain Revenue 1732 and 1782, in kg and Bz	186
Figure IV-7: Categories for Factual Redistribution	189
Figure IV-8: Redistribution by Nature of Transaction (Simplified), 1732 and 1782.....	189
Figure IV-9: Categories for Current Revenue.....	190
Figure IV-10: Current Revenue (Breakdown by Main Category)	191
Figure IV-11: Categories for Current Expenditure	194
Figure IV-12: Current Expenditure by Category	196
Figure IV-13: Categories for Inventory Transactions.....	199
Figure IV-14: Inventory Transactions by Category	200
Figure IV-15: Bernese Expenditure Compared to Other European States.....	202
Figure IV-16: Functional Redistribution: Categories and Definitions.....	204
Figure IV-17: Functional Redistribution, All Transactions	205
Figure IV-18: Functional Redistribution, Current Transactions only	205
Figure IV-19: Functional Distribution of Personnel Cost.....	206
Figure IV-20: Functional Distribution of Personnel Cost, Further Breakdown.....	207
Figure IV-21: Functional Breakdown of Property Maintenance Cost	208
Figure IV-22: Categories for Sectoral Redistribution.....	210
Figure IV-23: Sectoral Redistribution.....	212
Figure IV-24: Sectoral Redistribution for Current Transactions	212
Figure IV-25: Categories for Regional Redistribution.....	215
Figure IV-26: Total Net Revenue by Account Type and Region	216
Figure IV-27: Relative Share of All, Current and Inventory Transactions by Account Type	217
Figure IV-28: Current Revenue, Expenditure and Profit Rate by Region (D-Type Accounts Only).....	218
Figure IV-29: Relative Regional Distribution of D ₁ -Type Accounts (Current Transactions only).....	219
Figure IV-30: Relative Share of Current Revenue in D ₁ -Type Accounts by Region	220
Figure IV-31: Relative Share of Current Expenditure in D ₁ -Type Accounts by Region.....	221
Figure IV-32: Fiscal and Tax Revenue by Sector.....	227
Figure IV-33: Relative Distribution of Fiscal Revenue by Region.....	227
Figure IV-34: Revenue and Expenditure by Currency, including Militia.....	231
Figure V-1: Transferring Money from Bern to Amsterdam for the 1710 Loan.....	246
Figure V-2: Share Price of the South Sea Company and the Assets of Bern, 1720.....	254

Figure V-3: Share Price of the South Sea Company; Assets and Orders of Bern, 1720.....	256
Figure V-4: Bernese Assets in London, 1719-1724 (Nomial and Market Value, Monthly Figures)	258
Figure V-5: Investment of Bern in English Funds 1718-1798, Market Value.....	269
Figure V-6: Foreign Investments of Bern by Geographic Distribution, 1710-1796.....	272
Figure VII-1: The <i>Restanzen</i> System of Arrears (Type D Accounts).....	303
Figure VII-2: The <i>Restanzen</i> System, Aarberg 1732-1738.....	305
Figure VII-3: Revenue by Account, 1700-1796 (Yearly).....	311
Figure VII-4: Expenditure by Account, 1700-1796 (Yearly)	312
Figure VII-5: Revenue by Category, 1700-1796 (Yearly).....	313
Figure VII-6: Expenditure by Category, 1700-1796 (Yearly)	314
Figure VII-7: Net Contributions by Category, 1700-1796 (Yearly).....	315
Figure VII-8: The Bernese Currency System: Origins and Equivalents.....	333
Figure VII-9: Ideal Bullion Content of the Bernese <i>Batzen</i> , Based on Exchange Rate of Silver and Gold Coins	334
Figure VII-10: Grain Equivalents in Bern, Argovia and Vaud.....	336
Figure VII-11: Grain Prices of 1732 and 1782 compared to Moving Average	339
Figure VII-12: Total Revenue and Expenditure (including/excluding Assignations), Salt Trade, 1700-1797.....	358
Figure VII-13: Revenue and Expenditure of a Bernese Account (Scheme)	359
Figure VII-14: Gross and Net Revenue and Expenditure, Aarberg 1782	359
Figure VII-15: Bernese Expenditure Compared to Other European State (Full List)	363
Table II-1: Income of Most Important Government Offices (in Bz)	78
Table II-2: Bernese Troops at War	83
Table III-1: Interest Payments and Estimated Capital with an Assumed Interest Rate of 5% and 4%.....	144
Table IV-1: Number of Records in the Database.....	182
Table IV-2: Total Net Revenue and Expenditure in Bz and Silver.....	183
Table IV-3: Changes in Revenue and Expenditure with Different Inflation Rates	187
Table IV-4: Detailed Breakdown of Current Revenue, in Bz and %.....	192
Table IV-5: Detailed Breakdown of Current Expenditure, in Bz and %	197
Table IV-6: Detailed Breakdown of Inventory Transactions.....	201
Table IV-7: Sectoral Redistribution by Category for Current Transactions.....	213
Table IV-8: Estimated Revenue per Capita Recorded in D ₁ -Type Accounts by Region (in Bz).....	219
Table IV-9: Fiscal Burden in Bz and Silver.....	223
Table IV-10: Communal Tax Burden in Bz per Capita (Yearly Figures).....	225
Table IV-11: Locally Collected Fiscal Revenue per Capita by Region (in Bz).....	228
Table IV-12: Grain Tithe Revenue per Capita.....	229
Table IV-13: Cost of the Bernese Militia Army	231
Table IV-14: Revised Estimates for Fiscal Burden (including Militia).....	232
Table V-1: Conversion of Currencies to Bernese Taler at Parity Rates.....	238
Table V-2: Comparative Figures to Bernese Loan to England in 1710 (all in £)	248
Table V-3: Bernese Orders to Sell South Sea Stock 1720.....	255
Table V-4: Bernese Overseas Capital Investment: Funds and Loans	273
Table V-5: Gross Return on Different Investments	274
Table VII-1: Categories of the <i>Deutsch-Standesrechnung</i> 1732	301
Table VII-2: Start of the Financial Year by Month, 1732 and 1782.....	307
Table VII-3: Accounts of Johann Ott, Aarberg 1732-1738	308
Table VII-4: Accounts included in Long-Run Database.....	309
Table VII-5: Amount of Transactions Covered by Database and Weighting Factors (D- Type Accounts Only).....	319
Table VII-6: Accounts included in Database: Details.....	326
Table VII-7: Error Quotas of Database.....	329
Table VII-8: Accounting Scheme for Categorisation (in German).....	330

Table VII-9: Litre Content of Mütt/Muid by County.....	336
Table VII-10: Mass/Pot in Litres by County (Wine only)	337
Table VII-11: Currency Conversion to Bernese <i>Batzen</i>	338
Table VII-12: Grain Conversion for 1732 in Bz/ltr	342
Table VII-13: Grain Conversions for 1782 in Bz/ltr.....	343
Table VII-14: Wine Prices, 1732 and 1782	344
Table VII-15: Conversion Prices for Summary Accounts (in Bz/ltr)	345
Table VII-16: Ideal Bullion Content of the Bernese <i>Batzen</i> based on Exchange Rates, 1732 and 1782.....	346
Table VII-17: Daily Wages of Construction Workers in Bz, from Bernese Accounts, 1730s and 1780s.....	347
Table VII-18: Revenue, Expenditure and Profit Rate by Account (Database)	350
Table VII-19: Grain Revenue in Litres, 1732 and 1782	354
Table VII-20: Wine Revenue in Litres, 1732 and 1782.....	355
Table VII-21: Relative Changes in Grain Revenue, 1732-1782 (kg, mcal, Bz and ltr).....	356
Table VII-22: Prices for Different Types of Salt Recorded in Salt Trade Accounts (SDI) 1732 and 1782.....	358
Table VII-23: Functional Breakdown of Revenue and Expenditure (Database)	360
Table VII-24: Expenditure, Population and Expenditure per Capita for European States.....	361
Table VII-25: Communal Tax Burden in Bz per Capita (Yearly Figures)	364
Table VII-26: Results of HPR Regression, Bernese Funds in England and Virtual Consols	365

I Introduction

I-1 The Puzzle: State-building without Taxation

‘No taxes, no unconstrained minister, no standing army and not the faintest sign of any threatening war! Can one find anything like this in any other place on earth? This is how the golden age has been. Ambition and riches have deprived the rest of the world of it.’¹ The contemporary writer, scientist and politician Albrecht von Haller described his native Bern in 1753 with these words. Although Haller was a member of the ruling oligarchy and his statement therefore prone to exaggeration, the state he described was indeed extraordinary. It was a territorial republic that had not experienced major warfare for almost two centuries and had bursting coffers. Surplus money was invested on foreign capital markets, and the tax burden per capita was probably the lowest in Europe. In short, eighteenth-century Bern was a puzzle to its contemporaries and historians alike.

The history of European state formation and its impact on the economy has largely been studied from the standpoint of large territorial kingdoms. In these accounts of a development towards the nation state, smaller players perished and vanished. Paradoxically for these theories, examples of surviving ‘non-nation’ states are numerous; they include Bern and the other twelve republics of the Swiss Confederation. Analysing developments in these atypical states helps to distinguish between important structural changes and simple historical accidents to some extent. Particularly as most authors consider warfare a crucial factor of state development, Bern’s peaceful development has almost counterfactual potential. Therefore, the central research question is: What functions did an early modern state perform in the absence of warfare, and what impact does this have on its political economy?

At the core of the thesis is an empirical analysis of Bernese public finance, which is vital to understanding the economic and political impact of states. Justification for this approach comes from Joseph Schumpeter who with much pathos claimed that ‘the spirit of a people, its cultural level, its social structure, the deeds its policy may prepare – all this and more is written in its fiscal history, stripped of all phrases. He who knows how to listen to its message here discerns the thunder of

¹ Albrecht von Haller in a letter written from Göttingen in 1753, quoted in Oncken (1886): 2, translation from Kapossy (2002): 237.

world history more clearly than anywhere else.’² In the case of Bern, as I will argue, the fact that there was very little ‘thunder’ makes this republic such an intriguing case study.

The selection of a single case study, while seemingly unspectacular, draws validity from the fact that the available models of state-building do not accommodate or account for the Bernese case. Hence the challenge is in dealing with a ‘theoretical mismatch’. The intention is not to disqualify any grand theories by examining one small state, but rather to investigate how the distinctive features of the canton can be better understood using these models, as it would be imprudent to ignore theory and recount the story of eighteenth-century Bern as an ‘insular’ state where everything was unique. The key is to use theoretical models carefully. Even if they fail to explain developments in their entirety, general explanations can be useful for understanding certain aspects. Ideally, this case study can offer feedback to the ‘failed’ theories and help to improve them, though it would be an unintended consequence and not the main purpose of my research.

The aim of this introductory chapter is to provide the conceptual background and lead into the case study.³ The remainder of this section will provide definitions of the state and state-building, as well as an overview of my research topic. This will be followed by a discussion of the most important theoretical explanations about the state-economy nexus in Section I-2, which covers approaches from economic history, historical sociology and financial history. The application of these models to the case of Bern and some tentative hypotheses are presented in a separate section (I-3), including my model of Bern as a surplus state. Section I-4 provides a brief introduction to the methodology and empirical data that underlies the empirical analysis. The chapter ends with an overview of the organisation of my thesis.

Definitions and Scope of my Research

Max Weber defined the state as a set of centralised and differentiated institutions that successfully claims the monopoly of legitimate violence within a

² Schumpeter (1954): 7.

³ I have limited references in this chapter to a literature overview. Footnotes in subsequent chapters will provide more detailed information.

given territory.⁴ Numerous scholars have pointed out the limitations and pitfalls in this definition. Legitimacy is difficult to specify and the degree of monopolisation of violence can vary, particularly in early modern times where ‘membership’ to the state was not absolute and particular groups benefited from privileges, liberties, or exemptions.⁵ For Michael Mann, Weber’s definition is problematic because it entails *institutional* (centrally located institutions) and *functional* (legitimate violence) elements.⁶ Amongst the aspects of social life which are state regulated, the most significant in economic terms are the implementation and enforcement of property rights and other formal rules, including those for revenue extraction.⁷ Additionally, the state provides public goods, most notably protection. This has been acknowledged by Douglass North and Robert Thomas, who see the state from an economic point of view and primarily as ‘an institutional arrangement that sells protection and justice to its constituents. It does so by monopolizing the definition and enforcement of property rights over goods and resources and the granting of rights to the transfer of these assets. In return for this service, the state receives payment in the form of taxes.’⁸ They see this as a mutually advantageous trade between the governed and their government, as the provision of such public goods benefits from economies of scale.

To Weber, the constant struggle between elite groups over the type of and control over administration lays at the heart of *state-building*, even though he did not use this term. State-building, which some authors refer to as ‘state formation’⁹, is far less about how new states are established but rather how existing states managed to survive and enhance their power. In this, states competed among each other, as well as with competing actors from within their territory. Therefore, state-building is mainly a process of widening and deepening of state power relative to its subjects. In this, there are interesting parallels to the concept of ‘social disciplining’ by Gerhard

⁴ Weber, M. (1978). A similar definition is used by Charles Tilly, for whom states as ‘the world’s largest and most powerful organizations for more than five thousand years’ are defined as ‘coercion-wielding organizations that are distinct from households and kinship groups and exercise clear priority in some respects over all other organizations within substantial territories’: Tilly (1992): 1.

⁵ See, for example: Mann (1988); Ertman (1997); Näf (1967); Epstein (2000).

⁶ Mann (1988).

⁷ Mann (1986-1993), Vol. 1: 26-27.

⁸ North/Thomas (1973): 97. Strictly speaking, the definition of North and Thomas is for government, which they do not distinguish from the state. See the critique by Epstein (2000), discussed below.

⁹ Braddick (2000) sees the difference between the two in that ‘state-building’ was purposely undertaken, whereas ‘state formation’ was an impersonal process. I will use the two terms synonymously.

Oesterreich who described how early modern governments imposed an ever-increasing discipline on their subjects.¹⁰

These definitions are highly abstract and difficult to apply to any specific eighteenth-century state. For my empirical analysis, the state is defined as the government of Bern, or more specifically, everything that was recorded in the accounts of this government. Accordingly, the terms *government* and *state* are used synonymously unless otherwise mentioned. The sociologist Michael Mann had justified his choice when using a similar definition for his study on English state finance saying that ‘what *this* state undertook, however, is surely not without interest and significance.’¹¹ While such an institutional-cum-financial definition can be problematic and perhaps even tautological, it remains the best suited to an empirical analysis as long as its limits are acknowledged.

One of the downsides of my definition is that it discounts the distinction between various interest groups with a stake in the state. Despite being a republic with a parliament, Bern was not a Weberian *Ständestaat* with different social groups represented.¹² Neither did it have any territorial representation, as citizens from the subject territories were excluded from political participation. Furthermore, within the framework of my definition of the state the government is considered a unified entity which was not the case in practice. The Bernese political system in which government members were directly involved in state administration limited fractures between the two. However, the incentives of government and administrators were not always perfectly aligned and conflicts of interest prevailed. Institutional checks and balances were combined with rivalry and mutual distrust between government members.

Conflict between patricians was dwarfed by their common desire to secure exclusive access to highly lucrative posts in the government and state administration against potential new entrants. An important principle for the Bernese state was the *militia* idea that working for the *res publica* was a civic duty and hence only remunerated at a nominal rate. Although the principle had been largely undermined

¹⁰ Oesterreich (1968), discussed below.

¹¹ Mann (1988): 74 (his emphasis). He defined the state as everything that was recorded in the accounts books of the government in Westminster.

¹² The term *Ständestaat* is somewhat clumsily translated by ‘estates state’ by some authors. For the *Ständestaat*: Weber, M. (1978): 1085-1087; see also Poggi (1978).

for government offices, it still applied to some of the important positions in the state. It was also important to the canton's military organisation, although the soldiers were almost exclusively subjects and not citizens of the republic. The canton's administration was carried out by patrician government members with the support of local staff rather than a professional bureaucracy. In principle, Bernese patricians earned their living from private estates, a channel of income which allowed them to engage in political activities. In effect they were, to use another Weberian term, *Honoratiore*.¹³ This describes a group of individuals which has secured exclusive access to government positions through their economic ability to engage in offices that only pay nominal sums. However, this ceased to be the case by the eighteenth century as by then Bernese government offices provided a major source of income for ruling families, some of which had become quasi-professional administrators and politicians.

A second constraint of this definition of the state is that the canton's government only represented one layer of political activity in the eighteenth century, when state functions were fragmented between several institutions. The canton was by far the most important nexus of political power and possessed a monopoly of legitimate violence. Some limiting factors of sovereignty that affected other states did not apply to Bern. First, the church was not an independent power: it was integrated into the republic during the Reformation and evolved into a *state church*, run and controlled by the government. Second, local privileges existed, but their impact was limited. Although communal autonomy was comparatively high, it did not pose a threat to sovereignty. Nevertheless, the government relied on collaboration and co-operation by its communes and, ultimately, by its subjects for many decisions. The counties into which the republic was divided for administrative purposes had lost any political power of their own.

Bern was one of thirteen cantons that formed the Swiss Confederation, a system of interlocking alliances between member states. The Confederation had very weak political institutions and relied on the cantons for administrative and military support. In short, it was little more than a channel through which the otherwise sovereign

¹³ The term is sometimes translated as 'notables'. Weber uses the term in the context of formally 'democratic' political organisations: Weber, M. (1978): 290-292.

cantons could co-ordinate their foreign policy.¹⁴ This was at times an onerous task due to religious, economic and political differences. Without any military force of its own, the Confederation was unable to enforce solutions unless the cantons co-operated. Bern was by far the largest of the Swiss states, covering nearly a third of Switzerland's overall territory and population. This gave it the position of a *primus inter pares* which Bern assumed more by its military and financial power than by formal privilege. The relative effectiveness of its administration helped to make it the pre-eminent canton.

The time period of my analysis of the political economy of state-building in Bern is limited to the eighteenth century. This is more of an approximate framework than an exact demarcation, as I will not start with 1 January 1700. Incidentally, this start date would prove problematic, as under the Julian calendar that was used in the canton until 1701, the year started on the 25 March.¹⁵ The end of the period is clearer. On 5 March 1798, French troops marched into Bern, divided up its territory and incorporated all the Swiss states into the short-lived Helvetic Republic (1798-1803). In spite of several attempts to restore the old order afterwards, Bern never returned to its previous form. The former subject territories of Vaud and Argovia remained independent cantons, and the newly introduced, supposedly 'old' institutions were only caricatures of those that had disappeared with the French invasion.¹⁶

I-2 Early Modern State-Building as You Know It

To organise the overview of the literature on the political economy of European state-building, I have divided all publications into three broad categories of economic history, historical sociology and financial history. Each of these will be discussed in turn later in this section. The distinction is not always clear-cut, and the most interesting works are those which challenge and cross such arbitrary boundaries. The implications of the explanations discussed in this section on my hypotheses for eighteenth-century Bern are explained in a separate section (I-3).

¹⁴ For the concept of state sovereignty: Spruyt (1994), who casually ignores the situation in Switzerland, even though this would be a good testing ground for his hypotheses.

¹⁵ For the calendar reform in Bern: RQBE, vol. 9.1: 207. In Britain, the Gregorian calendar ('new style') was introduced as late as 1752.

¹⁶ See, for example: Bernisches Historisches Museum (1998).

In embarking on the literature review the unit of comparison should be kept in mind. Since most of the theoretical explanations on state-building were written with an emphasis on the role of large monarchies, readers should note that my intention is not to compare Bern directly with the likes of Britain or France on a parity basis.¹⁷ This would be the proverbial comparison between apples and pears. The point is to relate the Bernese experience with a paradigm of European state-building rather than concrete examples. For more compatible individual comparisons, peripheral and smaller states would be more appropriate, but have generally been less extensively researched.

State and Economy in Economic History

Several major accounts of the historical development of economies have neglected the role played by the state. For Marxists, the state was simply a defender of the economic interests of ruling classes. States as actors in the economic process were hardly mentioned and if they were, the arguments were not very persuasive.¹⁸ As an example, Perry Anderson's model of state formation ended up with little more than geopolitical determinism and leaves limited scope for economic explanation.¹⁹ On the opposite end of the political spectrum, neo-classical economists are reluctant to recognise the role of the state, except for securing property rights and providing the arena to enable market forces to work. Thus, the disciples of Adam Smith, who at times went beyond Smith's original thoughts, either flatly ignored the state or saw it as an impediment to economic growth at best.²⁰ Even though the importance of the modern state in economic development had been recognised by scholars including Alexander Gerschenkron, this was not applied to the early modern period.²¹ It took the emergence of another school of thought to reintroduce the state into political economy: New Institutional Economic History (NIE).²²

¹⁷ The situation is different for *per capita* comparisons, which are possible across states of a different size, although there are other inherent problems with per capita calculations [see Gelabert (1995) and the discussions in Section IV-5 below].

¹⁸ See the overview by Prak (2001).

¹⁹ Anderson (1974).

²⁰ Smith (1976); For a Neo-Classical approach; see Barzel (2002).

²¹ For the modern state: Gerschenkron (1962); Sylla/Tilly/Tortella (1999).

²² The term 'bringing the state back in' is borrowed from political science: Evans/Rueschemeyer/Skocpol (1985).

The basic concern of NIE is to investigate the impact that institutions have on economic growth, defined and measured as a long-run rise in per capita income. For Douglass North, institutions are forms of cooperation and competition between economic actors, accompanied by a system of enforcement of these rules that organise human interaction. More succinctly, institutions are ‘the rules of the game.’²³ North, with Robert Thomas, argued in an early influential NIE book that efficient economic organisation was the key to economic growth. Efficient institutions managed to engage actors in productive activity by reducing externalities and transaction costs. Thus, they brought the private return of economic activities close to their social return. North and Thomas used this in a rather simplistic and teleological way to explain the ‘rise of the Western world.’²⁴ Their reductionist approach seemed to present a blueprint for economic growth in the form of the Whig version of development in Britain and later developments in the United States of America. The argument goes as follows: by securing property rights, states establish formal markets as an institutional framework conducive to growth, as opposed to economic organisation through traditional societies or arbitrary governments. The existence of sub-optimal, inefficient solutions can be attributed to bad policy under predatory rulers and their rent-seeking activities. Margaret Levi, a follower of Douglass North, elaborated on this point and went even further. From her strict rational-choice point of view, rulers cannot be anything else than predatory.²⁵

Numerous critiques can be made of North and Thomas. First, it is not clear what efficient economic institutions look like and transaction costs are by definition very difficult to measure. A single set of efficient institutions applicable to every situation simply does not exist. Long before NIE, Gerschenkron had shown how substitute solutions can be suitable under conditions of economic backwardness by analysing and comparing latecomers to the industrialisation process.²⁶ Such a Gerschenkronian corrective might also be applied to concepts of NIE in order to correct for their Whig-centred view of history. Second, North and Thomas lack a coherent explanation about institutional change and why inefficient economic institutions persist. In his more recent work, North has addressed these questions and

²³ North (1990): 3.

²⁴ North/Thomas (1973): book title. See also North/Weingast (1989), discussed later. Landes (1998) uses similar arguments.

²⁵ Levi (1988).

²⁶ Gerschenkron (1962).

integrated concepts of path dependency to his argument.²⁷ Third and most relevant to my concerns, NIE's concept of the state is anachronistic. North and Thomas' view is that the early modern state was much like its modern counterpart.²⁸ They do not account for differing historical circumstances in early modern states, where membership was neither absolute nor universal, and where jurisdictional, political and economic inequalities represented serious and important impediments to secure property rights.²⁹ Finally, if states secure property rights with the aim of extracting revenue by taxation, this can also have adverse economic effects.³⁰

Nevertheless, stripped of its determinism, NIE remains the best and most coherent explanation for early modern economic growth. Its positive features are twofold. On one hand, NIE brings the state into consideration and makes it a central actor rather than an exogenous variable in explaining economic growth. The concept is open for adaptation to other kinds of societies and states. It can hence be brought beyond the scope of what its authors had in mind. One possible way of doing so is the 'improved NIE' (my words) approach of Larry Epstein.³¹ He agrees with North and Thomas about the importance of secure property rights and reduced transaction costs. However, Epstein argues convincingly that the negative impact of the state on economic growth was not through excessive intervention but rather the lack and limitations of state sovereignty. The underlying assumption is that pre-modern growth is caused by market expansion, which allowed for specialisation and division of labour. This goes back to Adam Smith's idea that markets emerged because of human nature and its propensity to barter and trade.³² Such 'Smithian' growth is fundamentally different from modern, technology-driven 'Schumpeterian' growth.³³ By assuming Smithian growth for early modern economies, Epstein identifies inadequate institutional preconditions of markets as the main impediment for such growth. Prisoners' dilemmas and coordination failures limited the free entry to markets as well as their extension. For Epstein, markets were the unintended consequence of expanding state sovereignty. Furthermore, states were supportive of

²⁷ North (1990).

²⁸ Levi (1988), who states her allegiance to Douglass North in her introduction.

²⁹ See especially Epstein (2000): ch. 1 for this critique.

³⁰ Brady (1991): 142.

³¹ He is also known as Stephan R. Epstein: Epstein (2000); Epstein (2005).

³² Smith (1976). Weber also sees markets as the most efficient form for the allocation of economic resources, as they are perfectly impersonal: Weber, M. (1978).

³³ The term refers to Joseph Schumpeter's work on technology (rather than his position on state finance discussed below); see for example: Schumpeter (1991).

economic development because they created incentives, provided information and stimulated organisational as well as institutional change. It thus follows that a lack of centralised sovereign jurisdiction was at least as problematic as the persistence of predatory rulers. The main political regime barriers in early modern Europe were legally sanctioned monopolies that provided sources for rent-seeking, as well as jurisdictional fragmentation. They represented the inability to establish a unified, non-discriminatory fiscal and legal regime.³⁴

Epstein also addressed the impact of republics on economic growth by referring to Weber's postulate that republics were conducive to prosperity, mainly where towns were strong and states were weak.³⁵ Even though this might be true for Italian city-republics of the late medieval and Renaissance period, the causal link between constitutional form and economic impact is unclear. From the point of view of many subjects, living in a republic was not necessarily attractive, as the politically empowered citizens tended to shift the burden of financing and maintaining the state infrastructures to their hinterland.³⁶ The main problem with 'republicanism' as an explanation for successful economies is that early modern republics had little in common, apart from their political organisation. There was a broad range of states ranging from small urban republics in Italy or Germany to the territorial republics of considerable size such as Venice or the United Provinces. They all had completely different economic structures and paths of development. In the Swiss Confederation alone the diversity of republics was extraordinary. City-republics where both the economy and political regime depended on export industry and trade (Basel, Zurich) are difficult to compare with the relatively democratic rural *Landsgemeinde* cantons. The latter were controlled by local elites, some of whom had little interest in trade (Uri, Schwyz) while others were heavily engaged in it (Appenzell, Glarus).

The literature on the state offering protection for (export-) markets has mainly been discussed in the context of long distance trade and textiles.³⁷ Ulrich Pfister has combined the idea of states offering protection rents with the emergence of proto-industry, defined as a 'process of regional growth in heavily export-oriented industrial production, in which no role is played by increases in the productivity of

³⁴ Epstein (2000). For the jurisdictional fragmentation, also: Olson (1982).

³⁵ Weber, M. (1978).

³⁶ The same is true for subjects living in the city without the right of citizenship, the so called *Hintersassen*. See Epstein (2000) and Gelabert (1995), discussed below.

³⁷ See also the contributions of C.F. Lane, discussed in the subsequent heading.

labour and capital through technological change.’³⁸ While earlier explanations of proto-industry understated the role of the state, Pfister includes political factors in the form of protecting market access and a potential for monopoly rents by setting quality standards and controlling the production process. Two main assumptions characterise his model of a stylised dual economy with both a proto-industrial and an agricultural sector. First, total factor productivity (TFP) growth and technological change are impossible. Second, capital and labour inputs are not substitutes. The overall growth rate is therefore determined by the growth rate of the labour force and of the capital stock, as well as by changes in the terms of trade. The latter are defined as relative prices of imported foodstuffs to exported manufactures, which can be influenced by political action if a close relation between entrepreneurs and governments exists.

In an empirical overview of proto-industry in early modern Switzerland, Pfister argued as follows. Since the cantons were in no position to protect their export markets aggressively, they obtained access to overseas markets through privileges that were granted in return for mercenary services. With their bargaining position slipping because the terms of trade for mercenaries had been undermined by changes in military technology, the Swiss were unable to maintain export privileges after the mid-seventeenth century. The alternative strategy of securing monopoly rents through setting standards and controlling production processes likewise became increasingly unsuccessful. States were unable to control for outflows of technological know how through the emigration of skilled workers and failed to find effective ways to monitor embezzlement and manage increasing ‘overhead costs’. Both strategies for securing state-supported proto-industrial growth were exhausted by the mid-eighteenth century. This process had started at least a century before when previously centralised and guild-controlled production was replaced by a putting-out system, in which goods and semi-finished products were traded in the market.³⁹ As a result, the cotton boom of the mid-eighteenth century was based on a ‘wide-ranging and efficient transaction system linking financial activities and well-developed postal system with industrial involvement.’⁴⁰ By then, Swiss entrepreneurs were able to market large volumes of

³⁸ Pfister, U. (1996a): 137. For a more detailed version: Pfister, U. (1992a): 21-32; Pfister, U. (1996b). For the concept of ‘proto-industry’: Mendels (1972). From the abundant literature on the topic and numerous critiques of Mendel’s concept, see especially the collections of Leboutte (1996) and Ogilvie/Cerman (1996). For the following, see Pfister, U. (1996b): 150-152.

³⁹ Ogilvie translates this to ‘artisanal system’. The term *Kaufsystem* goes back to Kriedte/Medick/Schlumbohm (1977).

⁴⁰ Pfister, U. (1996b): 152.

products that responded to customer demand. In combination with bottle-necks in labour supply, this relative autonomy of the industrial sector supported the transition to modernisation.⁴¹

Early Modern State-building (Historical Sociology)

It is a truism to argue that the state was essential to historical analyses by sociologists and political scientists, since both disciplines originated in attempts to explain this very phenomenon. Following the pioneering works by Max Weber and others, state-building has become a major issue to the point that it is nearly impossible to provide a comprehensive overview. Given the great breath and width of work on the topic, I will limit my overview to specific theories that account for economic aspects of state-building in early modern Europe. In this context, Michael Mann distinguished two theoretical streams, an 'Anglo-Saxon' one where the role of states is primarily economic and domestic; and a 'Germanic' approach, for which the state is fundamentally military and international in character.⁴² This dichotomy has faded and most political sociologists have adopted a view of state formation that combines the two streams. Paul Kennedy, for instance, sees geopolitical power as merely the outcome of economic strength.⁴³

Otto Hintze was amongst the first scholars to recognise that military conflict, and not class struggle was an important factor in European state-building. The result of geopolitical conflict was the establishment of either an absolutist-cum-bureaucratic regime or representative government.⁴⁴ Early neo-classical research on the economic consequences of warfare helped to formalise these approaches. Frederic Lane analysed the state as a protection-providing firm, distinguishing monopoly profit ('tribute') from the 'protection rent' that benefited certain actors, especially merchants involved in international trade.⁴⁵ Lane emphasized that violence could precipitate positive economic externalities by securing internal legal and external military support, if wealth was redistributed towards individuals with a higher propensity to invest than consume and shifted from less productive to more

⁴¹ Pfister, U. (1996b): 150-152; for the bottle-neck in labour supply: 145-150.

⁴² Mann (1988).

⁴³ Kennedy (1989).

⁴⁴ Hintze's most important works were translated by Gilbert (1975).

⁴⁵ Lane (1958); Lane (1979).

productive activities.⁴⁶ Richard Bean analysed the costs and consequences of different forms of military organisation, focusing in particular on their impact on the state's power to tax.⁴⁷ More recently, Philippe Contamine and others have written on the military impact of state-building in a comparative perspective.⁴⁸

Charles Tilly adopted Hintze's view that geopolitical struggle was a major determinant of state formation, but questioned the link between military pressure and the establishment of a bureaucracy. Drawing heavily on Gabriel Ardant, he acknowledged that a main determinant was the state's ability to finance its warfare activities by collecting taxes. A high level of economic development could provide easily taxable resources and thus substitute for bureaucratisation.⁴⁹ In his more recent work, Tilly dismissed his earlier account as being too teleological. He still views state structure chiefly as a by-product of the ruler's effort to acquire the means for war, but distinguishes three paths to state formation: coercion-intensive, capital-intensive, and a middle way ('capitalized coercion').⁵⁰ Other authors have followed his earlier approach and studied extraction regimes in more detail.⁵¹ With empirical material about English state finance, Michael Mann described the arrival of the 'permanent war state' in the seventeenth century, when functions of the state were largely military.⁵² To ensure their survival, states had to increase their extractive capacities to fund professional armies, navies, or both. Even though standing armies could be deployed for domestic repression, external geopolitical pressure was much more important in shaping early modern states. Brian Downing was mainly interested in the origins of liberal democracy, which he found in the representative assemblies of late medieval Europe. As questionable as this finding might be, his reflections on the financial resources of state formation are illuminating. Military modernisation led to a strengthening of monarchical power in countries that relied on domestic financial resources. Furthermore, in states where the military revolution was absent or which found other means for financing their armies, constitutional government was not destroyed. Downing does not analyse the situation in Switzerland. Even though the

⁴⁶ Bullard et al. (2004): 101.

⁴⁷ Bean (1973).

⁴⁸ Contamine (2000).

⁴⁹ Tilly (1975), see also Tilly (1992) and Ardant (1975), discussed below.

⁵⁰ Tilly (1992).

⁵¹ See also Ferguson (2001).

⁵² Mann uses the expression 'permanent war state' in inverted commas: Mann (1988): 108. He claims that no European state was continuously at peace – which is not the case for the Swiss Confederation (discussed above). See also: Mann (1986-1993).

cantons would not fit properly into any of his categories, some of his ideas can be applied and used as reference points.⁵³

Early theories of state formation placed a strong emphasis on the parallel rise of absolutism and bureaucracy. The British situation, presented by Henry Roseveare, Patrick O'Brien or John Brewer shows that this combination is incomplete.⁵⁴ Despite being a 'constitutionalist' state, it had a highly developed tax collecting bureaucracy, to the extent that it resembled a Weberian bureaucracy *avant la lettre*. Thomas Ertman has tried to account for this fact by separating regimes (absolutism) from infrastructures (bureaucracy). In an impressive *tour de force*, he tried to explain the outcome of early modern state-building for a number of European states (see Figure I-1).

		Political Regime	
		<i>Absolutist</i>	<i>Constitutional</i>
Character of Infrastructure	<i>Patrimonial</i>	Latin Europe*	Poland, Hungary
	<i>Bureaucratic</i>	German Territorial States, (Denmark)	Britain, (Sweden)

Figure I-1: Ertman's Explanandum, or the Situation in Eighteenth-Century Europe

Source: Ertman (1997): 10, Table 1.

*) Latin Europe = France, Spain, Portugal, Tuscany, Naples, Savoy, Papal States
States in brackets are the states that his model cannot explain properly.

To explain this outcome, Ertman introduces a historical dimension to his model, which makes relative timing a key determinant of the state-building process. He does this with explicit reference to Alexander Gerschenkron's studies of relative economic backwardness, which were discussed earlier. In Ertman's view, the causes of the different outcomes of state-building were the organisation of local government during in the late middle ages, the timing of the onset of sustained geopolitical competition,

⁵³ Downing (1992); Downing (1988); see also Stasavage (2003). The term 'military revolution' was introduced by Michael Roberts in 1956, see: Rodgers (1995); Parker (1996).

⁵⁴ Brewer (1989); O'Brien (1988); O'Brien (2001); O'Brien/Hunt (1999); Roseveare (1969); Ashworth (2003).

and the independent influence of strong representative assemblies, notably on taxation. While this explanation works for most states in his sample, it fails to account for the situation in Sweden and Denmark.

The problems with his sophisticated model are twofold. First, Ertman concentrates heavily on large monarchies and excludes both republics and small states from his analysis, dismissing them as ‘nonterritorial states.’⁵⁵ If Alberto Alesina and Enrico Spolaore have recently introduced the size of nations as a topic of contemporary economics, this task has not been attempted for the early modern period.⁵⁶ Secondly, there is a strong survivor bias in Ertman’s view. By limiting his explanation to the formation of successful states, he cannot account for failures, such as Bohemia or Burgundy. Even though Ertman introduces a historical dimension in what could be called a ‘Gerschenkronian turn’, his model still appears teleological. It provides small comfort to say that most broad-brushed sociological explanations share similar faults to an even stronger degree.⁵⁷

Wolfgang Reinhard’s history of state power has put a strong emphasis on monarchs as key actors in modelling the European state.⁵⁸ Other scholars have challenged his top-down view of the state-building process and emphasized the strong bargaining position of the ruled in regimes based on consent. This ‘state-building from below’ approach was pioneered by Peter Blickle and further developed by his students.⁵⁹ Thomas Brady has also stressed non-coercive alternatives to state-building with a strong emphasis on Swiss models.⁶⁰ In general, research on alternative forms of state-building focused mainly on Southern German and Swiss states, relying on Dietrich Gerhard’s concept of an ‘Old Europe’ in which corporately organised societies continued from the high middle ages to around 1800.⁶¹ While concepts stressing continuity have been prominent in empirical studies, they have not reached

⁵⁵ In a footnote, Ertman explains his case selection and casually defines his ‘nonterritorial states’: Amongst others he excludes Venice because it was only a city republic; the Dutch republic and the Swiss Confederation because they were federal entities, as well as the German ‘midget states’ and independent territories who were – in his view – little more than overblown private estates: Ertman (1997): 5 (fn. 3).

⁵⁶ Alesina/Spolaore (2003).

⁵⁷ Ertman (1997), with explicit reference to Gerschenkron (1962) for the historical dimension.

⁵⁸ Reinhard (1999); see also Reinhard (1996a).

⁵⁹ Blickle (2000); for an English summary: Blickle (1986); Holenstein (2000). See also the debates in Blickle (1997) and Reinhard (1996b).

⁶⁰ Brady (1991) and – although with an earlier timeframe – Brady (1985).

⁶¹ The term Old Europe (*Alteuropa*) goes back to Gerhard (1981).

the degree of conceptualisation of the ‘modernising’ visions of state-building epitomised in Ertman’s model.

The economic impact of early modern states has been researched by Douglass North and Barry Weingast, who argued in an influential paper that the Glorious Revolution of 1688 was favourable for the British economy. The country benefited from a new political constitution that limited the power of the crown through constitutional commitment. In the new parliamentary system, wealth holders with veto power checked for the crown’s ability to renege on public debt. In turn, Parliament provided sufficient tax revenue to fund the state. North and Weingast interpreted this as part of a broader commitment to secure property rights. As a proxy to test their argument, they used falling interest rates on public debt.⁶² This thesis has been soundly critiqued by several scholars. A comparison with data from continental countries makes the British performance look more like a Gerschenkronian catching up of a late developer in financial organisation than a significant advantage over her competitors.⁶³ Others have argued that interest rates are not a good indicator of secure property rights, as they were fixed legally and not through the market.⁶⁴ Another critique comes from Patrick O’Brien, who has shown that financial innovation happened to a large extent during the Civil War and cannot be attributed to the Glorious Revolution.⁶⁵

The scepticism towards the Whig interpretation of North and Weingast is also tangible in a book edited by Philip Hoffman and Kathryn Norberg. Their attempt to link political constitutions and the ideology of state finance – what they call ‘a new fiscal history’ – concentrates on fiscal crises in England, the Netherlands, Spain and France. Hoffman and Norberg acknowledge the importance of fiscal policy on state-building, pointing to the puzzling fact that the (supposedly) freest people in Europe, the Dutch and the British, were taxed at the highest rates. As an explanation, they attribute the willingness to pay taxes to representation.⁶⁶ O’Brien argues along similar

⁶² North/Weingast (1989). See also North (1993) and Weingast (1993). For a critique: Clark (1996). See also Stasavage (2003).

⁶³ Epstein (2000): ch. 2; Sussman/Yafeh (2003).

⁶⁴ Temin/Voth (2005). They emphasise credit rationing instead. For the basic idea, developed for the French credit market: Hoffman/Postel-Vinay/Rosenthal (2000).

⁶⁵ O’Brien (2001). See also O’Brien/Hunt (1999).

⁶⁶ Hoffman/Norberg (1994): conclusion.

lines when describing the origins of British ‘fiscal exceptionalism.’⁶⁷ The willingness of taxpayers to sustain the strategic, commercial, and imperial objectives of the government relied on a professional and relatively efficient system for the assessment and collection of excises.⁶⁸ In addition, Britain’s revenue was to a large extent based on indirect taxes. Its fiscal constitution allowed less manipulation for redistribution towards private gain, social groups or specific regions. Compared to other European countries, the British fiscal system had the advantage of being efficient. It also relied on a broadening and widening base that was universally taxed. Such ideas of a *fiscal absolutism* in Britain are in conflict with traditional views of a dichotomy between continental absolutism and British constitutionalism.

The concept of absolutism, which played such an important role in early historical sociology, has lost most of its attraction to scholars, who have ‘deemphasized the absolute in absolutism.’⁶⁹ Great discrepancies between contemporary claims and the reality have been pointed out. Gianfranco Poggi, one of the most fervent critics, has brought this to the point in a comment on Louis XIV’s alleged statement *L’Etat c’est moi*, arguing that the ruler ‘probably never said it; if he did say it, he did not mean it that way; if he did mean it that way, then he did not know what he was talking about.’⁷⁰ Nowhere was the difference between aspirations of the ‘absolutist’ state and reality larger than in fiscal matters; in France, ‘taxpayers remained chronically “undertaxed”.’⁷¹ From a ruler’s perspective (rather than the taxpayer’s), this compares unfavourably to the situation in Britain and the Dutch Republic, where in spite of parliamentary consent the fiscal burden was high. As a ‘socio-historical version of absolutism’, Gerhard Oesterreich’s concept of social discipline [*Sozialdisziplinierung*] has been remarkably popular.⁷² Oesterreich relied mainly on ideas by Weber, combining them with Norbert Elias and Michel Foucault. In its simplest form, the concept claims that the early modern state had a fundamental impact in disciplining individuals, thus establishing a hierarchically organised society.

⁶⁷ O’Brien (2001): title. See also: O’Brien (1988); O’Brien (1994); O’Brien (2001); O’Brien/Hunt (1999), discussed below. The English civil war offers another puzzle, namely that it was for a good part a tax revolt, but the winners ended up paying significantly higher taxes to be ‘free’.

⁶⁸ O’Brien (2001): 25.

⁶⁹ Hoffman/Norberg (1994): 303. See also: Henshall (1992).

⁷⁰ Poggi (1978): 161.

⁷¹ Bonney (1995c): 433.

⁷² Schulze (1987); for the original concept: Oesterreich (1968).

Most of the socio-political explanations presented so far do not investigate the effects of their findings on economic development. In this, they could benefit from the ideas of Hilton Root, who has analysed the redistributive role of governments. Root considered the economic efficiency of the criteria used for allocating resources within a state. When comparing the redistributive role of governments in Old-Regime France and Britain, he distinguished between cronyism and corruption. In the British case, the corruption of Parliament was an informal and illegal form of redistribution, but was open to market forces in what could be called a ‘market for corruption’. In contrast, France had a system of cronyism, where an institutionalised, legally sanctioned form of favouritism redistributed resources within the state. Although his dichotomy between cronyism and corruption might be overstated in Root’s empirical references, the basic idea has a good explanatory potential when used as a pair of Weberian ideal types.⁷³

The Rise of the Fiscal State (Financial History)

For the most part, the field of financial history – which in this context I take to be the history of state finance only – has been rather reluctant in adapting models from other disciplines and has remained predominantly descriptive. A landmark research project about the financial dimension of the rise of the modern state has produced a wealth of data for several states across six centuries throughout Europe, which was compiled in the *European State Finance Database (ESFDB)*.⁷⁴ However, in contrast to the astonishing width and depth of the data, conclusive comparisons proved difficult and conceptual explanations provided little more than a re-statement of older models.⁷⁵ Joseph Schumpeter’s early attempt to introduce a combination of history and ‘financial sociology’ has been ignored for a long time.⁷⁶ When it was re-discovered, sociologists seemed to have found more fruitful approaches to its extension – arguably because they found it easier to brush aside the complex issues that arise when comparing empirical data across a variety of states. Accordingly, some of the most compelling books about state finance have been written by scholars

⁷³ Root (1991). For Weberian *ideal types*: Weber, M. (1904): 64-66.

⁷⁴ Bonney (1995b); Bonney (1999b).

⁷⁵ Bonney (1995c); Körner (1995a); Körner (1995b) and Gelabert (1995). See also Bonney/Ormrod (1999), discussed below.

⁷⁶ Schumpeter (1954), originally written in 1918.

from other disciplines.⁷⁷ Financial history has to a large extent failed to recognise its potential for broader contexts, such as state-building or constitutional developments. I will organise the discussion of the main contributions which are relevant to my own study by starting with evolutionary models of fiscal states, followed by issues of revenue and taxation, and closing with the role of public credit.

For Schumpeter, fiscal history was seen as the starting point for a sociological analysis of the state. In the account books, the reality of this institution could be investigated, stripped from the ideological burden inherent to normative sources. Both the causal importance of state finance and its ‘symptomatic significance’ – the fact that almost every human action has its fiscal reflection – are interesting starting points for both historical and sociological examinations.⁷⁸ This can be applied even further than Schumpeter’s own analysis, which remained rather teleological and unilinear. The starting point of his developmental model are the medieval rulers who had to live off their own domains.⁷⁹ In addition to the direct income from crown lands, their income consisted of feudal rights (regalia) and revenue from judicial powers. Sporadic contributions from vassals and the church provided further revenue, but rulers had no general right to levy taxes. The fiscal economy of this *domain state* moved into crisis because of the growing expenses for warfare. Princes first incurred large debts, and when they could borrow no more, they turned to the estates [*Stände*] to provide taxes for common exigencies: ‘Out of the “common exigency” the state was born.’⁸⁰ What followed was the growth of a fiscal system based on the taxation of estates and the Church, which reached its peak in the late sixteenth century. As the state created its own institutions and became a separate power, taxes were no longer raised merely for extraordinary, pre-specified purposes. The concept and the machinery of the *tax state* had arrived. The political conflict then changed into one about control of this type of state. For Schumpeter, taxes not only helped to create the state, but also brought a ‘calculating spirit’ to society.⁸¹

⁷⁷ In particular Mann (1988). Exceptions are O'Brien (2001); Körner (1980); Körner (1981).

⁷⁸ Schumpeter (1954): 7.

⁷⁹ The German term *Domäne* can be translated as ‘demesne’ [e.g. by Schumpeter (1954)] or ‘domain’ [e.g. by Bonney (1995b)]. For the sake of coherence, I will adopt the latter spelling consequently.

⁸⁰ Schumpeter (1954): 15.

⁸¹ Schumpeter (1954): 16. In this, he is close to the Weberian account of ‘rationalisation’, which, however, is mainly driven by religious beliefs and cultural customs, or the famous ‘protestant work ethic’: Weber, M. (1978).

The empirical content of Schumpeter's theory about the transition from domain to tax state has been criticised. Even though taxes were extraordinary revenue granted for the common good in theory, in practice rulers had stopped living off their domain from the late middle ages.⁸² The critique of the Schumpeterian view by Bonney contains two main points.⁸³ First, that the income from domains did not decline uniformly throughout Europe. The most striking example is Prussia, where even in the eighteenth century the composition of revenue did not look like that of a tax state.⁸⁴ Second, that the administrative problems of the domain state were for the most part not inherent to this form of fiscal system and could be observed in other types of states as well. Bonney therefore opened up the definition of the domain state and introduced four different types thereof: (1) *primitive*, where rulers were obliged to consume *in situ*; (2) *less primitive*, where a central and local administration ensured collection, storage, and consumption of the rulers' goods in kind; (3) *entrepreneurial*, where payments in kind were a safeguard against price fluctuations and shortages; and (4) *colonial*, where new territories were acquired to be integrated into the rulers' domains. Another solution was adopted by Kersten Krüger, who has modified the Schumpeterian account by introducing an intermediate phase of development, in which some combination of domain revenue and taxation prevailed. By describing this mixed solution as a 'finance state' [*Finanzstaat*], he referred to Gerhard Oesterreich, who used the same term to describe a period in constitutional history.⁸⁵ In formal terms, Krüger adds little to the Schumpeterian concept, whereas Bonney's suggestions have the advantage of being suitable for typologies of fiscal constitutions.⁸⁶ A more recent study of Richard Bonney and Mark Ormrod refined Krüger's view and conceptualised his approach by presenting a developmental model of fiscal change in which states went through four broad stages: tribute, domain, tax, and fiscal state.⁸⁷

Sociologists following the classic texts by Gabriel Ardant stressed the importance of finance for the building of states. Ardant's voluminous studies are

⁸² Gelabert (1995); see also Bonney (1995a); Isenmann (1995); Körner (1994) for the ideological foundation of taxation.

⁸³ Bonney (1995b). This differs from his view in Bonney/Ormrod (1999), discussed below.

⁸⁴ For Prussian state finance: Blastenbrei (1996), Braun, R. (1975).

⁸⁵ Krüger (1980), Krüger (1983) and Krüger (1987); see also Buchholz (1996).

⁸⁶ The same critique applies to Buchholz (1996) and Buchholz (1992). The main advantage of his study is the integration of the Scandinavian literature.

⁸⁷ Bonney/Ormrod (1999).

mostly based on French material and sometimes lack thorough conceptualisation.⁸⁸ Charles Tilly formalised Ardant's thoughts and made them more accessible, as discussed earlier in this section. Ardant examined the impacts and limits of revenue collecting, listing the problems involved in early modern taxation. These include an insufficient production by largely agricultural economies with relatively low returns, the small size of the market sector, difficulties in tax collection, unequal distribution of the burdens and difficulties in tax assessment. Subsistence economies are difficult to tax, as revenue extraction is much simpler when goods circulate. Cities that depended on markets even for basic foodstuffs became easy targets for tax collectors. In the countryside, salt was heavily taxed, because it was a good that farmers could not produce themselves and therefore had to buy on markets. Other solutions to tax in the absence of markets were tithes, levies on stocks of wealth, approximate estimates (i.e. taxing whole communities instead of individuals), or flat-rate universal taxes per capita, such as poll taxes. Non-fiscal methods of financing included such 'archaic solutions' as confiscation and secularisation of church property, the venality of offices, as well as currency debasements. Maximising taxation could be made either with an emphasis on coercion ('constraint') or by obtaining compliance from taxpayers. Ardant's most important point was his emphasis that economic development could substitute for coercive ways of extraction. According to him, Physiocrats of the eighteenth century who analysed the economic impact of tithes recognised that any tax on the gross product and not net revenue perpetuated inefficient incentive structures, discouraging investments.⁸⁹

The impact of taxation on the economy is difficult to establish. Peter Mathias and Patrick O'Brien have tried to analyse this empirically for Britain and France.⁹⁰ They were criticised by Donald McCloskey, who argued that the incidence of taxation cannot be determined from a theoretical point of view.⁹¹ Nevertheless, empirical studies should be carried out with the necessary precaution in interpretation. For example, John Beckett and Michael Turner suggested that financing Britain's aggressive foreign policy through heavy taxes produced short-term adverse effects, while leading to longer-term economic prosperity. The burden of excise tended to dampen internal demand and might even have slowed the process

⁸⁸ Ardant (1975); see also Ardant (1965); Ardant (1972).

⁸⁹ Ardant (1975).

⁹⁰ Mathias/O'Brien (1976).

⁹¹ McCloskey (1978), see the reply from Mathias/O'Brien (1978).

of industrialisation.⁹² O'Brien argued that this was one of the factors that pushed business towards external and imperial markets. Despite the negative effect on internal demand, the most innovative sectors of industry, particularly textiles, remained lightly taxed.⁹³

The importance of non-fiscal impacts on tax revenue has also been considered by other scholars. Juan Gelabert, in his comparison of early modern tax burdens, stated that given the relatively low level of taxation in early modern economies and the big proportion of revenue in kind, harvest fluctuations were probably more important and certainly less predictable than taxes. The nature of taxation was also crucial: indirect taxes were relatively efficient in times of economic and population growth, such as in eighteenth-century Britain. In a situation of decline on the other hand, the reliance on pro-cyclical indirect forms of taxation could have negative effects, as Gelabert illustrated with reference to seventeenth-century Spain. Contemporary taxpayers were well aware of the regressive nature of indirect taxes, but in societies based on privilege this must have seemed a relatively effective solution. Early modern states could usually increase taxation on segments of the population that were already taxed. In urban republics, this was often the surrounding and not politically represented countryside. Only in times of acute fiscal pressure were there attempts to break out of fiscal constraints and to tax new resources. Gelabert stressed that the amount of money paid by taxpayers could be significantly lower than the sum obtained by the treasury because of the redistributive nature of the fiscal regime. France is the example of how an inefficient tax collecting system could distort the economic impact of taxation on an economy. Gelabert also analysed the impact of religion, or rather: the organisation of the church, on state finance. Exemption of the clergy from paying taxes and the secularisation of church property could have considerable fiscal effects.⁹⁴

In line with the increase in taxation throughout the early modern period was the search for ways of funding states through borrowing, which led to innovations in public credit.⁹⁵ In spite of its Italian antecedents, these developments were most

⁹² Beckett/Turner (1990).

⁹³ O'Brien (1988); O'Brien (1994).

⁹⁴ Gelabert (1995).

⁹⁵ Körner (1995b).

visible during the Dutch *golden age* and post-civil war Britain.⁹⁶ According to James Tracy, financial innovations which had enabled the Dutch to finance their war of independence were later copied by the English.⁹⁷ Peter Dickson coined the term ‘Financial Revolution’ to describe the changes that took place in Britain’s government finance after the Glorious Revolution.⁹⁸ The basic idea behind the Financial Revolution was that Parliament allowed the state to borrow on an unprecedented scale through securing tax revenue that was earmarked for servicing newly established ‘funded’ debts. This debt was issued in relatively small sums to private investors, either as annuities or through joint-stock companies. Since individual lenders could sell their financial claims on the government, this allowed for the establishment of a secondary market for government securities. Combined with innovations in the financing of long-distance trade, the national debt was thus at the origin of what Larry Neal calls ‘financial capitalism.’⁹⁹

Douglass North specified the innovations that lowered transaction costs in early modern long distance trade, which corresponded to developments in government finance: they reduced transactions costs by increasing the mobility of capital, lowered information costs and transformed uncertainty into risk.¹⁰⁰ An involvement of wealthy individuals or groups in financing the state, or what Weber called ‘politically oriented capitalism’ was not unusual in the early modern period.¹⁰¹ What was new in the Financial Revolution was that the state was now financed through the capital market, where its creditors were anonymous and widely dispersed. For governments, this financial strategy lowered the cost of servicing debts via a reduction of interest rates. To obtain such a discount, they had to mortgage future tax revenue for interest payments and abstain from a renegeing on public debt. In short, both parliament and crown (or: government) had to commit to ‘play by the rules of the capital market.’¹⁰² From an investor’s perspective, government bonds had the advantage of being relatively secure and liquid assets.

⁹⁶ For the Italian antecedents: Pezzolo (2003a); Pezzolo (2003b); Molho (1995). O’Brien argues that in Britain, many of the important developments had in fact happened during the civil war: O’Brien (2001).

⁹⁷ Tracy (1985). For a critical view: Fritschy (2003).

⁹⁸ Dickson (1993); See also Tracy (1985); Roseveare (1991).

⁹⁹ Neal (1990); Neal (2000).

¹⁰⁰ North (1991).

¹⁰¹ Weber, M. (1978).

¹⁰² Neal (2000): 124, see also North/Weingast (1989), discussed above.

Several authors have stressed the importance of financial markets for economic development.¹⁰³ The major problem with government borrowing is that it can divert financial resources away from a productive use ('crowding out').¹⁰⁴ For early modern Britain, Peter Temin and Hans-Joachim Voth recently investigated this problem with data from the private capital market, arguing that crowding out effects were limited in scale.¹⁰⁵ The problem that remains unresolved is to determine whether public debt was a direct substitute for other forms of saving and investment, especially in activities that were more productive for the economy.

If most of the research on public finance has dealt with revenue extraction by the state, this neglects the impact of expenditure. For an overall consideration of the political economy of state-building, fiscal redistribution is crucial. In an empirical study of early modern Lucerne, Martin Körner provided a detailed framework for analysing redistribution through state finances, in which he distinguished between *functions of the state*, *sectors of economic activity* and *natures of transaction*.¹⁰⁶ This approach will be described in detail in the methodology section (I-4) below, as my investigation of Bernese public finances is largely based on Körner's framework.

I-3 Analysing the Mismatch: My Hypotheses

Most of the established historiographic and theoretical approaches have major disadvantages. They are by definition simplifying and in focusing on a core of Western European monarchies, most fail to account for the considerable amount of variation between early modern states. If the losers in the state-building process were included, this would improve the quality of models considerably. Full explanatory power can only be claimed if an empirical test proves that these states failed because they did not adapt to features of the survivors. Such a test, however, is limited by the lack of data. States that disappeared have left fewer records, or rather the likelihood of their destruction is higher. Additionally, failed states have been neglected by historiography in general, which dwell on the old lament of history being written by the winners. Fortunately, some smaller states have survived. Studying these can

¹⁰³ For instance: Sylla/Tilly/Tortella (1999); Levine (1998).

¹⁰⁴ See a discussion for Britain [O'Brien (1994)] and France [Hoffman/Postel-Vinay/Rosenthal (2000)].

¹⁰⁵ Temin/Voth (2005).

¹⁰⁶ Körner (1981). He used a simplified version of this approach in comparative study of expenditure in European state finance: Körner (1995a).

increase the number of cases with which to test hypotheses, though it would also increase complexity as the emerging picture is likely to demand more specification. The reluctance to integrate republics in comparative historical analyses has been blamed by Körner amongst others, who termed them a valuable alternative to monarchic states and as polities that ‘possessed a real dynamism and a capacity to modernize.’¹⁰⁷ Considering alternatives to the major avenues of state formation could help to distinguish explanatory factors from sheer accidents. To cite an example: did the power to tax an ever-increasing amount of resources really benefit the economy? Or rather: what were the necessary preconditions under which the power to tax had a positive impact?

What I propose for this study is an analysis of Bern’s alternative path to state formation. It was not a highly successful state, and it clearly does not fit most theoretical frameworks. I will use the explanatory models in a heuristic way: if taken as typologies rather than developmental models, concepts like the Schumpeterian domain state can be useful in describing the key features of a particular situation.¹⁰⁸ By analysing the points where Bern runs counter to the theoretical explanations, knowledge about the situation of the political economy in this specific state can be derived.

Overall, the canton followed a niche strategy to state-building, which some might argue was conservative and backward. In many respects, eighteenth-century Bern was more akin to a medieval than to a modern state. It did not rely on a powerful extraction machine, which meant that the tax burden borne by its subjects was very moderate. Instead, it used alternative ways of extracting resources, such as through tithes and *corvée* labour for serving in the militia army. From their paternalistic standpoint, the patrician government were proud to offer their (supposedly) free subjects a state without taxation, run by prudent and frugal magistrates. For the most part, as illustrated by the Albrecht von Haller quote at the beginning of this chapter, they lauded the absence of a standing army and bureaucracy.¹⁰⁹ The Bernese *legitimacy* approach to the fiscal constitution can be regarded as a cost-efficient alternative to more coercive ways of state funding. In this context, the term ‘legitimacy’ is used relative to other early modern states; compared

¹⁰⁷ Körner (1995a): 394; see also Brady (1991).

¹⁰⁸ Schumpeter (1954) or Bonney/Ormrod (1999).

¹⁰⁹ See the quote above (p. 10).

to modern nation states, the canton's discriminatory ways of revenue extraction would not qualify as legitimate. Nevertheless, Bern certainly was not a predatory state, and revenue maximising was not its prime concern.

The reasons why the Swiss Confederation was not invaded or subjected to tribute payments by its larger neighbours were a combination of deterrence, *Realpolitik* and luck. Deterrence was maintained through its sizeable militia armies and mercenary troops, though their actual strength was possibly overrated by contemporary observers. *Realpolitik* kept the main powers with an interest and proximity to Switzerland at bay. The French crown and the Habsburg Empire checked each other's influence at most times and ensured that the cost of invading outweighed the benefits of ruling the relatively poor Swiss Confederation. Both powers were happy to have a neutral, or at least relatively neutral, buffer between their territories.¹¹⁰ In this situation, both powers secured what they were most interested in at a relatively low cost: safe passage through the Alps, market access and mercenaries. Finally, luck was almost certainly the main ingredient of Swiss independence. The fate of the *Pax Helvetica* at times hung on a thin thread, particularly when confessional conflicts ran wild. In the end, disagreements were solved peacefully. The Swiss had learnt their lesson in what Martin Körner called 'financial solidarity' in the sixteenth century, namely that the common interest in peaceful coexistence as a bi-confessional and occasionally dis-united Confederation offset the cost of secession.¹¹¹

Thus, in geopolitical terms, Bern virtually abstained from the European power play in the eighteenth century. The sheer existence of such peaceful states is puzzling, as the omnipresence of warfare is one of the very few explanatory variables that most theories of early modern state-building agree upon. Some of the unintended consequences of warfare on the economy – standing armies, capital markets or growth of the state itself – were not entirely absent. Bern developed along the lines of a *free rider state*, profiting from public goods provided by the belligerent European powers. Even though Mancur Olson has specified the free rider problem with view to the domestic situation, it can be applied to this situation as well.¹¹² The externalities that Bern profited from were technological, military and financial developments in

¹¹⁰ For Swiss neutrality: Suter (1998).

¹¹¹ Körner (1980).

¹¹² Olson (1965).

other states. Mercenaries who fought on Europe's battlefields were one of the most important export goods. They were also the price to pay for military independence and 'neutrality.' Furthermore, by investing part of its surplus abroad, Bern profited from the indebtedness of Britain and other powers that financed their ever-increasing national debt on the capital market.

The Model of Bern as a Surplus State

To describe the political economy of eighteenth-century Bern, I have used the concept of a *surplus state*. This term is slightly different from Körner's entrepreneurial state and Bonney's entrepreneurial domain state.¹¹³ The canton relied to a considerable part on revenue collected in kind, which could be consumed, stored and sold on the market. It combined this traditional domain income with engagement in economic activities, such as the monopoly of salt trade, grain storage, but also financial investments. This might initially be interpreted as a failure by the government to coerce its subject into contributing towards its revenue as the state was not funded through taxation. However, as I will proceed to argue the government did not *need* to tax its population. Instead, it was content with its traditional sources of revenue. This put a severe financial cap on state-building, at least as far as the shortfall of incomes from taxation could not be compensated.

The Bernese surplus state was in a positive equilibrium (a 'virtuous circle') that combined five interdependent and mutually reinforcing elements: low defence expenditure, budget surpluses, investments that generated returns, low levels of taxation and the absence of a national debt (see Figure I-2). The most important condition for this equilibrium to work was the absence of warfare.

¹¹³ Körner (1981); Bonney (1995c): 447-463. I use the term surplus state because Bern had other options than to engage in entrepreneurial activity (discussed below).

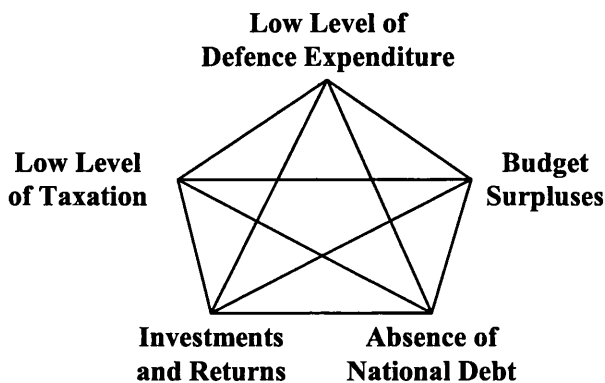


Figure I-2: Positive Equilibrium in Bernese State Finance (Surplus State Model)

I will briefly introduce all five elements of the surplus state model and discuss possible connections between them below. At this point, they should all be understood as hypotheses which have to be falsified by the empirical analysis throughout my thesis. I have limited this section to the crucial points, leaving detailed references to the discussion in the empirical chapters.

Low Level of Defence Expenditure: As a member of the Swiss Confederation, Bern abstained from expansion – and thus from warfare – from the late sixteenth century. In spite of short civil wars, the *Pax Helvetica* prevailed until 1798, sparing the cantons from the soaring bill of defending their territory in a Europe where warfare had become highly capital intensive. The defence of the Bernese republic rested on a two-tier system combining a domestic militia with mercenary troops positioned abroad that worked as a *virtual standing army*. This was a very cost-effective solution to national defence, since the militia was mainly paid for in kind by extracting forced labour and the mercenaries were funded by foreign states.

Budget Surpluses: With its frugal approach to state finance, the canton regularly spent less than its revenue. Only towards the end of the century did expenditure exceed revenue for several consecutive years, mainly because of the military threat from France. These budget surpluses accumulated in the form of ‘retained earnings’, cash or funds for investment.

Absence of a National Debt: Loans played an important part in financing territorial expansion in the fifteenth and sixteenth centuries. The resulting public debt was repaid through budget surpluses, tax revenue and *pension* payments by foreign powers for the use of mercenary troops. By the turn of the eighteenth century, Bern

had been without net public debts for over a hundred years; the government had even started with amassing considerable funds. At first, these took the form of a cash reserve that served as a war chest. Its exact amount is difficult to quantify because the government deliberately kept no accounts or inventories about the content of its vaults.

Investments and Returns: As mentioned above, budget surpluses could be invested to generate future returns. The opportunities for this were numerous. Bern had rounded its territorial possessions by purchasing lands and titles, improved infrastructure throughout the country, engaged in economic activities and invested in financial claims. The latter had started with loans on the domestic market or neighbouring territories, which could foster dependencies and political clientelism. From 1710 the canton had added foreign borrowers to its loan portfolio by granting credit to Britain and the United Provinces. These funds were later converted to purely financial investments on the London capital market.

Low Level of Taxation: Along with other Swiss republics, Bern had one of the lowest levels of taxation of any European state of its time. Direct taxation on property had been abolished in the seventeenth century and indirect taxes were moderate. Most of the tax revenue came from tithes on grain and wine, which were long-standing and legitimate sources of revenue extraction.

Although all elements of the surplus state model were ultimately interrelated, some of the connections can be specified more clearly. In particular, I distinguish between three sub-cycles of the overall virtuous cycle, namely a *militia-*, *investor-* and *representation cycle* (see Figure I-3).

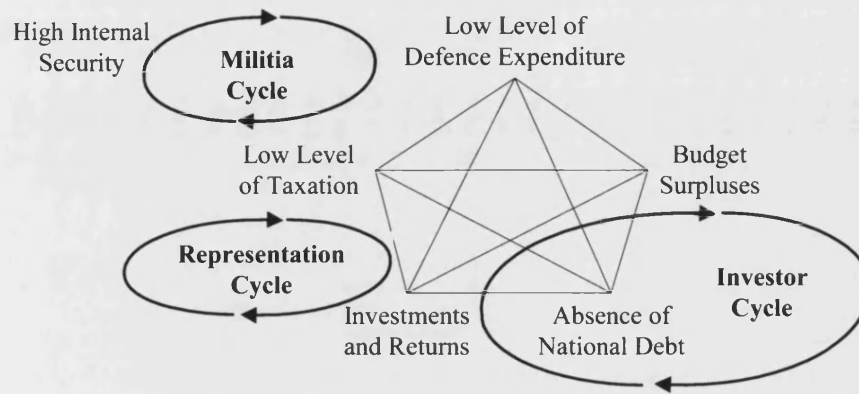


Figure I-3: Selective Connections between Elements of the Surplus State Model

The *militia cycle* relied on the provision of security without a standing army. The Bernese militia, in which in principle every able-bodied man served without compensation, triggered very little expenditure in cash. It was not funded by tax revenue, but by the extraction of labour in the form of regular training days and eventual days in battle. In addition, soldiers had to provide and maintain their own equipment. This situation had the side effect that Bernese subjects were armed, which limited the potential to impose tax revenue by coercion. The risk of armed tax rebellions was high and made any new introduction very costly from the government's perspective. Instead it relied on co-operation and compliance from subjects and local elites, Because these were well integrated into the Bernese state and had considerable local autonomy, issues of internal safety were negligible. The small number of political riots was mainly targeted at reforming the existing order rather than at its complete overthrow. This in turn made the maintenance of internal security less costly.

The *investor cycle* refers to debates about the entrepreneurial state cited earlier and can also be called the entrepreneurial cycle. The basic idea is that accumulated surpluses that are not used to service debt can provide funds for productive investment by the state. Cameralist writers suggested that a state should invest in factories, mines or infrastructure. After failed attempts to build canals in the late seventeenth century, the Bernese state invested in its road system in the eighteenth century. This attracted local and foreign traffic, which in turn generated additional customs revenue. The canton also invested in a system of public granaries which was expected to stabilise grain prices and avoid starvation in years of bad harvest. This

was part of an embryonic welfare state that included orphanages, hospitals and schools, although it remained at a very limited scale. From the late seventeenth century onwards, the state had also started to act like a bank, granting loans to private borrowers and entrepreneurs in order to encourage domestic economic development. This practice proved rather unsuccessful in the long run because there were few investment opportunities within the territory. The sole possibility of lending domestically was by mortgage credit, most of which was agricultural. The government had been involved in this market for a long time. When it effectively banned foreigners from the market, their financial claims were taken over by the state. As in the rest of the Swiss Confederation however, a lack of investment opportunities and low interest rates resulted in an oversupply of capital. This led to capital exports by private investors and ultimately by the state as well.

The *representation cycle* also relied on the returns of previous investments. It followed from the principle that these returns assured the government's independence in two ways. First, investments which could be liquidated served as a war chest in combination with the cash reserve which had fulfilled this function before. The objective was to mobilise bullion reserves for military emergencies in the first instance and then sell financial assets in the medium run if necessary. In other words, the funds fortified the geopolitical independence of the Bernese state. Second, revenue that derived from investments also secured the independence of the government (and here, the words *state* and *government* are not used synonymously). Since taxing property needed the consent of taxpayers, which was usually only granted against political participation, the absence of direct taxes helped to make the government immune to any such claims. Thus, turning the slogan of the American Revolution on its head, the Bernese government could be said to aim for a situation of 'no representation without taxation.'¹¹⁴ As this situation would potentially run against the idea of the militia cycle, the government had to walk a tight rope. A negative aspect was that overseas investments created new dependencies, because Bern was subjected to the goodwill of the states in whose national debt it had invested, Britain in particular.

In principle, Bern as a surplus state had other options apart from the investment of state funds: it could increase public consumption or lower taxation. While the

¹¹⁴ Of course, issues of taxation were only the tip of the iceberg of the American Revolution.

former was not opportune, the latter was nearly impossible. Public consumption was strongly disliked by the frugal Bernese patricians. Their republican-cum-protestant ethos limited expenses for lavishing representation. Strict sumptuary laws – which were not always strictly followed in practice – were intended to maintain a social order in which the equality between citizens was paramount. It was combined with a differentiation from non-citizens, which were the majority of the canton's population that were not represented in the government. Although the ruling elite adapted new fashions throughout the eighteenth century, this was capped by internal checks. The limits on personal expenses also applied to public finance, in which representation was limited just enough to still ensure that political power remained visible and unquestioned. The patricians considered the state their 'family affair' and took a long-term view to the sustainability of its budget accordingly. Savings and investments translated into a provision for future generations; to overspend would be viewed disapprovingly as living off them.

To *lower taxation* was also difficult, as paradoxical as it might sound. Limiting tithe collection was practically impossible without forfeiting this right completely because its rate was fixed historically. Tithes were highly legitimate, and the fact that they were levied as a proportion of revenue made them relatively easy to bear. When harvests were abundant, farmers could more easily spare part of their returns. In times of bad harvest, the government was probably more lenient in collecting tithe revenue, although empirical evidence on this is understandably hard to come by. All other taxes were comparatively low by European standards. Although the government could have reduced tariffs or its monopoly profit on salt sales, the scope for doing so was relatively small. After all, the state needed to maintain a minimal infrastructure of tax collection in place as a last resort for times of hardship. Since introducing new taxes was difficult and costly, it is most likely that the government would have had to rely on an increase of current forms of taxation to boost its revenue in an emergency. Finally, there was also an element of 'keeping up with the Joneses' in taxation. With potential competitors relying on increasing funds provided by taxation, Bern was in danger of falling behind its competitors in geopolitical terms.

Bern's reliance on tithes as a source of revenue induced a dependency on agricultural returns, which was only a partial blessing. On one hand, it made planning difficult, since harvests could fluctuate severely across time. On the other hand, the

state could profit from improvements in agricultural productivity and price increases for agricultural products. Arguably, it could also have profited from these by taxing agricultural income through an income tax; its collection would almost certainly have been more expensive than the ‘tax at source’ solution of tithes. The reliance on the primary sector seems backwards and un-dynamic from a teleological perspective. From an eighteenth-century standpoint however, agriculture was a leading dynamic sector. It was natural for the government to rely on lands and their produce as the main source of resource extraction: they were immobile, hard to hide and easy to tax. The government’s stake in high agricultural returns also partly aligned the interests of ruling patricians and agriculturalists. Both groups aimed to generate higher agricultural returns. It is not surprising, therefore, that physiocratic ideas and a desire to improve agriculture featured prominently among government members. Innovations that would undermine the existing order, such as the introduction of (tax free) potatoes on a large scale, were deliberated reluctantly.

I-4 Methodology and Sources for Empirical Evidence

This section will outline the main methodological premises of my study, which will be discussed in more detail in the empirical chapters. In particular, I will address the problem of how values can be determined in non-market societies like the Bernese, which was only partly monetised. Finally, I will present the main types of empirical evidence that I have used for my thesis.

Methodology

There are two underlying premises for my research. First, it is important to consider both revenue and expenditure of the government and second, using analytical criteria is preferable to relying on categories used in the eighteenth century. Both approaches have been pioneered by Martin Körner and refined by his students.¹¹⁵ With respect to the first premise, by comparing the structure of revenue with that of expenditure, it is possible to determine how the state redistributed resources within an economy. This is crucial in determining the economic effects of

¹¹⁵ Körner (1981); Hagnauer (1995); Hagnauer/Bartlome (1998).

state-building. As a result of the second premise, I classify information from historical accounts within a framework that is based on accounting standards used in present-day Swiss cantons. In particular, I follow their distinction between current transactions and investments (to which I refer as inventory transactions).¹¹⁶ The former describe all financial activities that did not have an impact beyond the current budget, the latter are revenue and expenditure that affect assets of the state. They therefore have the character of investments or capital formation. In the context of a surplus state, the importance of the distinction becomes obvious. Inventory transactions describe all relevant revenue and expenditure connected with investing surpluses and provide information of how well the surplus state's investor cycle was funded.

One could argue that the application of accounting categories for modern states cannot accommodate for the complexities of early modern states. This should not be used as an argument for neglecting analytical distinctions, but rather as an encouragement to extant present-day accounting categories in a way that is useful for historical research. Where necessary, I have therefore made adaptations to ensure that eighteenth-century circumstances are appropriately reflected. Other complexities are explicitly mentioned, such as the attempts to unify values, discussed under the next heading. Another possible objection is that using an analytical framework cannot do contemporary actors justice. Government members, so the argument goes, did not distinguish between rigid analytical categories and had often only fragmented information at their disposal. Whatever the case, it does not invalidate attempts to go beyond what contemporaries thought they were doing. It is the very essence of social science to explore structures that contemporaries fail to recognise. The alternative would be to limit research to the knowledge of contemporaries, in which case it could provide little more than a re-edition of primary documents. After all, the same would apply to all concepts of historical research, ranging from *social discipline* to *absolutism* – and, of course, *state-building*.

Finally, some would argue that limiting the state to its financial records is an accountant's view of history. There is certainly some truth in such a statement if government ledgers are considered the only source of information. On the other hand, it can be argued that finance was the vital lifeline to any form of government activity.

¹¹⁶ See Section III-1 and Section IV-1 below.

Budgets often reveal more about the true nature of a government than lofty policy statements about its intentions. An analysis of state-building should also accommodate for non-financial effects, however. I will discuss this briefly for the Bernese case in a designated section (II-6), using normative sources as complementary evidence.

Determining Values in Non-Market Societies

Early modern economies were to a large extent dependent on non-market exchange. The degree of commercialisation or ‘marketisation’ depended on several variables, including urbanisation, division of labour and taxation. In this situation, the state could not rely entirely on a monetised financial system as this would expose it to inflation. In years of bad harvest, when grain prices were high, the state and its money-earning employees would find it difficult to find grain on the market at an accessible price.¹¹⁷ As a preventive measure, the budget of early modern states often included a significant component of transactions that were collected in kind.¹¹⁸ Salary payments were also partly paid in grain to secure their purchasing power. The interplay between cash transactions and transactions in kind was therefore an important aspect of Bernese state finance in the eighteenth century. For a coherent analysis however, all transactions must be converted into a single measure – preferably in a stable currency – using information on relative prices. This is the only way to compare figures in a meaningful way. When doing so, it is important to bear in mind that any measure based on standardised prices is simplifying and anachronistic.

Collecting revenue in kind represented more than just a failure to standardise accounting practices. By converting minor land rents into monetary units, governments demonstrated that they were perfectly capable of executing such reforms. In addition to acting as inflation buffers, grain and wine revenue could be stored as contingencies in the event of a military attack. Public inventories were also used to limit price fluctuations; selling their contents in times of critically high prices during a harvest crisis should reduce prices and cover shortages. In combination with import and export regulations, public inventories were therefore used as a tool for

¹¹⁷ Persson (2002): ch. 1-3.

¹¹⁸ See also Bonney (1995c): 463-472.

economic policy. As a convenient side-effect, an anti-cyclical selling strategy should also guarantee that grain was sold at high prices and hence generate a good return on storage investments.

Determining the exact value of goods in non-monetised economies is both difficult and complex. In general, any value can be expressed in kind, labour or money (see Figure I-4).

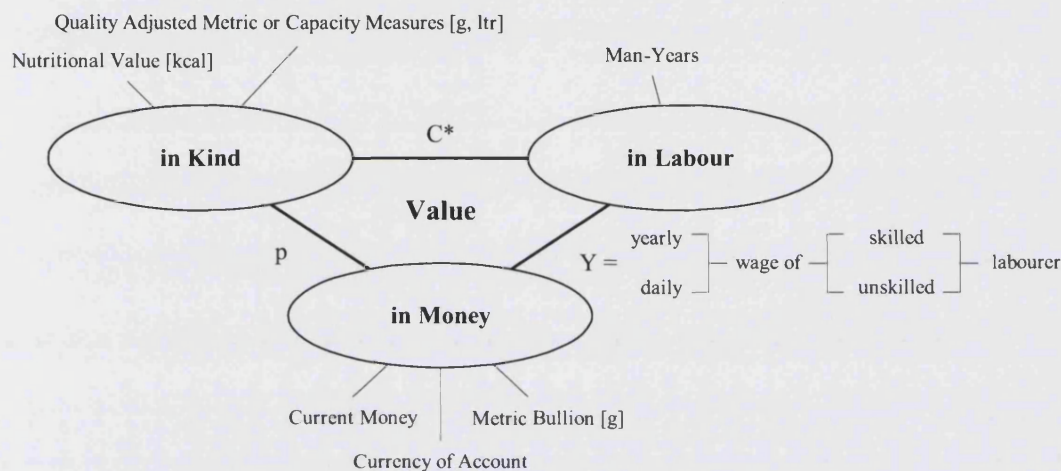


Figure I-4: Determining Values in Non-Market Societies

Units are in square brackets. Abbreviations: Y = wage; p = Price; C^* = Consumption

Proportions between these units are determined by prices, wages and food consumption. Of these, only the latter were stable. Prices and wages fluctuated and have to be valued with information recorded in accounts. Throughout my study, I will use the Bernese Batzen as currency of reference. The Batzen was a stable accounting currency, which means that it was not minted but related to a fixed amount of bullion. As a proxy, one Batzen was the equivalent of 0.7g of fine silver and 0.09g of fine gold (see Section VII-13 in the appendix for details). This is the best way to make results comparable across space and time, although some authors prefer to use non-monetary units, such as wages, grams of quality adjusted grain or calories (kcal).¹¹⁹ Once the terms of conversion are fixed, the choice of a basic unit should not alter the results, at least not for a short-term or cross-section analyses. For a long-term perspective, inflation has to be taken into consideration.

¹¹⁹ Strictly speaking, wages are not a measure for labour, but for the price of labour.

While the Batzen was stable in its bullion content, its purchasing power varied across time. Even when inflation rates were under 1% per annum, this could make a considerable difference in the long run. The Batzen mainly lost value compared to foodstuffs (grain and dairy products); real wage inflation was lower, as were price increases for manufactured goods.¹²⁰ The best way to face the challenge that these inflation rate differences pose is to calculate key figures in a variety of equivalents and compare them. I will do this in particular in the structural analysis (Chapter IV), for which good empirical price evidence is available. The downside of using the Batzen as a main unit for my analysis is that, again, it is an abstraction from reality. By neglecting complexities of the interplay between monetary and non-monetary transactions, it is also anachronistic. To compare values across time and space, it remains the best option, however.

Empirical Data and Material for Comparison

In this heading, I will briefly outline the main types of resources that I have used for my analysis. The documents and series will be presented in more details in the relevant parts of the empirical chapters. In general, I rely on a combination of edited information and primary research carried out in Swiss archives.

Edited empirical material about the early modern Bernese economy is scarce. Even the most elementary measures, such as population and GDP estimates are sporadic and unreliable. The figures which are available have largely been provided by Christian Pfister, who has written the most comprehensive study of the Bernese economy and compiled the *Bernhist* database.¹²¹ I have also used Pfister's earlier work on tithe revenue and grain prices.¹²² Further information on grain prices comes from studies by Ernst Bucher, Georges André Chevallaz, Erika Flückiger Strebel and Patrick R. Monbaron.¹²³ Other financial data of the canton has not been edited so far, except for Julius Landmann's study on foreign capital investments.¹²⁴

¹²⁰ For a detailed discussion on inflation rates, see Section VII-14 in the appendix.

¹²¹ *Bernhist* database: <http://www.bernhist.ch>; see also Pfister, C. (1995) and other publications by the same author.

¹²² Pfister, C. (1975) and Pfister, C. (1984); for an English version: Pfister, C. (1978).

¹²³ Bucher, E. (1944); Chevallaz (1949); Flückiger Strebel (2002); I thank Dr. Monbaron for letting me use his data on Lausanne market prices.

¹²⁴ Landmann (1903) and Landmann (1904). His text relies on the *Historie der Ausländischen Stands Capitalien* of 1776 (StABE B VII 2389).

The most important part of my research is based on primary sources. In particular I have analysed accounting records of the canton in the public record offices of Bern, Argovia and Vaud.¹²⁵ This data has been transcribed in the context of a research project carried out at the University of Bern between 2000 and 2002.¹²⁶ For overseas investments by the canton, I have used archives in London, as well as transcripts of relevant documents or time series from other scholars.¹²⁷ Qualitative material from my study is mainly from government reports and legal documents, some of which has been edited in the series *Sammlung Bernischer Rechtsquellen (RQBE)*.¹²⁸

Research about the impact of the state on the economy should ideally be carried out with a comparative approach. Differences in currency and accounting practice make standardisation necessary for inter-state comparison. Accounting standards, categories, or time periods were not universal, and the contemporary practices often confuse rather than clarify the situation. However, these factors should not discourage comparative research. While extrapolating data can surmount a number of them, the remaining differences have to be acknowledged to avoid painting with too broad a brushstroke. The *European State Finance Database (ESFDB)* and the two accompanying volumes edited by Richard Bonney provide ample empirical material for comparing patterns of revenue and expenditure across different states.¹²⁹

Comparative cases to Bern can be found in the first instance in the other states of the Swiss Confederation. The aforementioned work by Körner about Lucerne remains the benchmark in extent and depth of analysis.¹³⁰ Other Swiss cantons have been studied by H. Büchli (Solothurn), Hans Conrad Peyer (Zurich), or Artur Vettori (Basel).¹³¹ Outside Switzerland, it is difficult to find comparative examples for early

¹²⁵ Staatsarchiv Bern (StABE); Staatsarchiv Aargau (StAAG) and Archives Cantonales Vaudois (ACV); Burgerbibliothek Bern (BBB).

¹²⁶ Forschungsprojekt BeFin: <http://www.befin.hist.unibe.ch>; see also Körner (1997). I was working as a research assistant and coordinator for the project.

¹²⁷ Public Record Office, Kew (PRO); Bank of England Record Office (BERO); British Library (BL). I thank Nick Linder, Béla Kapossy, Larry Neal and Gary Shea for sharing their data with me. The use of their transcripts will be credited throughout the text.

¹²⁸ *Rechtsquellen des Kantons Bern* [abbreviated as *RQBE*], several volumes and years. It is part of the series *Sammlung Schweizerischer Rechtsquellen*. Government reports are mainly from the Staatsarchiv Bern (StABE).

¹²⁹ European State Finance Database (ESFDB): <http://www.le.ac.uk/hi/bon/ESFDB/>; Bonney (1995b); Bonney (1999b). In particular, I relied on the comparative articles by Bonney (1995c); Körner (1995a) and Gelabert (1995).

¹³⁰ Körner (1980); Körner (1981); Körner (1999).

¹³¹ Büchli (1916); Peyer (1968); Vettori (1984).

modern states in such a fortunate financial situation. Of the major powers, only Prussia managed to avoid a net national debt, at least until the end of the reign of Frederick II (1786).¹³² There might be similar comparative cases in small German states.¹³³ Venice was debt-free from the seventeenth century as well.¹³⁴ In addition, studies about surplus states of the early twenty-first century like Singapore or Norway, Kuwait and other oil states might share some of the conceptual problems. Another example for an early modern free rider strategy was the Landgrave of Hesse-Cassel, who sold mercenary services to Britain and invested the return on the London capital market in the late eighteenth century.¹³⁵ The major monarchic states, Britain and France, for which there is ample research, can only serve as counter-examples to the situation in Bern.¹³⁶ The same is true for the Dutch republic.¹³⁷

I-5 The Organisation of my Thesis

In Chapter II, I will introduce the political organisation of the eighteenth-century Bernese republic. This will provide the necessary background for the empirical analysis that ensues in the subsequent three chapters. Chapter III presents a long-term overview of the government's most important accounts. It concentrates on the state's assets and draws on aggregated data. This is complemented with a structural analysis (Chapter IV), for which I have collected information on all available accounts of the Bernese state in two sample years, 1732 and 1782. The third empirical chapter (V) will consider the 'crown jewel' of Bernese state finance, the canton's financial investments overseas. The conclusion (Chapter VI) will sum up the most important findings and discuss them further.

The main points of each section will be summarised in the last paragraph to provide quick orientation. All non-essential information has been organised in the appendix.

¹³² Blastenbrei (1996); Braun, R. (1975).

¹³³ See Buchholz (1996) who focuses largely on Germany.

¹³⁴ Pezzolo (2003a); Hocquet (1999).

¹³⁵ Ingrao (1987). Interestingly, the Hessian 'business model' looks similar to that of sixteenth-century Swiss states: see Körner (1980) and Körner (1999).

¹³⁶ The literature on these countries is abundant. For an overview, see Bonney (1999a); O'Brien/Hunt (1999).

¹³⁷ Hart, M.t./Jonker/Zanden (1997).

II Res Publica Bernensis

II-1 Introduction, Chapter Overview and Historiography

In 1714, the government of Bern decided to change its official seal (see Figure II-1). While the earlier version from 1470 had referred to the state as *Communitas Villae Bernensis*, the new version called it *Respublica Bernensis*.¹³⁸



Figure II-1: Seal of the Res Publica Bernensis

Source: Capitani (1991): 71. The seal was made in 1716/17 by Justin de Beyer after a design by Johann Rudolf Huber, 1716/17.

The new seal was a belated acknowledgement of the transformation that Bern had undergone since the late Middle Ages. It was no longer an Imperial city, but had become an independent, sovereign territorial state. Like its Roman predecessor, the Bernese republic had conquered and acquired a territory that surpassed the original city by far. By the eighteenth century, its area covered roughly a third of the Swiss Confederation. Changing the terminology of the seal also symbolised another transition: that political power had been gradually transferred from a community of citizens to the authorities of the republic, which had become increasingly aristocratic in nature.¹³⁹

¹³⁸ The original text says *Rei Publicae Bernensis Sigillum Maius* (Great Seal of the Bernese Republic). A small seal with the same expression (*Sigillum Minus Rei Publicae Bernensis*) had been ordered in 1678 but was not used before 1716. See Bernisches Historisches Museum (1991): 375-376 and Capitani (1991): 70-71, with reference to Fluri (1924). According to Feller (1955): 427-428, the term *Res Publica Bernensis* was only introduced in 1722.

¹³⁹ Geiser (1891): 96.



This chapter will discuss constitutional arrangements and political outlook of the Bernese republic in the eighteenth century. Its aim is twofold: to explain the outcome of the state-building process and describe the structure within which state-building occurred. It presents the state largely from a functionalist perspective. The remainder of this section will introduce the most important aspects of the historiography. In the next section (II-2), I will examine characteristics of Bern as a state, notably its relation to competitors for political power and the absence of taxation. Section II-3 will present the territory and population. The nature of the patrician government and its administration will be analysed in Section II-4, and the canton's geopolitical and military strategies in Section II-5. The role of the Bernese state as a provider of non-financial goods is discussed separately (Section II-6). Finally, Section II-7 provides a brief introduction of the republic's fiscal constitution, intended as background information for the empirical chapters that follow (Chapters III-V). The concluding remarks of this chapter (Section II-8) will attempt an overall assessment of Bernese rule.

Historiography

Historians referred to early modern Bern as the 'largest city-state north of the Alps.'¹⁴⁰ Although a frequently used description, it can be somewhat misleading. This reference to Bern as a city-state neglects the fact that it was a territorial state in which the city itself was relatively small. The latter's maximum population of 15,000 by the mid-eighteenth century only covered a fraction of the 300,000 population that lived in the territory of the canton. Compared to German city-states like Hamburg, Bremen or Frankfurt am Main, the *city* of Bern was small in size. As a territorial republic, however, the canton was surpassed by the Dutch United Provinces.

My historiographic overview refers to selected studies that have been particularly useful for my research. A more systematic coverage can be found in the series *Bibliographie der Berner Geschichte*, edited since 1975.¹⁴¹ Amongst the

¹⁴⁰ See Messerli/Egli (2003): Title and Pfister, C./Egli (1998): 34. This expression implies the comparison to the largest such polity South of the Alps, Venice, which was not a city-state in the strict sense either.

¹⁴¹ *Bibliographie der Berner Geschichte*, ed. by Burgerbibliothek Bern (yearly, since 1975). Newer versions online [<http://aleph.unibas.ch/>]; see also the journals *Berner Zeitschrift für Geschichte und Heimatkunde* and the older *Blätter für bernische Geschichte, Kunst und Altertumskunde* (1905-1929); as well as the series *Archiv des Historischen Vereins des Kantons Bern*.

historiography of early modern Bern, Richard Feller's epic four-volume *Geschichte Berns* stands out.¹⁴² It covers the political, cultural and economic history of the republic before 1798. The author's poetic writing style and the dearth of references make the work prone to mixing solid facts, anecdotes and florid imagination. Because of these stylistic challenges, some of Feller's interpretations should be examined critically, in spite of a generally high degree of accuracy of his account. Anton von Tillier's *Geschichte des eidgenössischen Freistaates Bern* from 1838 is mainly impressive and renowned for its outstanding coverage of archival material.¹⁴³ The constitutional history of *Ancien Régime* Bern by Karl Geiser is a seminal work on the topic, which has been recently complemented by studies from François de Capitani and Béla Kapossy.¹⁴⁴ Capitani has also contributed to the most recent textbook article about Bern in the *Historical Dictionary of Switzerland*.¹⁴⁵ Over the past few years, a series of inter-disciplinary studies on Bernese history have been published, covering the Middle Ages to the seventeenth century; a volume for the eighteenth century is currently in preparation.¹⁴⁶

The former subject territories Argovia and Vaud have been written about separately in monographs and specialised journals.¹⁴⁷ For Vaud, the historiography of the period before 1798 has traditionally been anti-Bernese, being only rarely challenged by 'revisionist' studies.¹⁴⁸ Today, the attitude of historians is more relaxed and provides a balanced account, combining positive and negative aspects of Bernese rule. This is best illustrated by the introduction in the most recent overview of Vaud before 1798, written for the bicentenary of independence.¹⁴⁹ The Bernese period is less well researched for Argovia.¹⁵⁰

¹⁴² Feller (1946); Feller (1953); Feller (1955); Feller (1960).

¹⁴³ Tillier (1838-1840).

¹⁴⁴ Geiser (1891), see also Geiser (1932); Capitani (1991); Kapossy (2002); for a more superficial version: Wälchli (1981).

¹⁴⁵ HLS (2002), article *Bern*: 253-274.

¹⁴⁶ Beer et al. (1999); Schwinges (2003); Hostenstein (2006); The eighteenth century volume is planned for 2008 under the title *Berns goldene Zeit* (Bern's golden age).

¹⁴⁷ More recent contributions are: Gallard (1970-87) [esp. vol 4]; Hubler (1991) or Flouck et al. (1998); see also the *Bibliothèque Historique Vaudoise* series and the journal *Revue Historique Vaudoise*.

¹⁴⁸ For Vaud, classical anti-Bernese interpretations are Olivier (1837) and Verdeil (1849-1852). For a 'revisionist' approach: Gaillard (1935), although with a focus on earlier centuries.

¹⁴⁹ Monbaron (1998b).

¹⁵⁰ Verein Forschungsprojekt Aargau 1798 (1997); HLS (2002): Article *Aargau*; and the journal *Argovia*.

II-2 Bern as a State

In the introduction, I argued that Bern can be defined as a state in the Weberian sense of being a set of institutions which successfully claimed the monopoly of legitimate violence within its territory.¹⁵¹ This section will investigate the relation between the elements of *government* and *state* more closely, which will then be used synonymously in the rest of my thesis. The nature of the Bernese government itself will be the subject of a subsequent section in this chapter; for now, it will be considered a ‘black box’. In this section, I will elaborate in more detail how the above definitions of the state match the realities of eighteenth-century Bern by first examining the different levels of governance. In particular, the issue of communal autonomy is addressed in this context. I will then discuss the Bernese approach to state-building more specifically by referring to one of its most distinctive features, the absence of direct taxation on property.

The government of the canton constituted one of several layers of state activity in Bern, though arguably the most important one. Before these are explained in greater detail, it is worth noting the absence of two factors that limited sovereignty in other states: the Church and nobility. In 1528, Bern had introduced the Reformation by government decree. To safeguard the spiritual needs of its population, Bern established a state church which was funded through appropriated church lands and titles. The latter included the right to levy tithes. The government secularised church administration and assumed the tasks of poverty relief, schooling and monitoring public morality. In practice, these costly functions were delegated to parishes and communes, over which the state assumed a supervisory role. Correspondingly, the Bernese state church quickly became an indispensable tool of administration, as pastors often performed official and semi-official functions on behalf of the government. The clergy was recruited and employed by the state based on recommendations by religious advisory councils.

The nobility as the other traditional rival for political power was not organised as an independent group in Bern. Within the city republic, noblemen were part of the government itself, as will be discussed below. Nobility from the territory were included in matters of local administration individually, often securing subordinate

¹⁵¹ Weber, M. (1978): 54-56. For the Bernese state in general: Geiser (1891); Feller (1955): 106-129, 330-337, 427-471; Capitani (1991).

positions in a quasi-dynastic manner. However, they were not organised as a group across the canton, nor were they represented as an estate in government.

The remaining competitors of the Bernese government were found in the Swiss Confederation, higher up in the state hierarchy, and in counties and communes at a lower level (see Figure II-2).

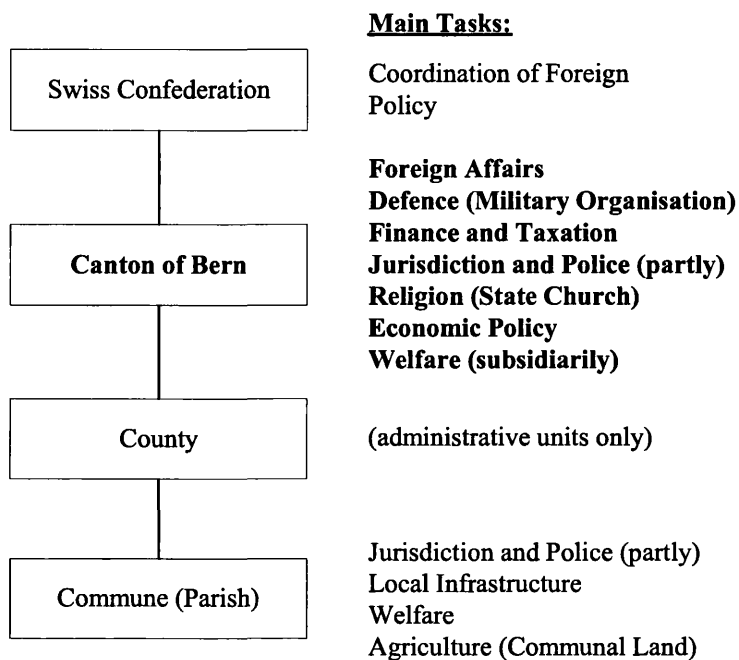


Figure II-2: Levels of State Activity and Main Tasks in Eighteenth-Century Bern

Bern became a member state of the Swiss Confederation in 1353.¹⁵² Although it was by far the largest of the cantons in the *Corpus Helveticum*, it did not have any formal prerogatives and was only a *primus inter pares*. The Confederation was a complicated system of bilateral and multilateral alliances in perpetuity between the XIII cantons and their numerous allies. The cantons were never formally incorporated into a federal (or even central) state. In 1648, the Swiss were granted exemption from the Holy Roman Empire of German Nations and obtained formal sovereignty. In practice, they had been independent from as early as 1499, when they ceased to make

¹⁵² Strictly speaking, one could not 'join' the Swiss Confederation, as it was only a system of mutual alliances. Also, the year 1353 should be seen as a proxy rather than an actual date. For the term *Corpus Helveticum*: Peyer (1978): 675 (note 2). Amongst the allies of the Swiss Confederation were cities (St. Gallen, Mülhausen or Geneva), monarchic (principality of Neuchâtel) and quasi-monarchic (prince-bishop of St. Gallen) states, as well as federal republics (Grisons, Valais).

financial contributions towards the Empire. In practice, sovereignty was with the cantons, which also had the military means to guarantee and protect it.¹⁵³ A fragile equilibrium was maintained between the different interests of Protestants and Catholics, as well as urban and rural republics within the Confederation. Overall, the existence of the *Corpus Helveticum* was guaranteed more through ‘balancing conflicts’ and a shared determination to defend a common existence, than harmony between its constituent parts.¹⁵⁴

The Confederation had no central institutions except for the Federal Diet, which was in essence a congress of ambassadors of sovereign states. Its decisions required ratification by the cantonal governments. Only minor administrative matters were decided by majority vote.¹⁵⁵ The Diet functioned as a court of arbitration between competing cantons and coordinated their foreign policy (discussed in Section II-5). With its military might and comparatively well-developed administration, Bern was clearly the most powerful Swiss state, though it was contingent on co-operation from its allies. The Confederation was not a serious competitor to Bern’s state-building process, because any delegation of state functions by the sovereign cantons was voluntary.

The same can be said of the counties, which by the eighteenth century had become pure administrative units without political power. They lacked independent institutions and were not represented within the government. County enquiries, in which subjects were asked for their opinion on specific political issues, were the closest Bern ever got to a Weberian *Ständestaat* which accommodates political representation from different social groups.¹⁵⁶ This form of co-operation which had been regularly used in the sixteenth century went into abeyance and was organised for the last time in 1614.¹⁵⁷ In the eighteenth century, county-enquiries were entirely absent and the counties firmly controlled by the government.

¹⁵³ For the concept of sovereignty: Spruyt (1994) – see also note 14 above.

¹⁵⁴ Capitani (1986): 488.

¹⁵⁵ See for the Confederation in general: Im Hof (1977) or Peyer (1978).

¹⁵⁶ Weber, M. (1978): 1085-1087.

¹⁵⁷ Wälchli (1981): 129. See also Holenstein (2000).

Communal Autonomy

More serious challenges to the government's claim to a monopoly of legitimate violence came from the communes.¹⁵⁸ In the everyday experience of Bernese subjects, these political units were arguably as important as the state because they regulated a broad range of activities.¹⁵⁹ Peter Blickle has found that the far-reaching self-government of the Swiss communes of the later Middle Ages ('communalism') was better developed and remained stronger than in most of the Empire, where communes had been largely integrated in the administration of sovereign states.¹⁶⁰ André Holenstein has refined Blickle's findings for sixteenth- and seventeenth-century Bern, for which he emphasised the importance of co-operation between communes and state administration.¹⁶¹ Unfortunately, documents about decision-making processes at the local level are scarce and there is scant research about communal autonomy in the eighteenth century. Some local studies describe the experience of particular villages, cities or parishes.¹⁶²

As their main tasks, Bernese communes had to provide lower levels of jurisdiction, poverty relief, schooling and infrastructure.¹⁶³ In those parts of the canton that practiced a crop rotation system, an assembly of landowners also decided on how the communal lands were used.¹⁶⁴ Furthermore, communes played an important role in the Bernese military system, as the militia was organised and partly funded at this level. The control of the troops remained entirely with the government, however (discussed in Section II-5). The sheer fact that subjects were armed illustrates how far the authorities needed to base their decisions on consent, as more coercive strategies would have been met with violent resistance. Bernese officials oversaw communal autonomy and kept it in line with the government's interest.¹⁶⁵

While the judicial rights of the communes were long-standing, poverty relief was only delegated to them as late as the seventeenth century, with the state making

¹⁵⁸ For simplicity, I will refer to the local political units as *communes*. However, there were several levels of communality in eighteenth-century Bern: parishes, *Burgergemeinden*, *Rechtsame- and Gütergemeinden*, etc. See Scribner (1996): esp. 294-298 and for Bern: Pfister, C. (1995): 25-27.

¹⁵⁹ Holenstein (2005): 262.

¹⁶⁰ Blickle (1981); Blickle (1991); Blickle (2000).

¹⁶¹ Holenstein (1998).

¹⁶² Especially Schmidt, H.R. (2005) [Worb]; Bartlome (1999) [Aarberg] or Bietenhard (1988) [Langnau].

¹⁶³ See for Worb: Holenstein (2005), who also includes fire defence as one of the commune's tasks.

¹⁶⁴ This is discussed in more detail in Section II-6 below.

¹⁶⁵ See also Pfister, C./Kellerhals (1989).

only subsidiary contributions.¹⁶⁶ This can be considered an act of reversed state-building, where a government imposed an unpopular and expensive task on communes to deal with it on the local level. An unintended consequence of that action was that the need to fund these expenses provided communes with independent funds, thus increasing their autonomy and political bargaining position in the medium term.¹⁶⁷ In rural areas, poverty relief often had the lion's share of communal budgets. To raise revenue, communes had several options that were often applied simultaneously. They could lease out common land to the poor, distribute aid in kind, finance relief from their communal funds or levy specific taxes.¹⁶⁸ Empirical evidence on communal tax burdens is scarce and points towards high inequalities both regionally and between different members of communes (see Section IV-5 below).

Legitimacy through Low Taxation

The financial situation of Bern will be discussed in more detail in the empirical chapters III and IV. In this context, the focus is solely on the impact of taxation – or rather, the lack thereof – on the legitimacy of political rule. It is sufficient to note that since the late seventeenth century, the state itself did not levy any direct taxes on property. The major tax revenue of the canton came from tithes, a 10% tax on agricultural revenue.¹⁶⁹ It was mostly levied on former Church lands and had originally served the purpose of covering the costs of the local priest and poverty relief. Part of the former Church domain had been handed to communes or parishes when poverty relief was delegated to them.¹⁷⁰ As a long-standing tax, the tithe was considered legitimate and never fundamentally questioned.¹⁷¹ In some parts of the canton, mainly in Alpine regions, tithes had been discharged in late-Medieval times.

The absence of direct taxation by the state was a distinctive feature of early modern Swiss republics.¹⁷² Although this had been a common strategy for city republics in late medieval times, by the late sixteenth century most found themselves

¹⁶⁶ See also Flückiger Strebel (2002); Flückiger Strebel (2005). Depending on the region, it was delegated to communes or parishes. Both in absolute terms and relative to population growth, poverty seems to have increased throughout the eighteenth century.

¹⁶⁷ Bietenhard (1988): 262.

¹⁶⁸ The communal funds for poor relief (*Armengut*) usually consisted of both land and capital.

¹⁶⁹ For tithes in Bern: Gmür (1954) and Pfister, C. (1975). In Vaud, the actual tithe rate was only an eleventh: Monbaron (1998a).

¹⁷⁰ See for example: Flückiger Strebel (2005) [for Worb].

¹⁷¹ See also Gmür (1954).

¹⁷² Körner (1999)

deeply in debt.¹⁷³ In Bern, occasional taxes were imposed in the seventeenth century for specific purposes. In spite of moderate rates, they met with stiff resistance. When the government tried to introduce a 0.1% tax on property for the whole territory in 1641, it faced organised protests which achieved that instead of the intended period of six years, the tax was only levied for a single year.¹⁷⁴ The culmination of resistance was the peasants' revolt of 1653 in Bern and other parts of Switzerland.¹⁷⁵ Although this was not a tax revolt in the strict sense, it had fiscal overtones. The main cause for the revolutionary outbreak was currency devaluation by the government, also identifiable as a (debasement-) tax. The peasants formed an alliance, besieged the city and questioned its political legitimacy. Bernese authorities oppressed the rebellion with loyal troops from Vaud and support from Zurich. The revolt of 1653 was a mixture of religious protest, struggle for political hegemony within the Confederation and an uprising against political rule. Although the civil war by itself caused little disruption, its impact on future political developments should not be under-estimated, for it revealed the limits of the state's power to modernise political structures. It made the Bernese authorities aware that their survival depended on co-operation by their subjects. Accordingly, the government rejected a project for introducing a perpetual tax on property in 1697.¹⁷⁶

This absence of direct taxation played an important part in the government's strategies to legitimate its rule in a paternalistic way. The statement of Albrecht von Haller quoted in the introduction to the previous chapter illustrates how proud Bernese patricians were to offer their subjects a state without taxation.¹⁷⁷ In his *Speech of a Swiss about the Happiness of Subjects under a Free Government*, Alexander Ludwig von Wattenwyl went even further when he tried to convince the Bernese population that despite being deprived of political rights, they lived in a state of liberty because the republic hardly depended on taxes.¹⁷⁸ Although such attitudes seem paternalistic from today's perspective, in the context of early-modern states Bernese subjects were relatively free of feudal obligations and, as will be discussed later, their fiscal burden was exceptionally low (see Section IV-5 below).

¹⁷³ Hocquet (1995).

¹⁷⁴ Wälchli (1981): 131; Landolt (1990). A yearly tax of 0.1% on all property for defence purposes had been levied within the city of Bern from 1628-1634, and the Pays de Vaud paid an extraordinary tax from 1635 onwards after initial protests.

¹⁷⁵ Holenstein (2004); Suter (1997).

¹⁷⁶ Feller (1955): 500.

¹⁷⁷ See the quote of Albrecht von Haller in Chapter I (p. 10 above).

¹⁷⁸ Quoted from Kapossy (2002): 237.

In summary, although the Bernese government anchored its rule on co-operation from its subjects, it qualifies as a state wielding a near-monopoly on legitimate violence. Church, nobility and communes were successfully integrated into the state under government control. While communes had wide-ranging autonomies and were important institutions for subjects' everyday lives, they were never serious competitors for the state's monopoly of legitimate violence in the eighteenth century. Even if their privileges and liberties imposed a limit to centralised state-building, the situation was one of mutual dependency and co-operation. The local autonomy that communes enjoyed did not guarantee them any representation within the government of the republic. After the abolition of the county enquiries in 1614, there was no formal participation of subjects in the political affairs of the canton. The ruling elites used the absence of direct taxation as the most important element in their claim for legitimacy.

II-3 Territory, Population and Economy

Eighteenth-century Bern was the largest state of the Swiss Confederation in land area and population. By 1798, around one in three Swiss subjects lived under Bernese rule. However, the territory of the canton remained fragmented legally and economically. This section will first give a brief outline of the territorial expansion of Bern and then consider its organisation in the eighteenth century. I will also briefly discuss population estimates and offer a general overview of the canton's economy.

Territorial Expansion

The city of Bern was founded relatively late, in the second half of the twelfth century, and developed from being a local power into a sizeable territorial state in the late Middle Ages. Its most important conquests were Argovia (1415) and the French-speaking Pays de Vaud (1536).¹⁷⁹ The territory of the canton remained unchanged from the late sixteenth century until the French invasion of 1798. Its holdings spanned the mountainous regions of the Oberland, the wine-growing shores of Lake

¹⁷⁹ HLS (2002), article *Bern*. See also Schwinges (2003) and Feller (1946); Feller (1953) for the territorial expansion.

Geneva, as well as the grain-producing areas of the Swiss *Mittelland*.¹⁸⁰ In spite of trends to unify governance and administration, political fragmentation prevailed and many old customs or local autonomies remained unchallenged until the end of the *Ancien Régime*. Foreign noblemen continued to claim rights and titles in boroughs within Bernese territory. Only in exceptional cases were they disputed and bought out.¹⁸¹ The legal code of the city was used as a subsidiary law to customary local codes.¹⁸² Although the Bernese government intensified its paternalist regulation by issuing an ever-increasing number of laws ('mandates'), it never imposed a unified fiscal regime.¹⁸³

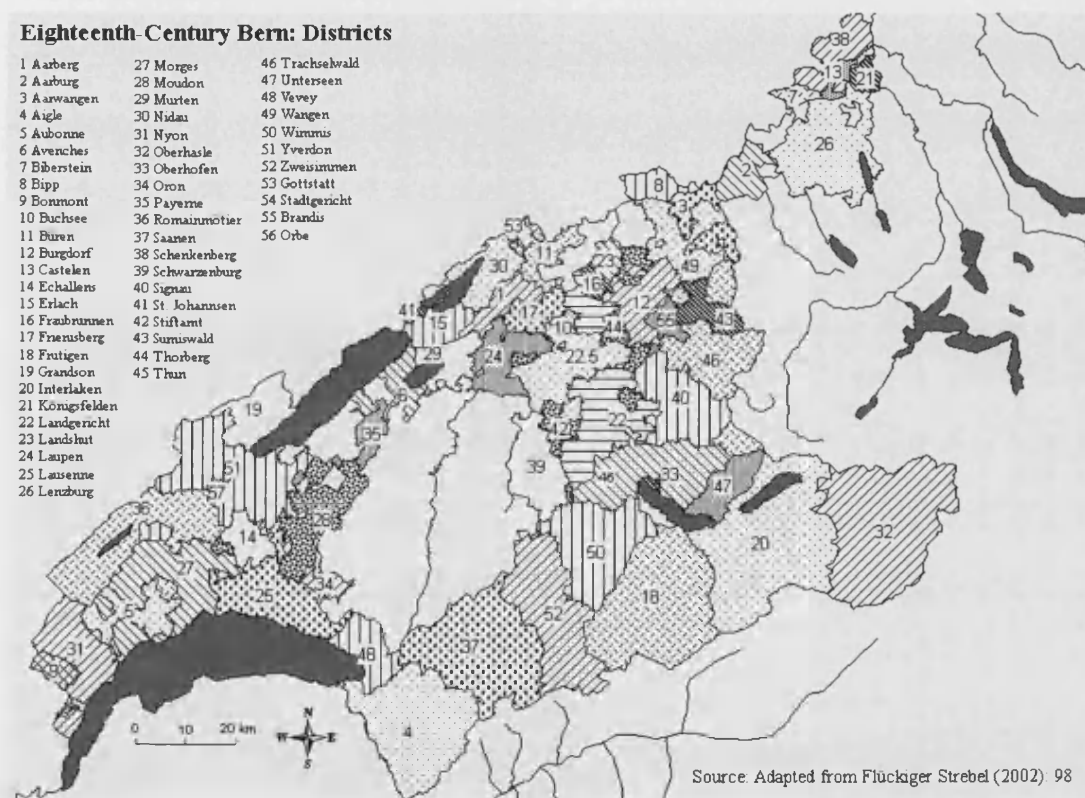


Figure II-3: Map of Eighteenth-Century Bern with Districts

Source: Flückiger Strebel (2002): 98 (title added).

¹⁸⁰ For a more detailed analysis of the regions, see: Pfister, C./Egli (1998).

¹⁸¹ This happened with Sumiswald [1698], Aubonne [1700], Köniz [1729] and Kastelen [1732]: Feller (1955): 475. Most privately owned boroughs remained under private rule (discussed below).

¹⁸² Walchli (1981): 110; see also RQBE, *passim*.

¹⁸³ In the German historiography, this process has been referred to as the enlargement of the '*gute Policey*' (in its pre-modern spelling), which could be translated as 'good governance'. For the sixteenth and seventeenth centuries, this concept has been discussed for Bern by Holenstein (1998). See also Peyer (1978): 117-118.

The political and legal fragmentation of the Bernese territory confused even its contemporaries. To clarify the situation, the government ordered a survey of its territory, which was published in the *Book of Regions* of 1782.¹⁸⁴ By then, there were six distinctive types of administrative units:

1. The city of Bern and its surrounding parishes, directly ruled and administered by the government.
2. Four *Landgerichte* formally governed by the guild-master of a city-quarter [*Venner*] and administered by his subordinate.¹⁸⁵
3. Five municipal towns with far-reaching autonomy, governed by their elected Mayors.
4. 50 counties, or *Landvogteien*, which formed the bulk of the Bernese territory. During a tenure of six years, a member of the government represented Bernese rule as bailiff and monitored the local administration.
5. Several small boroughs under private rule [*Twingherrschaften*]. They were governed by their owners, which in most cases were patrician families from the city; these boroughs were formally under Bernese sovereignty.
6. Four Condominiums, or *Mediatämter*, for which Bern shared sovereignty and administration with the canton of Fribourg.

There were further Condominiums administrated jointly with other Swiss cantons, which were not considered part of the Bernese territory.¹⁸⁶ In addition, seven former monasteries without territory were integrated into the state as *Klostervogteien*.¹⁸⁷

According to the primary agricultural activity, the canton can be divided into three main zones or belts: first, the grain-producing plains of Argovia, Upper Argovia (*Oberaargau*), Seeand and Vaud. Second, the pre-Alpine region of Emmental was a zone of mixed farming. Third, cattle farming dominated in the Southern part of the canton, the Alps (*Oberland*).¹⁸⁸ Pockets of vineyards were scattered according to the climatically suitable locations, particularly in the coastal regions of Vaud. Each zone had specific patterns of production, but also social and cultural structures. The division between the regions was not always clear-cut, but followed roughly their geographical situation. The degree of commercialisation of the zones was inverse to

¹⁸⁴ Wälchli (1981): 124-125.

¹⁸⁵ For an example, see Pfister, C./Kellerhals (1989).

¹⁸⁶ Lugano, Mendrisio, Locarno, Valle Maggia; since 1712 also Baden, the Untere Freie Ämter, Thurgau, Rheintal and Sargans. The small Condominium of Tessenberg was shared with the prince-bishop of Basel: Im Hof (1977): 753.

¹⁸⁷ Beck (1923): 11.

¹⁸⁸ For a more detailed description: Pfister, C. (1995), esp. 16-17, 28-30.

their natural potential: in the marginal lands of the Oberland, production was relatively free and market-oriented, while the grain-producing regions were burdened by a rigid system of co-operative utilisation. They were also most heavily taxed in tithes, as will be discussed below (Section IV-5).¹⁸⁹

Population Estimates and Demographic Trends

It is difficult to establish the total population living under Bernese rule in the eighteenth century. The most reliable figure is from an official census in 1764; it counted 323,008 people living in the canton, of which 40,276 in Argovia and 112,346 in Vaud.¹⁹⁰ Given the inaccuracies of eighteenth-century data collection, these should be considered rough estimates rather than exact figures.¹⁹¹ The 1798 census by the Helvetic authorities is even more unreliable because its authorities carried out the data collection inconsistently. In addition, changes of district and communal borders make a comparison to the *Ancien Régime* situation difficult. With its pre-1798 borders, the canton's population was approximately 410,000.¹⁹² Based on its 1980 borders (mainly without Argovia and Vaud), Christian Pfister has estimated total population figures for Bern at 193,000 (in 1700), 200,000 (in 1764) and 231,768 (in 1798) respectively.¹⁹³ The city itself grew from 14,219 (1700) to 15,932 (1730) inhabitants, from where their number fell back to 12,186 (1798).¹⁹⁴

The Bernese Economy in Brief: Agriculture

The most relevant aspects of the Bernese economy for my study will be discussed more detail in the empirical chapters. Studies about the early modern Bernese economy are rare and mostly focus on agriculture.¹⁹⁵ A strong emphasis on the primary sector is also underlying the most comprehensive study of the Bernese

¹⁸⁹ See Pfister, C. (1995): 163.

¹⁹⁰ This means that 175,316 lived in the rest of the canton, often referred to as *Deutschbern*. See HLS (2002), article *Bern*: 267 and Mesmer (1987): 158-160.

¹⁹¹ Pfister, C. (1995): 69-73 and 87.

¹⁹² Schluchter (1988): 49, 64. Figures for Aargau (only Aarau, Brugg, Kulm, Lenzburg, Zofingen), Bern and Vaud in their 1988 borders, excluding Echallens, Orbe and Grandson: total of 409,535. Other authors give the figure of 407,000 [Walter (1966): 239, based on an estimate from Hildebrand in 1860]. The overall population of today's Switzerland was 1.66m according to the 1798 census.

¹⁹³ Pfister, C. (1995): 95.

¹⁹⁴ HLS (2002), article *Bern (Gemeinde)*.

¹⁹⁵ For the 'classical' studies on Bernese agriculture and economy: Geiser (1899); Geiser (1932); Schmidt, G.C.L. (1932).

economic history by Christian Pfister, who traced the origins of economic ‘modernisation’ back to 1700.¹⁹⁶ Pfister’s interest tracing the long-term development of the canton of Bern in its post-1980s borders has made him use an anachronistic area of study. For the *Ancien Régime*, the exclusion of Argovia and Vaud is a significant shortcoming. A second problem of Pfister’s approach is even more limiting in the context of my research: the state as an actor remains essentially unaccounted for in Pfister’s explanations. Although he acknowledges the importance of the government’s grain policy and the impact of Economic Patriots on agriculture, the two are not examined in their own right. Anton Brandenberger followed up on Pfister’s earlier research and investigated problems of supplies and market integration using economic theory.¹⁹⁷

The pre-eminence of agriculture in Bernese economic history can partly be explained by the relative weight of the sector, as most of the Bernese population was engaged in some type of agricultural activity or other. In Christian Pfister’s words, all important aspects of early modern life concentrated on land: it was an energy resource, production factor, source of capital investment, tax base, measure of political power and social esteem, as well as the unique source of social security.¹⁹⁸ Differences within the primary sector were large, both regionally and between different sized farms within the same region. For the former, the varying climatic conditions across the main agricultural regions have been mentioned under the previous heading. For the latter, large landholders had very little in common with small-plot farmers who often relied on secondary income from (proto-)industrial activity to make ends meet. Within the household economy, labour and other resources were allocated to subsistence- and market-oriented tasks. There were few cash crops: wine, flax, dairy products and – to a lesser extent – grain. For the latter, most households could only sell a surplus on the market. According to Christian Pfister’s estimates of harvest returns, the canton could feed its own population in

¹⁹⁶ Pfister, C. (1995): 15. He defines ‘modernisation’ as a movement towards the ‘Western’ ideals of rationality; rising productivity and living standards; social and economic emancipation; efficient institutions and behaviour; national ‘consolidation’ and independence; democracy ‘from below’; participation and social discipline. Pfister’s data is edited in the database *Bernhist*: <http://www.bernhist.ch>. See also his contribution to the article ‘Bern’ in HLS (2002) and his earlier studies: Pfister, C. (1975); Pfister, C. (1978) [in English] and Pfister, C. (1984), esp. vol. 2.

¹⁹⁷ Brandenberger (2004). See the discussion in Section II-6 below.

¹⁹⁸ Pfister, C. (1995): 161.

years of normal harvest and was thus ‘subsistent, but not autarchic.’¹⁹⁹ In years of crises on the other hand, grain had to be imported. This contrasts with the view of contemporary observers who argued – based on faulty assumptions – that Bern needed to import roughly a third of its grain. Georges André Chevallaz has pointed out that the resulting import volume of some 20,000 tonnes would be equivalent to the entire grain export of France.²⁰⁰

While dairy farming became more productive and profitable, grain agriculture stagnated until the mid-eighteenth century. Productivity increases were mainly hindered by a lack of manure. In addition, the traditional structure of decision-making in the three-field crop rotation system hindered a dynamic response to demographic change or shifts in demand. Alterations in crops, cycles or quantities depended on the agreement of all ‘stakeholders’, including government, landlord and commune. From the mid-century, agricultural improvements slowly led to an increased production, but the major innovations and breakthroughs occurred in the early nineteenth century.²⁰¹

Industry and Services

Recent scholarship has emphasized the diversity of economic activities that were carried out throughout the territory.²⁰² The dominance of a dynamic agricultural sector created demand for related industries (building, blacksmiths, coopering) and services (butchers, mills). Extractive industries were limited to small pockets in the Western and Alpine regions.²⁰³ Anne Radeff, who has investigated petty trade and regional markets, refers to this with the rather misleading concept of *économie globale*.²⁰⁴ Her most important contribution is the analysis of the distributive structures in the Bernese economy through an examination of fairs and markets, which multiplied throughout the eighteenth century.²⁰⁵ In addition, a thriving economy surfaced around the export of low value-added goods.²⁰⁶ Specific industries

¹⁹⁹ Pfister, C. (1995): 202-209 (quote: heading). For a critique, see Brandenberger (2004), who stresses the importance of grain imports.

²⁰⁰ Pfister, C. (1995): 207-208; Chevallaz (1949): 107.

²⁰¹ Pfister, C. (1995): 173-175, 184-191.

²⁰² For diversity: Pelet (1998); Radeff (1996).

²⁰³ Pelet (1998).

²⁰⁴ Radeff (1996). In Radeff's terminology, *économie globale* stands for an all-encompassing view of both domestic and export trade, and not a geographically global approach. Even though this is not be excluded *per se*, most of her analysed material is inter-regional, rather than global.

²⁰⁵ On Bernese markets: Kümin/Radeff (2000); Körner (1993/94).

²⁰⁶ For the latter, see Flückiger/Radeff (2000).

have been discussed in the broader context of Swiss economic history. In particular, the Walter Bodmer's work on the textile industry remains a landmark.²⁰⁷

Textiles were Bern's main export-oriented 'proto-industry.'²⁰⁸ They were mostly produced in the eastern part of the canton, using the market town of Langenthal as a local hub. In Vaud, the industry was clustered around Lausanne and well connected with Geneva merchants.²⁰⁹ In addition, hand-knitting and similar tasks were carried out throughout the canton, especially in marginal areas. The Bernese textile industry specialised in the relatively simple processing of linen, calicoes ('*indiennes*') and knitted stockings, which required little investment and could be carried out by a labour force that was often working part-time.²¹⁰ Knowledge-intensive branches of the industry, such as silk manufacturing, were virtually absent in Bern. In the second half of the eighteenth century, St Gallen shifted to the spinning and weaving of cotton and was replaced by Upper Argovia as the Swiss centre for linen production. The merchant-producers of eastern Switzerland left the low-value linen to their Bernese competitors and focused on more profitable products that could rely on extensive trading networks for export. Linen was less dependent on trade because its raw material, flax, was grown locally. While this might explain Bern's advantage in the early stages of the industry, by 1760 the canton had to import several tonnes of flax from Alsace and Brabant to cope with an increasing demand for the final product.²¹¹ Merchants from other Swiss cities exported the Bernese linen, mostly to France. Demand for the product was high, which was partly caused by its good and consistent quality.²¹² Linen production reached its peak in the early 1780s, after which it dropped sharply.²¹³

The raw materials for cotton were more expensive, so part of the production was organised on a credit basis. In this putting-out system, merchants provided the domestic producers with raw materials and collected the final product, with itinerant merchants (*Fergger*) acting as intermediaries. The printing of calicoes was organised

²⁰⁷ Bodmer (1960).

²⁰⁸ For the concept of 'proto-industry' see footnote 38 above. An overview for Switzerland is provided by Pfister, U. (1996b).

²⁰⁹ Bodmer (1960): 222; Bergier (1990): 173.

²¹⁰ See Pfister, C. (1995): 455-456 and Schneider, H. (1937): 455-466. The latter were partly machine-produced. This technology had been introduced by a Huguenot refugee who later moved his business to Murten after losing production privileges in Bern.

²¹¹ Pfister, C. (1995): 34.

²¹² Bodmer (1960): 157-158.

²¹³ See the graph in Pfister, C. (1995): 234, based on Bein (1920): 86-87.

in centralised manufactures, both in the city of Bern and municipal towns.²¹⁴ Some of the cotton production was controlled by merchants from Zurich and Geneva, while Bernese producers were putting out to neighbouring regions (Lucerne, Fricktal), selling their surplus production to Zurich merchants.²¹⁵

Bern had several smaller proto-industries in addition to textiles, such as clock making in the western parts of the canton, printing in the cities of Bern and Lausanne, woodcarving in the Oberland, and extractive industries in Vaud.²¹⁶ Although important locally, their impact on the canton's economy was limited. A few 'strategic industries' were state-run, such as the production of weapons, black powder and salt; ironworks and mineral extraction were heavily subsidised. All these businesses were small in scale, except for salt production, which nevertheless remained insufficient to supply the domestic market. Its output was minimal compared to the amount of salt that the government traded as a monopoly (see Section III-5 below).

Another monopoly was on postal services, which the state farmed out to the patrician von Fischer family. They obtained a franchise in 1675 and subsequently passed it on to 41 family members until 1832, with only a short intermezzo of state-run postal services from 1702-1708. After this date, Bernese authorities set the franchise fee at 50% of net profits, though disputes erupted over the calculation of these profits on several occasions. The Fisher family usually paid a flat fee that was augmented every few years.²¹⁷ The remaining service sector was not concentrated, but regional and small scale in character. Beat Kümin has analysed Bernese inns and taverns in detail, while Anne Radeff has focused mainly on itinerant merchants.²¹⁸ Other services were tourism and schooling, which both targeted foreign noblemen as their prime clientele; they were accordingly very limited in scope. Finally, mercenaries serving in foreign armies can also be considered a service export from the Bernese economy (see Section II-5 below).

This section has given a brief overview of the fragmented nature of the Bernese territory in both political and economic terms. Reliable figures for population and

²¹⁴ Pfister, C. (1995): 233; see also Fetscherin (1924).

²¹⁵ Fetscherin (1924): 134-137; Bodmer (1960): 182; Schneider, H. (1937): 97-98; see also the contemporary account in Norrmann (1795): 480.

²¹⁶ See for an overview: Pfister, C. (1995): 231-292 and for Vaud Pelet (1998).

²¹⁷ See Klöti (1990) and Kellerhals-Maeder/Klöti/König (1991).

²¹⁸ Kümin (1999); Kümin/Radeff (2000); Radeff (1994); Radeff (1996).

economic indicators are rare and make conclusive statements difficult. The economy was dominantly agricultural, with large regional and social differences. Proto-industrial production of linen for export was concentrated in the eastern part of the canton, while rural crafts were spread throughout the territory.

II-4 Government and Administration

In an anonymously published *Account of Switzerland* of 1714, attributed to the English ambassador Abraham Stanyan, the stability of Bern's political system was compared to that of an inverted pyramid. So small was its foundation that it would take little movement from either within or from the outside to make the entire structure tumble.²¹⁹ While his prediction of the stability proved inaccurate – Bern fell more than eighty years after Stanyan's statement – the pyramidal image appears appropriate. The government was controlled by a narrow patrician oligarchy, whose rule had become quasi hereditary, even if their dominance was by custom more than by law. In this section, I will consider the composition of the Bernese government and explain its structure, discuss patricians as a social group and present contemporary critiques of their rule. The final part of the section will discuss the canton's administrative structure.

Constitutional Arrangements and Levels of Government

The Bernese state had no written constitution, only a handwritten tome commonly called the Red Book which contained the government's most important decisions. The government referred to itself as *Schultheiss, Rät und Burger von Bern*. This title encapsulated the three main layers of power: Mayor (*Schultheiss*), Senate (*Rät*) and Great Council (*Burger*). The latter had formerly been an assembly of citizens and evolved into a parliament recruited by election and co-optation. Its position as the supreme source of power and sovereignty was confirmed in 1682 by a document that also held the state accountable solely to God.²²⁰ This affirmation of the Council's absolute sovereignty formally marked the end of continuous attempts by

²¹⁹ Anonymous [Abraham Stanyan] (1756): 105. Most of his book deals with the situation in Bern; he was married to a Bernese. See Bucher, B. (1951); Zeerleder (1942).

²²⁰ Quoted in Geiser (1891): 97.

the Senate to be recognised as sovereign.²²¹ In reality though, the Senate possessed considerable powers by virtue of frequent meetings and exclusive access to information. To avoid dominance by any of the elements that comprised the government, the Bernese constitution possessed numerous internal checks and balances (see Figure II-4).

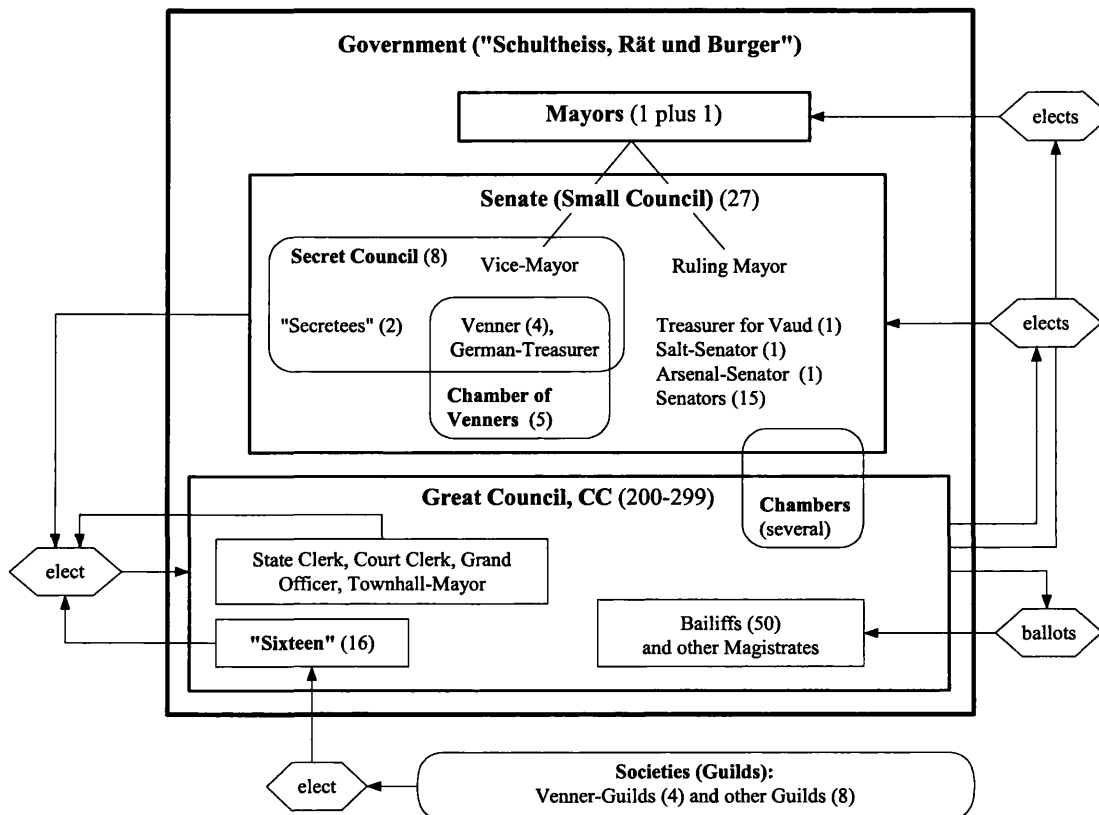


Figure II-4: The Government of Bern

Sources: Geiser (1891); Feller (1955); Capitani (1991). See also the slightly different scheme in HLS (2002): article *Bern*. Numbers in brackets stand for the number of people in each category. Translations: Senate (*Kleiner Rat*), Vice-Mayor (*Stillstehender Schultheiss*), "Secrettees" (*Heimlicher*), German Treasurer (*Deutsch-Säckelmeister*), Treasurer for Vaud (*Welsch-Säckelmeister*), Salt-Senator (*Salzherr*), Arsenal-Senator (*Zeugherr*), State Clerk (*Staatschreiber*), Court Clerk (*Gerichtsschreiber*), Grand Officer (*Grossweibel*), Townhall-Mayor (*Ratshausammann*), Bailiff (*Landvogt*), "Sixteen" (*Sechzehner*), Societies/Guilds (*Gesellschaften*). I have not translated the word *Venner*, since its original meaning as banner bearer does not describe their function in the eighteenth century accurately enough.

At the apex of the Bernese government pyramid were the Mayors. To guarantee that no single man would usurp power, the positions of Ruling Mayor and Vice-

²²¹ In other Swiss cities, the Senate was more successful in its attempts to usurp power: Peyer (1978): 107-116.

Mayor were rotated annually between the two incumbents.²²² While the former chaired the meetings of the Senate and Great Council, the latter was in charge of the Secret Council handling foreign affairs. With unlimited tenure, the Mayors were only replaced after resignation or death and vacancies were filled by a Senator, who was elected by the Great Council.

The next layer was the Senate, which was also called Small Council or Daily Council. 27 Senators (including the two Mayors) set the agenda for the sessions of the Great Council. Two important sub-Councils were staffed exclusively by Senators: the Secret Council and the *Vennerkammer*, or Chamber of *Venners*.²²³ The latter dealt with all financial matters of the state and was presided over by the (German-) Treasurer, who was elected for six years.²²⁴ Its other members, the *Venners*, had a four-year tenure and were designated by their respective town-quarter guilds.²²⁵ Of the remaining Senators, some had specific duties such as the Senator of the Arsenal, who presided over the chamber responsible for military armaments. Each Senator sat in several chambers or commissions, which had both governmental and administrative functions and combined members of Senate and Great Council.

Mayors and Senators were all formally members of the Great Council, or Council of the Two Hundred, which met two to three times a week. It was also called the CC with reference to the Latin number for 200. The power of the Great Council was in practice curtailed by limited access to information. For instance, although it decided on all financial matters regarding expenses of more than 100 Taler (3,000 Bz), information about proposals prepared by the *Vennerkammer* was only transmitted orally.²²⁶ One important function of the Great Council was to elect all magistrates of the republic from amongst its members. While Mayors, Senators and certain positions that required particular know-how were elected, the more lucrative bailiff positions were balloted since 1710 to rule out simony.²²⁷ To avoid appropriation by office holders, all tenured positions in the government were fixed and non-renewable.

²²² The positions of Mayor and Vice-Mayor (*Stillstehender Schultheiss*) rotated annually between the two officeholders. Occasionally, the Latin word *Consul* was used for both.

²²³ The two newest elected Senators were called 'Secretees' (*Heimlicher*).

²²⁴ The position of treasurer was split up between the (German-)Treasurer (*Deutschsäckelmeister*) and the Treasurer for Vaud (*Welschsäckelmeister*). For the Venner chamber, see also Section II-7 below.

²²⁵ The word *Venner* originally described the banner bearer. The four *Venner*-guilds *Pfistern*, *Schmieden*, *Metzgern*, and *Gerbern* each elected a *Venner* amongst their Senators: Walter (1966): 237.

²²⁶ Feller (1955): 428.

²²⁷ The election of the Senators was a mixture of vote and ballot: Feller (1955): 434. Candidates had to be in the Council for over a decade and married or widowed. Bailiffs will be discussed below.

Access to Government

When contemporaries referred to the Great Council as ‘the Citizens’ (*Burger*) or ‘the Two Hundred’, both were misnomers. The Council neither represented all citizens nor did it comprise 200 members. The Great Council had become a parliament with 200 members as a minimum number; in 1688, its maximum was set at 299. Every time the Council approached minimum occupancy, it restored its ranks to the maximum number from within the citizenry. In the eighteenth century, this happened approximately every ten years. As new government members were appointed by co-optation, this promoted oligarchic tendencies. The electoral body consisted of the Mayors, Senators, four *ex officio* members of the Great Council, plus another sixteen that were designated by their respective guild (see Figure II-4). Each of these 47 electors could nominate one candidate whose place was secured. Thus, of the circa 80 seats that would usually be free, nominees occupied more than two thirds. Voting for the remaining seats was open and not by secret ballot, which meant that co-monitoring was possible and guaranteed the predicted outcome.²²⁸

New Councillors were elected among all male citizens above 29 years. The number of eligible candidates was in decline as the right to citizenship had been closed in 1651 and new immigrants to the city were only accepted as residents or permanent residents at best. While the former did not have any specific rights and were prohibited from buying property, the latter were equal to the citizens in all but political participation.²²⁹ Permanent residency had been established in the sixteenth century to cover waiting times before admission into full citizenship; it had evolved into a distinct social status. At the time of the 1764 census, of the city’s total population of 13,681 only 3,737 were citizens. The remainder were permanent residents (253), residents (7,985) or foreigners (1,706).²³⁰ Compared to a total population of over 300,000 for the entire canton, not even 1% were citizens with full political rights.

²²⁸ Therefore, it was less an election than a nomination: Geiser (1891): 104; Feller (1955): 431-433.

²²⁹ Only wine trade was a privilege of citizens: Geiser (1891): 87-89; Brunner (1992).

²³⁰ Of the citizens, 1,581 were men: Wälchli (1981): 145 and Walter (1966): 239.

Parallel to the decline in numbers of eligible families was the decrease of families who were actually represented in government, the patricians.²³¹ Figure II-5 shows the number of eligible families (citizens) and families in government (patricians) for the period of 1650-1795. Since 1790, a decree fixed both their respective numbers.

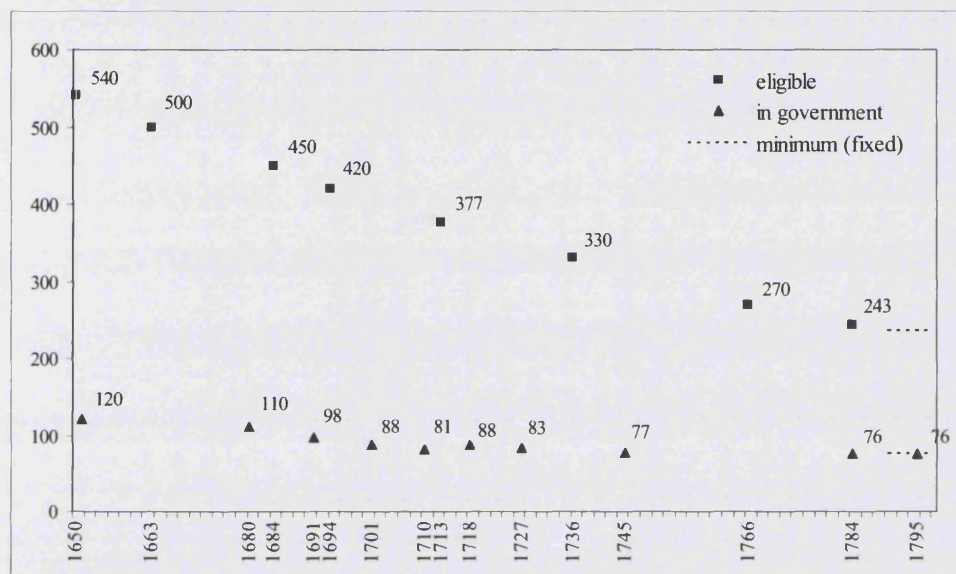


Figure II-5: Families with Bernese Citizenship, 1650-1795

Source: Geiser (1891): 95 and 110 [supplemented with Capitani (1986): 884]. Eligible families (citizens) are referred to as *Ratsfähige* or *Regimentsfähige Bürger*; families in government (patricians) were *im Rat vertretene Familien*. From 1790 onwards, there were fixed minima for the number of eligible families (236) and families in government (76), hence the dashed horizontal line: Feller (1955): 464 gives the figure of 73 families in government for 1784.

The system of completion of the Great Council also resulted in concentration *within* the patrician oligarchy. Figure II-6 shows the distribution of cumulative seats in the Council within families ranked by the number of occupied seats for 1691 (only data for the twelve largest families) and 1795. In both dates, the Council had been restored to the maximum number of 299. The twelve largest families held a total of 115 seats in 1691 and 122 in 1795.²³² By then, the number of families with a single seat had fallen to 12.

²³¹ Geiser (1891): 96. *Patricians* describes usually those families represented in government (although some authors include all citizens). The term refers to the senatorial patriciate of the Roman Republic.

²³² They were not exactly the same families, however; see Geiser (1891): 96-96 and 110.

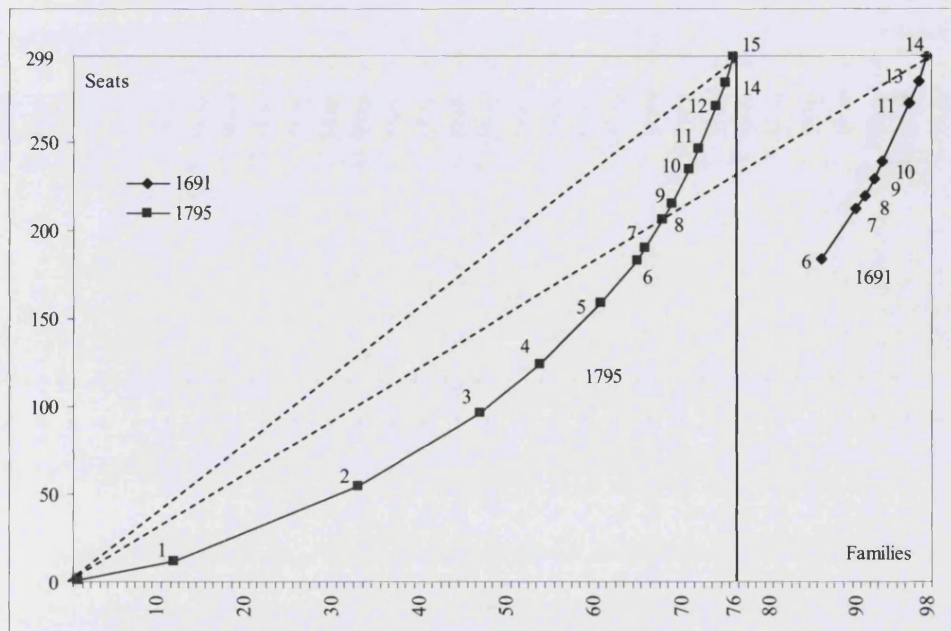


Figure II-6: Families in the Great Council, 1691 and 1795

Source: Geiser (1891): 96-96 and 111. X-axis: number of families in government; Y-axis: cumulative number of seats (families ranked by number of seats). For 1691, only figures for the 12 largest families are available. The broken diagonal lines show an equal distribution amongst families for the given number of families represented (1691: 76; 1795: 98). Numbers show the number of seats for the largest family at each point. In 1795, there were 1,628 registered members of guilds (i.e. eligible patricians): Walter (1966): 242.

In addition to the trend towards oligarchy, the leadership of the Bernese republic was burdened with gerontocracy. While most administrative offices had a fixed, non-renewable tenure, the most senior positions of Senator and Mayor were for life. Furthermore, elements of seniority favoured older government members in access to power. This system had changed little since late-Medieval times, when political institutions had been designed for a relatively high turnover of magistrates. Increased life expectancy coupled with fewer military and political dangers for office-holders ossified the system.²³³ For individual patricians, this often meant a long waiting time until they could fulfil the duty for which their whole life was designed for: participation in the government of the *Res Publica Bernensis*.²³⁴

²³³ Im Hof (1977): 764 (for all Swiss states) and Peyer (1978): 107-116. See also Steiger, C. (1954).

²³⁴ Contemporaries agreed that future politicians often made little productive use of their waiting time: Wälchli (1981): 140. Stanyan divided the Bernese patricians into merchants, pen-men, and military men: Anonymous [Abraham Stanyan] (1756): 131-132.

Republican Ethos and Corruption

Patrician dominance had become a *status quo* by the early eighteenth century, and though their appropriation of rule was not universally accepted, co-optation guaranteed its continuity. Despite its formal status as a participatory republic, Bern had become a *de facto* aristocracy in which an elite group of magistrates successfully monopolised their offices. In theory, access to the government was open to all citizens, but in reality long waiting times made this option exclusive to *rentiers* who were supported by tidy family fortunes. Government work paid well in the eighteenth century, yet most functions still entailed expenses that required sizeable personal funds, as magistrates were liable with their own assets when holding an office. Thus, Bernese patricians effectively qualify for what Max Weber described as *honoratiore*s. He defined this term as a group of office-holders who monopolised their positions based on wealth, in spite of a political system that was formally open.²³⁵

Most patricians lived off country estates spread throughout the territory; often their families owned feudal rights. Their dependence on agricultural rents explains the popularity of physiocratic ideas within government members. An engagement in paid work – including banking and commerce – while not strictly prohibited was considered inappropriate for patricians.²³⁶ They argued that depending on income would affect independent judgement. Interestingly, this reservation did not apply to feudal income, nor to serve in foreign armies as will be discussed below. Although Bern had guild-like institutions with its *Societies* (sometimes referred to as ‘guilds’), their economic functions of regulating markets or professions had a very limited scope beyond the capital. In particular, Bernese city guilds were not privileged with respect to the territory. Most members were not active in the guild’s trade, but belonged there by family tradition. Guilds formed the backbone of Patrician social life and were responsible for poverty relief to destitute members. The political importance of these Societies was twofold: membership was a condition for eligibility to the Great Council, and for certain elections guilds had secured voting quotas.²³⁷ Thus, ruled by a patrician class of magistrates and officeholders with little economic

²³⁵ Weber, M. (1978): 290-292.

²³⁶ See the critique in Brunner (1992). Wholesale commerce and wine trade within the city were patrician monopolies.

²³⁷ See Capitani (1991). The societies/guilds/corporations were called *Gesellschaften* or *Zünfte*; Stanyan calls them *Abbeys*, based on the French term; they could also be referred to as drinking-clubs (describing a social group that meets in a particular tavern). For the Venner-guilds and their voting quotas, see note 225.

interests except in landholding, Bern was distinctive from republics where guilds played an important political and economic role, as in Zurich or Basel.²³⁸

Patricians were aware of how susceptible their political arrangements were to cronyism, nepotism and corruption. For instance, when a merger of two existing customs offices was debated in 1770, concerns were voiced that this position could become too powerful, as it would control monetary transactions worth more than Lb 150,000 (1.125m Bz). Treasurer Johann Rudolf Daxelhofer stated that ‘in republican governments one always has to worry that credit [*here in the sense of: dependency*] and favour will be preponderant.’²³⁹ One way of checking for these dangers was to attend to the republican virtue of equality. This did not imply equality among the whole population – not even of all citizens – but of patricians represented in government. Those with an official function were only *primus inter pares*. In order to curb overt favouritism and nepotism, strict laws regulated temporary withdrawal from the right to vote in matters concerning family members.²⁴⁰ This was part of the reason why ballots had been introduced in elections for lucrative government offices.²⁴¹ All these constitutional safeguards were completed with mutual envy and distrust amongst rival families, which worked as an effective internal check on patricians.

Balloting was believed to represent divine judgement, which to the historian Hans Conrad Peyer meant that ‘favouritism was considered less dangerous than the random election of incompetent candidates.’²⁴² But while equality amongst government members was strictly adhered to, the distinction between those in government and the excluded was clear.²⁴³ The ultimate sign of this equality-cum-distinction was reached in 1783, when all families in government were entitled to add the noble title ‘von’ to their names. This nullified the previous difference between noble and ordinary patrician families while setting them apart from ordinary citizens and subjects.²⁴⁴ Sumptuary laws were in place to secure this social order and maintain republican virtues. An inscription on the throne of the Mayor that referred to the values of *Liberté & Egalité* was duly painted over after these words ascribed a

²³⁸ Peyer (1978).

²³⁹ Quoted in Beck (1923): 43. Daxelhofer was Treasurer of Vaud.

²⁴⁰ Feller (1953): 428-429; see also RQBE, vol. 5: 695.

²⁴¹ The ballot was first introduced as a trial and then extended: Feller (1953): 332. For equality also Wälchli (1981): 139.

²⁴² Peyer (1978): 113.

²⁴³ Bächtiger (1973/74); Bernisches Historisches Museum (1998): 20-21 and Bernisches Historisches Museum (1991): 79-103.

²⁴⁴ It is said that Frederick II of Prussia mocked this with the expression: *Messieurs de Berne se sont défiés*: quoted from Wälchli (1981): 141. See also Im Hof (1977): 709.

different meaning after the French Revolution. In Bern, as in other early modern states, the concept of *Liberty* had very little to do with individual freedom and rather implied privileges, exemptions and independences ('liberties') of certain groups ('Estates').

Factions and Criticism

Although the Bernese parliament was not organised into formal political parties, there were factions within the government. Families with specific interests included the von Erlach, who owned a mercenary regiment in France and the von Fischer, who ran the postal monopoly. Common interest also distinguished the larger families from smaller ones, who constantly ran the risk of losing their place in the government. At times of geopolitical crisis, each camp lobbied for its position, sometimes influenced by their vested interests or bribes from foreign ambassadors.

Béla Kapossy has distinguished three different groups of critics of patrician rule in the eighteenth century.²⁴⁵ The first were artisans from the city who were excluded from government. In 1749, some of them attempted to restore ancient freedoms and an equal distribution of privileges within the citizenry by coup d'état. Their uprising was crushed, but news of the event echoed throughout Europe.²⁴⁶ The second group of critics were from subject territories and complained about being deprived of their traditional economic freedoms and other liberties.²⁴⁷ Rudolf Braun has described this as the 'status inconsistency' of subjects who had made fortunes in business, but could not participate in political power or lead the life of a *rentier*.²⁴⁸ An isolated attempt in 1723 to shake off Bernese rule of Vaud failed because it found little support within the local population.²⁴⁹ Only in the 1790s did Revolutionary tendencies become a serious threat, arguably because of French support. A different kind of criticism came from the third group, the Economic Patriots. Emanating from patrician families, they did not question the political system *per se*, but its loss of republican frugality and virtue. As an alternative, they promoted a return to (Neo-)Roman qualities of

²⁴⁵ Kapossy (2002).

²⁴⁶ It even inspired literary work by Lessing: See Würgler (1995).

²⁴⁷ One example is the young Edward Gibbon, discussed in Kapossy (2002).

²⁴⁸ The term 'status inconsistency' was coined by Rudolf Braun, describing an inconsistency between economic and political status: Braun, R. (1984).

²⁴⁹ For Davel, see: Mercier-Campiche (1970); Capitani (1998); Capitani (1986): 492.

geopolitical independence based on economic subsistence and self-sufficiency.²⁵⁰ Anabaptists could be added as a fourth group of government critics, as they questioned the legitimacy of any secular authority. They were heavily prosecuted in Bern throughout the early modern period for their refusal to serve in the militia and swear an oath of allegiance.²⁵¹

The Administration of the Canton

As in other patrimonial states, there was no strict separation between government and administration in eighteenth-century Bern; independent bureaucracy or civil service were non-existent. On the other hand, Bern did not have sinecures and all government positions involved clerical work. Since the second half of the seventeenth century, numerous chambers and committees fulfilled the function of advisory councils to the government. They prepared proposals for the Great Council's final decision on important matters and carried out administrative tasks within their own jurisdiction. Except for the *Vennerkammer* and the Secret Council, chambers were usually staffed with a combination of Senators, (Great-) Councillors and secretaries. The number of government chambers and committees was increased throughout the century from 29 (1710) to 44 (1798), covering the whole range of state functions from religion to finance. Figure II-7 shows the Bernese government chambers ranked by date of formation as an illustration of this administrative intensification.

²⁵⁰ Kapossy (2002).

²⁵¹ This is also discussed in Altorfer (forthcoming).

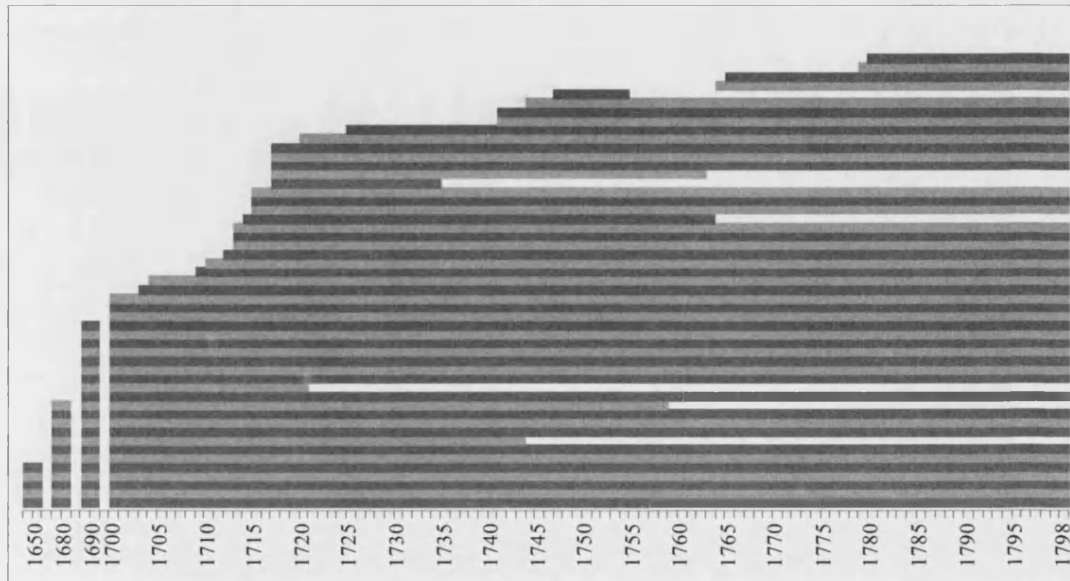


Figure II-7: Government Chambers in Eighteenth-Century Bern (Ranked by Date)

Source: based on material assembled by Andreas Kellerhals (unpublished PhD proposal c. 1990, courtesy of Martin Körner). Kellerhals refers to his own unpublished work on proto-statistics; the *Regimentsbüchlein*; Gruner (1732) and Geiser (1891). The chambers are ranked in their order of establishment; each line represents one chamber.

The first two decades of the eighteenth century saw the foundation of many new administrative units. The number of civil servants had increased as well, though it remained on a comparatively low level. The 1764 census revealed that 478 citizens worked in the administration, of which 307 were magistrates.²⁵² However, most of the state-employed were not citizens and thus not covered by this figure. Karl Friedrich Wälchli estimated their number at 1,500 by the mid-eighteenth century, representing less than 0.5% of total population.²⁵³ His figure includes government members as well as clergymen, professors, full-time military personnel and subordinate administrators. Although this estimate does not consider the militia and those employed on a part-time basis, it shows the small scale of the Bernese state. Administrative duties were carried out by a combination of patrician officeholders and their assistants, who were usually locals. As a result, in the whole Pays de Vaud, there were only a handful of Bernese patricians at the very top of the administration as bailiffs and some as clergymen, the remaining state servants were all Vaudois. Against this backdrop, it is obvious that the canton was dependent on the cooperation and compliance of its subjects. A popular saying stated that who ever obeys

²⁵² Walter (1966): 240-241. The magistrates probably included retired members of the CC.

²⁵³ Wälchli (1991): 109.

a mandate of Bern does so voluntarily (*Ein Mandat von Bern: Wer es halten will, der tut es gern*).²⁵⁴

The number of senior government offices was around 60 by the mid-eighteenth century, depending on how broadly the term is defined. 50 bailiffs represented Bernese rule in the counties for a term of six years.²⁵⁵ The Bailiwicks were ranked into four categories by estimated income, and strict rules determined the order in which they were balloted during an election.²⁵⁶ In addition to bailiffs, offices in the city included specific functions within the government and directorships for committees administrating salt, grain or public buildings.²⁵⁷ Most positions paid well, yet the salary embodied no indication of an office's political importance. Since part of the remuneration was in kind, comparisons are difficult. The list in Table II-1 is based on a contemporary compilation that contains 230 positions open to citizens, ranging from Mayor to simple messenger.²⁵⁸ The most highly paid office within the city was that of State Clerk, who could earn up to 90,000 Bz, which was more than twice the salary of a Mayor (max. 36,600 Bz) and more than thrice that of the Vice-Mayor (26,375 Bz). However, the average bailiff earned at least as much, and the 'top ten' made up to 150,000 Bz. In comparison, a craftsman earned roughly 1% of this sum with his yearly salary of 1,000-1,600 Bz.²⁵⁹

²⁵⁴ Quoted from Wälchli (1991): 143.

²⁵⁵ The bailiff was usually called *Landvogt*, occasionally *Schultheiss* (Thun), *Kastlan* (Frutigen), *Hofmeister* (Köngisfelden), *Gubernator* (Aigle); the French word was *Bailli*: Wälchli (1981): 116. See also Bucher, E. (1944).

²⁵⁶ For the ranking: RQBE, vol. 5: 460-461. The classes were reallocated in 1776: Feller (1955): 441.

²⁵⁷ Feller (1955): 439.

²⁵⁸ There are several copies of the document. I thank Myriam Chuard for giving me access to the archives of Armand von Ernst & Cie, Bern, where I first found this document; it is now kept at the Burgerbibliothek Bern (BBB Nachlass Wagner/von Ernst), along with another copy entitled: *Besoldungen aller M.G.H. Aemteren und Diensten [...] gesamlet von Johan Rodolph Gruner V.D.M., A. 1720* (BBB Mss Hist Helv VIII 53). The exact function of these lists is not clear; they were probably used to plan careers and monitor fellow patricians. Payments in kind were capitalised in the list itself.

²⁵⁹ Calculated with daily wages for 200 days per year, based on Ebener (1999): 176-183.

	min	max		min	max
Senators:			Great Councillors:		
Mayor	31,600	36,600	State Clerk	75,000	90,000
Vice-Mayor	26,375	26,375	Building Supervisor	50,500	65,500
Venner	33,275	37,400	Corn Supervisor	47,275	66,275
German Treasurer	24,500	25,750	Stiftschaffner	57,500	76,525
Treasurer for Vaud	41,500	42,250	Great Councillor	24,000	24,000
Senator	12,600	12,600			
Salt-Senator	27,825	27,825	Bailiffs (overall Mean)	72,638	87,963
Building-Senator	31,975	34,275	Bailiffs (Top-Ten Mean)	108,625	148,563

Table II-1: Income of Most Important Government Offices (in Bz)

Source: *Besoldungen aller M.G.H. Aemteren und Diensten* (BBB Nachlass Wagner/von Ernst, courtesy Armand von Ernst & Cie, Bern), see footnote 258. *Bailiffs (Top-Ten Mean)* is the mean of the 10 best-paid bailiffs, ranked by maximum income. See also the slightly different figures in Feller (1955): 437-438. All figures are in Batzen (see Section VII-13 in the appendix).

In reference to these generous payments, Abraham Stanyan stated that bailiwicks were

profitable, and some of them so considerable, that the bailliffs [*sic*] may live splendidly during the six years of their government, and yet put in their pockets five and twenty, or thirty thousand crowns, which is a great sum in a country, where the law retrenches all superfluities in equipage, apparel and furniture, and where oeconomy [*sic, here in the sense of: frugality*] is so well understood and practiced.²⁶⁰

However, as there was no strict separation between private and public income, it is unclear how well the real incomes of bailiffs correlated with these expected revenue. We only have fragmented evidence from private patrician accounts.²⁶¹ In exceptional cases, office-holders could even finish their term in debit.²⁶² Each bailiff was liable with his own fortune for the administration and therefore had to nominate two citizens as guarantors.²⁶³ During his six years tenure, he had to live in an official residence on site and could profit from the revenue of the state domain. He collected all revenue, but was accountable to the *Vennerkammer* that controlled his yearly accounts (discussed below).

²⁶⁰ Anonymous [Abraham Stanyan] (1756): 81-82. His figures are slightly too high: Kr. 25-30,000 over a six-year period are the equivalent of c. 105-125,000 Bz per year.

²⁶¹ Feller (1955): 440 and Kupfer (1947): 77.

²⁶² See for the case of Christoph von Graffenried: Altorfer (forthcoming); Keller (1953).

²⁶³ Ryser (1956): 14.

A bailiff's duties covered the whole spectrum of state functions from the administration of state finance to maintenance of infrastructure and enforcement of government decrees. He was a judge who presided over trials for minor offences and an investigator of more serious ones. Finally, his responsibilities also included the supervision of the military, judicial and policing tasks of the communes.²⁶⁴ During his mandate, the bailiff was controlled by both the *Venners* and subjects, who had rights to appeal directly to the Great Council in case of malpractice. Co-monitoring between bailiffs of neighbouring counties, as well as reporting through clergymen, were also common practice. Furthermore, the country clerk functioned as an internal check on attempts to exploit his office too ruthlessly.²⁶⁵ The clerk (*Landschreiber*) was elected for life and was usually from a local elite of 'notables' who had held these positions for generations. According to the contemporary list of government positions discussed above, there were 18 such posts open to Bernese citizens; the rest were staffed locally.²⁶⁶ Bailiffs quite often lacked the tacit knowledge about local customs and were therefore dependent on the co-operation of their subordinates. Thus, together with the clergymen, the local clerks acted as indispensable middlemen between rulers and ruled. A number of minor clerks, often employed on a part-time basis, supported the state administration.

Based on the income estimates in the list of government positions, it is possible to calculate a relative income distribution of state employees in eighteenth century Bern. The 230 positions of the document provide information for 417 recipients of government salaries between 225 Bz and 150,700 Bz. The overall average income was 20,940 Bz, the mean (geographical average) 9,632 Bz. If the incomes are ranked by size and accumulated, they can be shown as a Lorenz curve (see Figure II-8).

²⁶⁴ For more systematic accounts of the bailiff's duties: Bartlome (1999): 149-152; Wälchli (1981): 118-119; Wälchli (1991); Bucher, E. (1944). The complete list of tasks for each county can be established from their oaths (StABE B VII 25).

²⁶⁵ Bartlome (1999): 150-152.

²⁶⁶ BBB Nachlass Wagner/von Ernst and Mss Hist Helv VIII 53 (see footnote 258 above). In addition to the 18 positions in Bernese counties, the administration of Condominiums offered another three such positions for Bernese citizens.

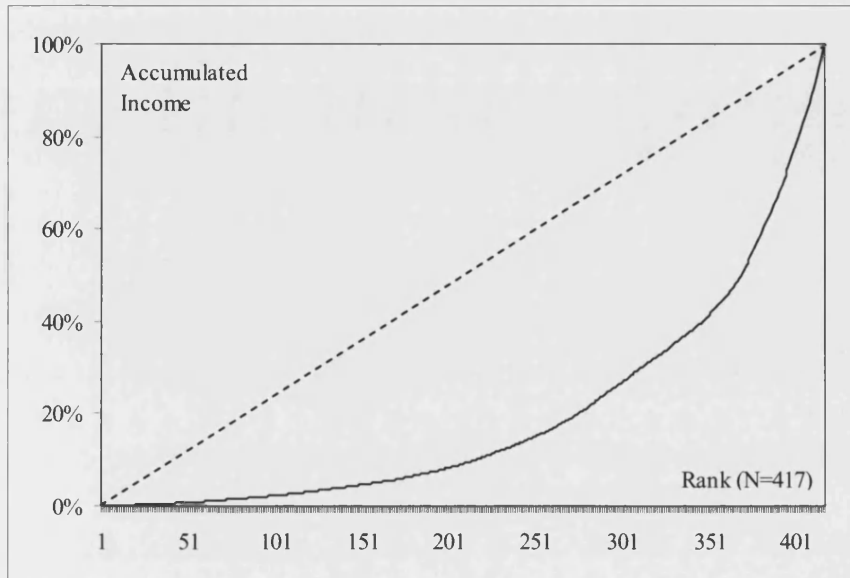


Figure II-8: Income Distribution of Government and Administrative Positions

Source: Burgerbibliothek Bern (BBB Nachlass Wagner/von Ernst) and Mss Hist Helv VIII 53 (see Table II-1). N is for the number of cases ranked by salary ($N = 417$); the solid line shows accumulated income; the dashed line an equal income distribution.

Unsurprisingly, the income distribution is heavily skewed, which means that income was unequally distributed. The top earners in Bernese government had significantly higher salaries than their peers, even if we account for inaccuracies of the primary data, since it is very likely that the list compared positions that required full-time attendance with minor duties.

Overall, Bern's constitutional arrangements were designed to restrain the power of ambitious individuals. A sophisticated system of checks and balances guaranteed equality among those with a stake in government. However, access to the government was strictly limited to a select number of patrician *honoratiores*. With incomes from their country estates, they could afford to wait until being elected into a profitable office. Their wealth also predestined them to assume top governmental positions that paid less well. While they became a distinctive group from the rest of the population, republican equality within the patriciate was maintained. Patrician rule was often criticised, at times even contested, but never seriously imperilled by rivals. Limits to 'absolutist' claims by the government were set by its dependency on the co-operation of local elites and subjects, as it lacked the coercive means to secure rule by force.

Although the eighteenth century saw some intensification of state administration, this remained at a relatively low level.

II-5 Geopolitics and Military Organisation

In a report of 1715, a French ambassador described Bern as a military camp, which ‘has everything it needs for war, its granaries have been refilled, and the people are being trained by capable officers.’²⁶⁷ He could have added that the canton’s army of over 45,000 militiamen was amongst the largest in Europe at the time, albeit on a significantly smaller scale than the French.²⁶⁸ However, Bern was not an ordinary military state. Its standing regiments served abroad as mercenaries. Furthermore, the canton had not been embroiled in any major wars throughout the seventeenth and eighteenth centuries. This section will outline Bern’s geopolitical situation. I will first consider the canton’s foreign policy in the context of the Swiss Confederation, followed by an account of the incidence of wars. Finally, I will assess Bern’s foreign policy and military organisation, including its overseas mercenary regiments.

Bern and the *Pax Helvetica*

Swiss cantons of the eighteenth century showed little desire for geopolitical activity and were almost always at peace. For the most part of the century, the cantons were within the French sphere of influence, with the Emperor’s guarantee staving off complete subordination. Overall, the equilibrium was maintained until 1797, when the Imperial army was defeated and ushered in the end of Swiss independence.²⁶⁹ Throughout the century, the cantons profited from the fact that all sides had an interest in neutralising the *Corpus Helveticum*. In 1688-1691, when France and the Empire were at war, they even agreed to jointly cover the cost for defending the Northern Swiss border.²⁷⁰ Neutrality was interpreted as a commitment to non-intervention. Military alliances remained consistent with this concept, as long

²⁶⁷ The ambassador was Charles-François de Vintemille, Duke du Luc. Quoted in Kapossy (2002): 233.

²⁶⁸ Parker (1996): 46 gives the number of 395,000 French troops under Louis XIV in 1696. By 1710, the number of troops simultaneously on foot in Europe is estimated at 1.3m. See also Wilson, P. (1999).

²⁶⁹ Capitani (1986): 513.

²⁷⁰ Im Hof (1977): 683.

as they were defensive in character.²⁷¹ In addition to a perpetual non-aggression pact with the Empire since 1477 (renewed in 1511), the Confederation had an alliance with France from 1663 to 1723 (renewed only in 1777).²⁷² Since 1712, Bern was also allied with the United Provinces.²⁷³ These alliances secured military assistance against attacks; they also fixed the number of mercenary troops the Swiss provided to their allies. In addition to Swiss soldiers, loans were at times used to create and foster dependencies since the sixteenth century.²⁷⁴ By the eighteenth century, Bernese overseas loans had changed in character and become mainly financial investments (see Chapter V).

The military system of the Swiss Confederation was federally organised and coordinated through a treaty that regulated common border defence since 1647 (renewed in 1668).²⁷⁵ Without powerful standing armies, the cantons abstained from geopolitical conflicts. Andreas Suter has listed numerous causes for this 'low military profile' of the Swiss: their territory was small and relatively poor, authorities lacked the power to tax economic resources and internal antagonisms embodied great potential for internal conflict.²⁷⁶ The most important internal conflict in the eighteenth century was between the Protestant and Catholic states of the Confederation, although it was moderate compared to earlier religious conflicts.

Bern at War

After Bern's response to an attack on Geneva by the Duke of Savoy in 1589, the canton was not engaged in any major geopolitical conflict till 1798. In the meantime, military incidents were limited to civil wars with the Catholic cantons (1656, 1712) and a peasant revolt (1653). All these confrontations were short and inexpensive; they caused few casualties and minimal economic disruption. To borrow

²⁷¹ Im Hof (1977): 678; see also Suter (1998): 141-156. As such, the concept was less strict than its modern interpretation; it was not distinctively Swiss. See *Geschichtliche Grundbegriffe*, vol. 4: 315-337 (article *Neutralität*).

²⁷² Im Hof (1977): 678. The alliance of 1663 was tenured to stop eight years after the death of Louis XIV (who died in 1715). Shortly before his death, the Catholic cantons had signed a separate alliance with France, containing a secret clause against Zurich and Bern: Im Hof (1977): 701-709.

²⁷³ See Altorfer (forthcoming) for details.

²⁷⁴ See Körner (1980).

²⁷⁵ Referred to as *Defensionale*: Im Hof (1977): 678-680.

²⁷⁶ Suter (1998): 152-156.

an expression from Joachim Remak, they qualify as ‘very civil wars.’²⁷⁷ Table II-2 shows the number of troops and casualties as far as the figures can be established. In addition to actual fighting, Bern also mobilised troops at several occasions to intervene in conflicts in allied territories and to defend its borders. Except for the 1790s, however, these incidents were on a small scale.²⁷⁸

Incident	Year	Bernese Troops			Enemy Troops	
		mobilised	in battle	casualties	in battle	casualties
First War of Villmergen	1656	c 9,000	c 8,000	573 (462)	4,900	189 (300)
Second War of Villmergen	1712	35,216	8,500-9,400	206 (406)	c 10,000	3,700 (2,700)
French Invasion	1798		c 20,000	700	c 35,000	

Table II-2: Bernese Troops at War

Sources: Feller (1955): 30, 281-318; HLS (2002): article *Franzoseneinfall*. The figures for casualties show dead and wounded (in brackets).

In comparison to other European wars of the eighteenth century, these figures of troops deployed are negligible. Throughout the War of the Spanish Succession (1703-1712), over 1.2m soldiers died on the battlefield, which equals over 100,000 deaths per year for the duration of the conflict.²⁷⁹ The difference is also instructive when looking at finances. To cover the entire expenses for the Second War of Villmergen in 1712, Bern withdrew approximately 13.125m Bz from its cash reserves and did not levy any additional taxes.²⁸⁰ In contrast, Britain’s national debt increased almost £30m (about 4bn Bz) during the War of the Spanish Succession and had to be covered by ever-increasing tax burden on its population.²⁸¹

²⁷⁷ This expression is from Remak (1993), who used it to describe the Swiss Sonderbund war of 1847 compared to the US civil war.

²⁷⁸ In 1707, an army of 4,000 was levied for ten weeks during the Conflict of the Neuchâtel succession: Feller (1955): 226-227. Bern also intervened in Geneva in 1707, 1737, 1768 and 1782, as well as in Fribourg 1781: Wälchli (1981): 147-148

²⁷⁹ Ferguson (2001): 426 (appendix A) gives the figure of 104,250 death per year of conflict, based on Levy (1983): table 4.1.

²⁸⁰ Feller (1955): 318. The war was entirely paid for by the cash reserve; communal chests for military defence (discussed below) were not used; see also Chapter III below.

²⁸¹ Dickson (1993): 10. See also O'Brien/Hunt (1999). The situation in other countries was similar: Hart, M.t./Jonker/Zanden (1997) [United Provinces]; Bonney (1999a) [France]; Hamilton (1947).

Mercenaries and Militias as a *Virtual Standing Army*

For its defence the canton relied on a two-tier system of a domestic militia and mercenary troops that could be recalled in case of a military emergency. Thus, Bern had a *virtual standing army*, positioned abroad and financed by other states. It is questionable how reliable the commitment by other rulers to release their Swiss mercenary troops in wartime really was.

Bernese mercenary troops were owned by private military entrepreneurs from patrician families. They were licensed by the government and served under a contract ('capitulation'), which fixed the terms of service and the yearly payments ('pensions') that their principal had to pay for the right to levy troops in Switzerland. While such contributions had been a cornerstone of Bernese finance in earlier centuries, they had lost importance in the eighteenth century. In fact, pension payments from France were not collected any more for political reasons and the Dutch levied troops without paying pensions.²⁸² Terms of deployment stated that troops could be withdrawn in case of a military emergency at home and ruled out both offensive engagements and attacks on fellow Protestants. The treaties also stipulated that Bernese soldiers should not be transported by sea, which was meant to avoid a deployment beyond Europe. In reality, these terms were often ignored ('transgressed'). To the Swiss Confederation, mercenary troops formed an indispensable tool of foreign policy and guaranteed that rival powers – especially France and the Empire – had no interest in attacking their 'reservoir' of soldiers.²⁸³ For Richard Feller, they were the price to pay for neglecting Swiss border defence.²⁸⁴ The cantons also reaped economic benefits from the mercenary contracts by obtaining tariff exemptions. While the cost of this policy was financially low, it was high in terms of individual soldier lives. This is why the trade had been criticised on political, military, economic and ethic grounds since the Reformation.²⁸⁵

Throughout the eighteenth century, three Bernese regiments fought for the United Provinces and one each for France and Sardinia-Piedmont. Figure II-9 shows their effective number, based on company registers.

²⁸² Discussed in Chapter V (particularly Section V-2).

²⁸³ For this expression: Pfister, W. (1983): 6.

²⁸⁴ Feller (1955): 237.

²⁸⁵ Pfister, W. (1983): 57-58.

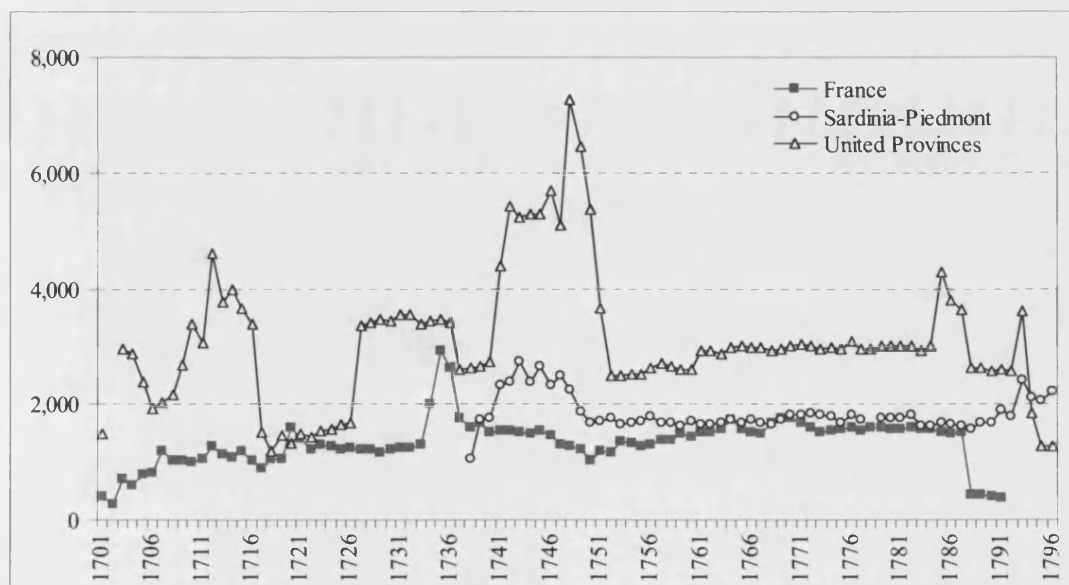


Figure II-9: Bernese Mercenary Troops, 1700-1797 (Effective Number)

Source: Pfister, W. (1980-84): Vol. 1: 271-274 and Vol. 2: 344-345. The graph shows the number of effective troops in Bernese regiments (including foreigners serving in the regiments).

The Dutch made more flexible and economic use of their foreign troops, discharging them in peacetime and only recruiting when necessary. At its height in the late 1740s, approximately 10,000 Bernese troops served abroad, of which only 7,000 were from the canton (the others were 'foreigners').²⁸⁶ The average throughout the century was around half this figure, which would be the equivalent of 1-2% of the total population. For all of Switzerland, it has been estimated that in the early eighteenth century, the equivalent of 3% of the male adult population served abroad, some 1-2% towards the end of the century.²⁸⁷

The Bernese mercenary regiments were owned by patrician families and commanded by Bernese officers, some of whom came from Vaud.²⁸⁸ During the second half of the century around 200 members of ruling families served as officers in foreign armies.²⁸⁹ While over half of them were in the Netherlands, the rest were in France and Sardinia, and some in the British or Imperial armies. In addition to economic benefits, serving abroad provided recruits with an overseas education as

²⁸⁶ 'Foreigners' could also be non-Bernese Swiss. See the different categories in Pfister, W. (1980-84); see also Feller (1955): 516.

²⁸⁷ Capitani (1986): 450. An estimated total of 350-500,000 served abroad throughout the whole century.

²⁸⁸ For the constant struggle about the prerogative to assign officers: Pfister, W. (1983): 36.

²⁸⁹ Geiser (1891): 99.

well as excellent opportunities to create political networks and gain administrative experience. For the military entrepreneurs, it offered a lucrative investment opportunity, albeit a risky one. It has been argued that in the eighteenth century, mercenary services were in decline and became a political favour granted by the principals.²⁹⁰ They had certainly lost in overall importance but could still be lucrative for individual families. In 1677, an inquiry by the Bernese government revealed that one company in France had made a profit of Lb 20,000 (150,000 Bz) in six years of war.²⁹¹ If the sum covered the whole period of six years – and the source is not entirely clear about this point – then the profit was proportionate to salaries of well-paid Bernese bailiffs, who could earn as much in a single year at a significantly lower risk. Nevertheless, the government realised that military profits abroad might make magistrates susceptible to foreign influence and prohibited relatives of Senators and Mayors to own regiments serving for France.²⁹²

The canton also profited from its mercenary troops as a training-ground for the higher ranks of the domestic militia. The military modernisation elsewhere also impacted the Bernese army. The traditional militia of patriarchs (*'Hausvätermiliz'*) was constantly rejuvenated, unified and better armed. While in the seventeenth century only one member per family was drafted, the Bernese government slowly introduced general conscription. From 1768 every able bodied man aged 16 to 60 had to serve.²⁹³ In 1721, Bern had an *Auszug* of rapid units comprised of 13,200 men and an overall army of more than 45,000. By the end of the century, the 28,000 rapid units were combined with a reserve of 50-58,000 men.²⁹⁴ A table of 1787 reported the full capacity of Bernese troops to 93,688 – a figure that included some 20,000 'incapables'.²⁹⁵ Only a fraction of this was actually available during the conflict of 1798.

Based on my own population estimates, about 14.1% of all inhabitants served in the militia in 1732; fifty years later, this share had increased to 16.5% (1782).²⁹⁶ Compared to the number of men aged 16-60, this is equivalent to 62% (1732) and

²⁹⁰ Capitani (1986): 472-475. It would be interesting to test these hypotheses with data from private records of families owning a regiment. The overall number of soldiers was certainly not in dramatic decline for Bern (see Figure II-9).

²⁹¹ Feller (1955): 92.

²⁹² Feller (1955): 196 and Pfister, W. (1983): 32.

²⁹³ Grosjean (1953): 165.

²⁹⁴ HLS (2002), article *Bern*: 266-267 and Feller (1955): 503-517.

²⁹⁵ StABE B II 271.

²⁹⁶ See Section IV-2 for population estimates and Section IV-5 for militia costs.

72% (1782).²⁹⁷ With a soldier to civilian ratio between 1:7 and 1:6.25, Bern looks even more militarised than Hesse-Cassel as the ‘most militarised state in Europe’ of the time, which had a ratio of 1:15.²⁹⁸ In Prussia, the ratio was 1:30. Such figures can be misleading, however. The Bernese troops were not well trained and their equipment was relatively backward. Compared to Hessians, Prussians or French, they also lacked fighting practice, with the exception of the returning mercenaries in their ranks. In principle, communes paid for the troops while they were deployed but not for training; throughout the eighteenth century, the state treasury reimbursed them for troop deployments. Each commune had to keep a war chest in cash (*Reisgeld*), whose amount was fixed by the government. Bailiffs monitored its existence and also supervised the training of militias, which took place for a few days every year.

In summary, the most distinctive geopolitical feature of Bern was the absence of major wars for over two centuries before 1798. Overall, Swiss foreign policy during that period is characterised by inactivity. The Confederation as a whole benefited from the prevailing political equilibrium in Europe, which was the best guarantor for its independence. This system worked well until its collapse in 1797. Despite an isolated attempt to resist the approaching French troops, the events of 1798 showed that the canton’s defence was not only inexpensive, but also ineffective. The combination of domestic militia and mercenary troops abroad that had represented Bern’s *virtual standing army* throughout the eighteenth century proved to be just that – virtual.

II-6 The State as Provider of Non-Financial Public Goods

While most of my research is on actions which are traceable through government accounts, it is crucial to acknowledge that states provide important non-financial public goods. These normative actions include securing property rights in particular. In the first part of this section, I will discuss this for the Bernese state based on the specific examples of cultivation rights, mortgage credit and mercantile law. In a second part, I will analyse the government’s economic policy, mainly with

²⁹⁷ Calculated with relative percentages for 1764 from Pfister, C. (1995): table 9.3 (432). I have applied his relative estimates for the canton in its 1980 borders to the whole territory.

²⁹⁸ Ingraio (1987): 132.

respect to the textiles industry and grain markets. The role of education and spiritual public goods have been put aside because of a scarcity of information.

Property Rights

The importance of secure property rights is one of the crucial components of a New Institutional approach to economic history (see Section I-2 above). The basic idea is that agents will only engage in productive economic activity if they feel assured that their assets are safe. Historically, the definition and enforcement of property rights by the state has mostly been related to revenue extraction, with states securing property rights in order to tax more effectively. In the Bernese case, where taxation was minimal, property rights were still relatively secure, although with marked differences.

Cultivation rights determined the kind of agriculture that was carried out on a specific plot of land. In a feudal system, the landlord determined which crop was planted. In Bern, such feudal rights were often held by communal collectives, who decided on cultivation within the framework of a three-field crop rotation system. The degree of feudal penetration differed across regions, however. In the Alps, communal structures were relatively weak, and individual peasants could choose their activity free of constraints. As a result, Alpine agriculture specialised in cattle and dairy farming, selling its products on the market, often abroad. In the lower lands (*Mittelland*), feudal structures prevailed for longer. This promoted the cultivation of grain, which could be taxed easily in the form of tithes, whose product could then be stored or sold. The most visible change in cultivation rights was the division of communal lands (*Allmenden*), which were enclosed and exploited individually. In the second half of the eighteenth century, the enclosure movement reached the *Mittelland*, although it peaked only during the Helvetic Republic after 1798. Individual property rights of peasants provided a powerful incentive for more productive use of land. This ultimately led to an increase in potato and dairy farming in the sub-Alpine zones (Emmental) in the nineteenth century.²⁹⁹ The government did not actively promote enclosures, but it allowed communes to divide common lands after 1765 and maintained the option to regulate how divisions were carried out.³⁰⁰

²⁹⁹ Pfister, C. (1995): Chapter 4.1 and Bodmer (1973): 60-63.

³⁰⁰ Feller (1955): 532.

This was fraught with contradiction, since the main interest of the government was to secure its tax (tithe) base, which was to a large extent dependent on feudal arrangements.

The support for securing land titles by the government was more forthcoming. The Bernese capital market consisted almost exclusively of mortgage contracts. These had the form of *Gülten*, which in spite of their wording as *rentes* had evolved into impersonal mortgages that could be terminated by both sides. Thus, the government had secured mortgage contracts as a reliable and secure form of investment.³⁰¹ For many investors, mortgage credit was used as a pension, generating a steady stream of revenue over time. Accordingly, *Gülten* contracts were usually renewed after their expiry date. In order to protect investors, the government also fixed interest rates by usury laws as part of its prerogatives as a sovereign. Earlier mandates from 1648 and 1658 fixing the interest rate at 5% were renewed in 1731, in spite of discussions to lower the rate in the light of an oversupply of capital. As the main argument for extending the high rate, the government cited tradition and a desire to avoid capital exports, but also the protection of investors, which included widows and orphans alongside the government itself. The argument was that lowering interest rates would deprive investors of sufficient returns.³⁰² Securing mortgage contracts enabled the establishment of a domestic capital market that allowed peasants to use land as collateral for loans. Andreas Ineichen has found that in the Lucerne countryside, agricultural mortgages were rarely used to fund productive investment, but rather to avoid dividing up lands for inheritance or even out financial life-cycles.³⁰³ Credit from citizens of a republic to their rural hinterland has also been identified as a major avenue for clientelistic relations in early modern Switzerland.³⁰⁴ This applied to Bern, where patricians were important holders of lands, titles and financial claims throughout the territory of the republic. Interestingly, in contrast to the situation in most other European states, the government of Bern was interested in the capital market as a lender, not a borrower.

While agricultural property rights were secured, the government's support for commercial titles was far less enthusiastic. In the aftermath of a severe banking crisis

³⁰¹ See also Pfister, U. (1994).

³⁰² Quoted in Schmidt, G.C.L. (1932): vol. 2, 66 (prerogative) and 122-123 (1731 report).

³⁰³ Ineichen (1992); Ineichen (1996); it can be argued that the situation in most of the Bernese territory was similar.

³⁰⁴ Pfister, U. (1992b); Pfister, U. (1994).

in 1720, the Great Council attempted to reform Bernese mercantile law. The new commercial code modernised and facilitated aspects of commercial transactions. Business associations, bankruptcies and bills of exchange were largely regulated following the model of the Geneva *Règlement sur le commerce*. By 1728, a final draft of the bill was ready; it was vetoed by the Great Council after a dispute about bankruptcy courts. At the heart of the matter lay the interest of city courts (*Stadtgerichte*) staffed by patricians, who were not willing to lose their income from bankruptcy cases to a newly established mercantile court. Nikolaus Linder interprets this failure to create a suitable infrastructure for business and commerce in the context of Gary D. Liebcap's argument that any (re-)definition of property rights reflects underlying political bargaining structures.³⁰⁵ Applied to the Bernese case, the lack of a vested commercial interest of patricians – and their interest in maintaining the current solution in their favour – was an impediment to reform. A commercial code that would enable the accumulation of proto-industrial and commercial wealth might even represent a potential threat to patrician rule. The Great Council adopted a strategy of 'non-regulation' to avoid adverse redistribution effects.³⁰⁶

The same argument can also be used for the contrasting case of *Gülten*, where patricians had a vested interest in making these securities safe. Government members were willing to provide instruments for facilitating transactions because of their involvement in this market. In addition to the perspective on patricians as an interest group, from a ruler's perspective, the government's neglect of commercial regulation can be interpreted in a similar way. Since state revenue did not chiefly depend on taxation of industrial and commercial activities, they were not the government's primary concern. This contrasts with the situation in mercantile republics, where both the state (through taxation) and its power elites gained from promoting commerce.

Nevertheless, in spite of the absence of a fully fledged mercantile law, Bernese courts were relatively efficient and fair by early modern standards. Merchants did not benefit from special protection, but suffered little discrimination from government members defending their vested commercial interests. Abuses of property rights through arbitrary taxation or forced loans were entirely absent. Overall, the government defined and secured property rights relatively well, even if the degree of

³⁰⁵ With reference to Liebcap (1989).

³⁰⁶ Linder (2004): 199-202; for the commercial code: 169-182.

judicial fragmentation between social groups was high compared to modern legal systems in which all citizens share equal rights.

Economic Policy

The Bernese government adopted its first consistent economic programme in the late seventeenth century by introducing a Commercial Council (*Kommerzienrat*), modelled after the French *Conseil de Commerce* under Colbert.³⁰⁷ Its intentions were to attract manufacturing industries, mainly by encouraging the settlement of Huguenot refugees after the revocation of the edict of Nantes. The strategy had limited success, as most refugees used the canton as a temporary base before migrating to the Netherlands or Britain.³⁰⁸ The ‘mercantilist’ spirit of Bernese economic policy prevailed for decades, in spite of a fading importance of the Commercial Council. With the manufacturing mandate of 1719, Bern had shifted entirely to a territorial economic policy, which granted little privilege to the capital over its territory. In this, the canton differed significantly from other Swiss republics in which mercantile elites managed to impose important protection *vis à vis* of their hinterland.³⁰⁹ With the exception of salt, the government avoided the control of commercial activities, although it set boundaries for agricultural commodities. Grain mandates declaring temporary export bans provided a ‘fine and flexible’ instrument for securing sufficient supplies.³¹⁰

Physiocratic ideas became prominent in the second half of the century; they centred on the *Ökonomische Gesellschaft* of the Economic Patriots, in which numerous patricians were active members.³¹¹ The *Gesellschaft* promoted agrarian modernisation, considering productivity increases within the existent agricultural system as the solution to the canton’s autarchy. Physiocrats recognised that free grain trade could create incentives for higher productivity. However the Economic Patriots failed to see that changing the agricultural pattern of early-modern Bern also meant questioning the way the state was funded and legitimised. Given that their members

³⁰⁷ Lerch (1908); Schneider, H. (1937); Bodmer (1951) and Bodmer (1973).

³⁰⁸ See also Küng (1993) on the Huguenot refugees.

³⁰⁹ See the comparison in Bodmer (1951) or Braun, R. (1984).

³¹⁰ Bodmer (1973): 27; see his list of grain mandates in Table 1 (94-101).

³¹¹ Baeschlin (1913); Pfister, C. (1975) and Pfister, C. (1995); Kapossy (2002). The Bernese physiocrats did not necessarily share orthodox views on taxation [see Bonney (1995a): ch. 6.5]. I understand physiocracy in this context as a stream of thought that considers agriculture as the main economic activity and key contributor to state finance.

were mostly from patrician families, this blindness was not a surprise.³¹² The enclosure of common lands went hand-in-hand with untying production, which implied that cultivation should be free from any feudal constraint.³¹³ Therefore, in its ultimate consequence agricultural reforms would have undermined the state in its existing form. Christian Pfister argues along the lines of William Abel that the changing doctrine towards Physiocracy needs to be considered in the context of falling rents for patricians since the 1740s. Demographic stagnation or even decline led to a decrease in profits for large landowners and rentiers. In this situation, the incentives to increase production were absent because demand was not growing. This situation was considered dangerous for both the state and patrician families.³¹⁴

While urban guilds had little influence on the state's economic policy, they often held important local privileges and wielded strict control over their own trade. They set standards for the quantity and quality of products, regulated apprenticeships and settled commercial disputes. However, an important limitation to the guilds' economic power was the government's similar treatment of urban and rural producers. Secondly, it promoted the establishment of rural guilds in the countryside. These were similar to their urban counterparts, although usually even less successful in enforcing privileges. In practice, this led to the co-existence with a non-guild sector ('*Stümper*') in rural areas. It consisted of day labourers who worked in agriculture and industry, as well as itinerant craftsmen ('*Störarbeiter*').³¹⁵

With its territorial economic policy that did not favour the capital city, the Bernese case provides a counter-example to Ulrich Pfister's explanations about the political protection of markets outlined in the introduction.³¹⁶ His model accurately describes the situation of the largest part of the textile industry in eastern Switzerland dominated by the guild-run cities of Zurich and St. Gallen, as well as the response by their rural competitors in Appenzell or Glarus. In Bern, the absence of an urban merchant elite pushing for protection might explain why proto-industry only happened at a time when 'ruralisation' had already set in elsewhere. The political elite had no direct interest in textiles, arguably because their alternatives for obtaining incomes through government offices and mercenary services were profitable enough.

³¹² Pfister, C. (1995): 175-180.

³¹³ See Pfister, C. (1995): 179-180, referring to Häusler (1986): 195.

³¹⁴ Pfister, C. (1995): 178 – see also Abel (1966).

³¹⁵ Meier (1986); Graf-Fuchs (1940).

³¹⁶ Pfister, U. (1996a); see the discussion in Section I-2 above.

The government supported the introduction of export industries as a way of generating employment and improving its negative balance of trade. Tax reasons were not important, since this sector was virtually untaxed. From its late start in the seventeenth century, the state did little more than securing the working of a domestic market for semi-finished and finished products and left the rest to private initiative. Compared to the other textile centres, Bern did not successfully transit to industrial production in the early nineteenth century, for which arguably a lack of marketing know-how and ‘entrepreneurial spirit’ was responsible.³¹⁷

The Bernese manufacturing mandate of 1719, while banning textile imports, stated explicitly that its production was free.³¹⁸ State-employed clerks (*commis*) policed the import ban and reported the amount of domestically produced cloth to the Commercial Council. It is not clear for how long these reports were actually produced as only few have survived.³¹⁹ In 1758, the government regulated the production of linen by mandate, followed by a regulation for cotton three years later.³²⁰ The aim was to secure exportability of the final product, deemed necessary for the balance of payments; the government did not intervene in the organisation of production as a belated acknowledgement of the existing market-based system. While the Bernese manufacturing mandates left methods and quantities unregulated, they imposed standards for textile products which divided them into different qualities.³²¹ State-employed controllers (*Tuchmesser*) had to measure and certify all cloth sold on the market, for which they received duties. Based on controllers’ records, Jean-Jacques Siegrist estimated their cost at less than 1% of the final product price.³²² As my empirical analysis will show, they were also unimportant for Bernese state finance.³²³ Since duties were neither levied on the textile industry, nor on the income from this activity, it can be considered tax-free.³²⁴

Assuming ‘Smithian’ market expansion as the main form of economic growth in early modern times, the degree of market integration would be the test for the

³¹⁷ Bietenhard (1988): 288-292.

³¹⁸ Graf-Fuchs (1940): 189.

³¹⁹ Lerch (1908): 63-67. The instruction of the *commis* can be found in StABE B V 4: 1-18, 79-83 and 134-138.

³²⁰ RQBE, vol. 8/1: 614-618; 171-172; 175-179 (for cotton).

³²¹ RQBE, vol. 8/2: 615 and 176; Bein (1920): 50.

³²² Siegrist (1957): 15-18. For an analysis of production volumes based on the *Tuchmesser* lists, see footnote 213 above.

³²³ See Chapter IV below.

³²⁴ This was the same for textiles in Britain, see O'Brien (1994): 212; O'Brien/Hunt (1999): 64-65.

effectiveness of the Bernese territorial economic policy.³²⁵ If the policies were successful, the level of market integration defined as the absence of arbitrage profits and stable transaction costs for the same good in different markets should decline over time. Even for the most important commodity of the time, grain, information is scarce; hence empirical results should be considered very carefully. Anton Brandenberger has found that Bernese grain markets were well integrated with each other, confirming earlier statements by Christian Pfister.³²⁶ Brandenberger has further found that the Bernese market was less well connected with grain markets in neighbouring countries. It is not clear to which extent the difference can be attributed to distance (transportation cost) or to political factors.

In summary, property rights were well defined and secured, although commercial rights did not benefit from particular protection. The degree of judicial fragmentation was certainly high by modern standards, but Bern was not an outlier in an eighteenth-century context. The government's economic policy was mainly characterised by inactivity, leaving ample room for individual initiative, though this was not sufficient to create a dynamic economy. Some possible explanations for this failure are the lack of social and political mobility for successful entrepreneurs and the lack of protection in a mercantilist world, in which market access was not free. Also, the size of the domestic market was small, and there was little integration beyond the cantonal boundaries.

II-7 The Fiscal Constitution

To modern scholars, the fiscal constitution of early modern Bern was rife with inaccuracies. The accounting system was not transparent, responsibilities were ambiguous, and the distinction between official and private fortunes flawed. In short, it was a patrimonial structure, burdened by a long tradition of path dependent institutions. While the government promoted standardisation throughout the eighteenth century, changes were incremental and slow. The aim of this section is to provide the necessary background information for the empirical analysis of state

³²⁵ See Epstein (2000). For market integration also: Bateman (2006); Weir (1989); Jacks (2004).

³²⁶ Brandenberger (2004): ch. 4. Pfister had argued that grain prices of Bern and Nidau were highly correlated, without explicitly referring to market integration: Pfister, C. (1975): 151 (footnote 7).

finance in subsequent chapters. It focuses on accounting practices, which can also be considered as an illustration of how reforming the Bernese state was ongoing and incomplete. While the government tried to impose some standardisation and transparency, it was reluctant to go the full way, for this had the potential to undermine its own legitimacy. I will start by briefly explaining the two-tier system of monetised and non-monetised transactions, then discuss the use of accounting techniques and auditing.

Collecting Revenue with a Partly Monetised Accounting System

As will be discussed in more detail in the next chapter, the Bernese state did not have a central budget (see Section III-3 in particular). The word ‘budget’ has to be qualified in this context as the government did not have any explicit financial forward-planning; or if it had, the documents have not survived.³²⁷ In the Bernese accounting system, different types of accounts co-existed and their content partially overlapped. The *Deutsch-* and *Welsch-Standesrechnung* were the closest equivalent of a central account, but they did not contain all revenue and expenditure of the state. In particular, numerous transactions that occurred at a local level were not included. They were recorded in bailiff ledgers, from where an eventual surplus was transferred to the *Standesrechnung*. The system is symptomatic for the incomplete separation between government office and private fortunes in the patrimonial Bernese administration.

As explained above, each bailiff was accountable for his office with his private fortune. An incumbent bailiff had to purchase the inventory from his predecessor. This was recorded as his debt towards the state (*Restanz*), to which all revenue that he collected were added and expenditure subtracted. An eventual surplus in his account showed as an increased debt of the officeholder towards the state and *vice versa*. Bailiffs were the cornerstones of Bernese revenue collection. The administration relied on a sophisticated accounting system that combined monetised transactions with transactions in kind because a large number of revenue accrued in grain and wine. The main source of revenue in kind were tithes, which had to be delivered in grain and could not be paid in cash. The Bernese government auctioned off tithe

³²⁷ This was not uncommon for early modern states: Bonney (1995c): 428-431; Körner (1981): appendix 1.

collection to the highest bidder in each county, following a system of checks and balances to ensure achieving the highest possible price.³²⁸ Tithe collectors then delivered a fixed amount of grain and wine to the local bailiff, regardless of the outcome of the harvest. As a safeguard against moral hazard, the bailiffs themselves were not allowed to bid for tithe collection, nor were their relatives.³²⁹

Part of the state's revenue in grain was used directly for expenditure, ranging from salaries to subsidies for the poor or payments for services. In years with abundant harvests, part of the tithe receipts went to the public granary which the bailiff administered. In June and January, bailiffs received instructions from the *Vennerkammer* about the exact amount of grain they were allowed to sell on the market; selling grain without explicit permission was strictly forbidden.³³⁰ From 1731, bailiffs had to record their grain sales on behalf of the government. As remuneration, they received a share of the proceeds, usually one fifth, seventh or ninth, depending on the amount sold.³³¹ Bern thus adopted a system that was based on market prices and set an incentive for high prices for the bailiff. Its effects will be discussed in more detail in Section III-6 below.

The Use of Numbers and Tables

All Bernese accounts were kept in handwritten ledgers. They varied in format, size and quality, ranging from relatively simple booklets to luxurious leather-bound volumes illuminated with coats of arms and lavish calligraphy. In general, the more important the office was, the more intricate and ornate was its ledger.³³² Typically for a patrimonial administration was the way in which accounts were written as personal statements ('My account as Treasurer in year X' rather than 'the accounts of the Treasury for year X'). The books listed revenue and expenditure by category, usually distinguishing between *ordinary* and *extra-ordinary* transactions.³³³ Ledgers finished with an account balance and auditing remarks by the *Vennerkammer*, for which the officeholder would leave a few blank pages. Some accounts also contained an

³²⁸ Pfister, C. (1975): 97-99. Bailiffs also did not get a commission for tithe collection.

³²⁹ StABE B VII 25: §17.

³³⁰ Bucher, E. (1944): 107.

³³¹ This was called the *fifth (seventh, ninth) penny*. The larger the amount sold, the smaller was the share. See Bucher, E. (1944): 107 and StABE B VII 25: §9b.

³³² For the formal aspects of the *Deutsch Standesrechnung*: Leuenberger-Binggeli (1999).

³³³ Bonney (1995c): 428-431.

appendix that specified the content of public inventories or gave details about transactions, such as grain sales or collected fines. Double-entry bookkeeping with T-style accounts was only used for offices with a commercial nature, such as salt ledgers, overseas investment or grain chamber accounts. Bailiff accounts and *Standesrechnungen* did not use this technique. For the former, this can be explained by a lack of accounting know-how by Bernese patricians. For the latter it is more surprising, since the Treasury used double-entry bookkeeping for its daily work, as evidence from a control ledger and journal for the years 1720-1733 proves. The booklet contains credit and debit statements for each office, listing all transactions between the Treasury and this office in chronological order; records were crossed out when counter-booked.³³⁴

Arabic numbers were been introduced into Bernese accounting in the late seventeenth century, which overtook the use of roman letters in the eighteenth century.³³⁵ Transactions were recorded in separate columns for each currency sub-unit, of which there were normally two (see Section VII-13 in the appendix for details). This made adding page sums and grand totals (*'summa summarum'*) easier and more reliable. In many cases the sums were first added by pencil for a final check before being written down in ink.

The list of categories in the Bernese ledgers became more standardised over time. Regional differences vanished, and bailiffs increasingly had to follow the same practice. There never was a full set of rules applied to all offices, however, and the change was gradual. Grain mandates had instructed bailiffs about how to look after public granaries for centuries. These regulations also dictated a strict separation between private and public grain inventories.³³⁶ In 1757, public grain policy was reformed and unionised throughout the canton. Grain mandates released in this year were more detailed than any of their predecessors. The historian Ernst Bucher has accused the government of 'schematism' and a willingness to control every minute detail of administration.³³⁷ However, imposing some degree of standardisation and consistency through enforceable accounting standards was probably the only way to avoid officeholders taking advantage of their powers.

³³⁴ StABE B VII 440.

³³⁵ Leuenberger-Binggeli (1999): 177-178.

³³⁶ StABE B VII 25: §7-17.

³³⁷ Bucher, E. (1944): 114.

Further along the process of standardisation, the government compiled a consistent collection of all bailiff oaths of office in 1779.³³⁸ This gave an overview of their duties, which were unified in a similar fashion. Up till that time, decrees and instructions had been collected unsystematically in large volumes.³³⁹ It can be presumed that before the reform, most bailiffs learnt their duties either through custom or from relatives. They also benefited from the fact that the local clerks (*Landschreiber*) enjoyed lifelong tenure and accumulated significant practical knowledge. Although accounts officially were in the name of the officeholder, most were probably written by their clerks. Format and phrasing were usually copied from predecessors and therefore changed little over time. Parallel to the reformation of the bailiff oaths, their superiors – the *Venners* – also received new and more concise instructions. To make the break from previous ‘path dependent’ traditions more obvious, the new set of rules was organised by topics, rather than chronologically by simply adding new rules in the order they were issued by the Great Council.³⁴⁰

Since the 1760s, the Bernese administration made widespread use of tables to compile data. With this new system, proto-statistical surveys were made much easier.³⁴¹ For a grain inventory enquiry in 1757 and the 1764 population census, the government even printed forms for bailiffs and priests to complete. Similar tools were later applied for collecting financial data from across the canton; I will use them for my long-run analysis of state finance (see below, Section III-4).³⁴² It is not clear if these tables were written in retrospect or constantly updated. What matters in this context is the sheer existence of such compilations, which prove how the government tried to overcome the problems of a fractured financial organisation. This was driven by a desire for more transparency and the need to obtain better information for political decisions. The fact that this conflicted with the principle of secrecy in financial matters can probably explain why the ultimate reform, to introduce a central budget for the state, was not taken.

³³⁸ StABE B VII 25 and 26.

³³⁹ StABE B VII 21 and 444.

³⁴⁰ StABE B VII 5 and 6. For example, the new version of 1778 left blank pages for later additions.

³⁴¹ See also Pfister, C. (1995): 41-50 and Kellerhals (1984).

³⁴² StABE B VII 2179.

Auditing

The Bernese accounts were formulated to be read before the Great Council as the ultimate institution that every officeholder was responsible to. Accordingly, the opening paragraph sounded similar to that of the Aarberg bailiff in 1782:

Mine, Johann Rudolff Wagner's, bailiff of the county of Aarberg, second account and report of all my revenue and expenditure concerning this office, from new year's day 1782 until the same time 1783.³⁴³

Before reaching the Great Council, each ledger was presented to the *Vennerkammer* for auditing in a process called *passation*. This took place in spring, usually a few weeks after the end of the financial year of an office.³⁴⁴ The *Venners* scrutinised each account for accuracy and calculation errors; they also made sure that all relevant revenue and expenditure was included. Finally, they subtracted expenditure from revenue and, if necessary, included previous arrears to determine each bailiff's new debt towards the state. If they discovered irregularities, the *Venners* made comments, which were then referred to the Great Council along with the details of the account. A copy of their comments was kept in the *Abusen-Buch*, which served as reference for future controls.³⁴⁵ For the above mentioned example of Rudolf Wagner's 1782 account for Aarberg, the *passation* record reads as follows:

On Monday, 10th of February 1783, His Excellencies the German Treasurer and *Venners* listened to Mr Johann Rudolff Wagner's, currently bailiff in Aarberg, 2nd official account, and under the usual caveat of (fraudulent) miscalculation, [have] passed and accepted [his account], through which, after [(...) minor corrections], Mr the bailiff has been gratified with some grain[;] then revenue [has] been compared to expenditure, and been settled, the same [bailiff], including his previous arrears in grain, owes to His Excellencies 669 Crowns, 20 Mt of wheat, 20 Mt of mill corn, 75 Mt of rye, 1769 Mt of spelt [and] 540 Mt of oats. *Actum ut Supra*.³⁴⁶

The formula for Vaud ledgers differed slightly in wording, stating the account was accepted as an 'honourable and true business under the caveat of (fraudulent) miscalculations.'³⁴⁷ It ultimately contained the same disclaimers. The crucial point is

³⁴³ StABE B VII 862. For the original text, see Section VII-3 in the appendix.

³⁴⁴ See Section VII-5 in the appendix for the starting dates of the financial year.

³⁴⁵ StABE B VII 27.

³⁴⁶ StABE B VII 862. For the original text, see Section VII-3 in the appendix.

³⁴⁷ Moudon account 1782: ACV Bp 34/38.

that the *Venners* passed the account under the caveat of good bookkeeping, which allowed them to turn on the officeholder if fraud was detected at a later date.

The *Venners* also calculated deductions for weight loss of the granary that each bailiff was entitled to. They were fixed at 5% for the current harvest (*Kastenschweining*) and 2.5% of all previously stored grain (*Abgang*). The 1757 grain mandate instructed bailiffs to carry out the calculations themselves. Even before the reform, some office holders had already deducted grain maintenance. While the *Venners* considered this fact in their calculations – and hence did not compensate the bailiff twice – the *passation* text occasionally mentioned a deduction.³⁴⁸ In other words, the text did not accurately describe the calculation but followed a formula that was simply copied from the previous year. There are also instances where the *passation* text mentions a deduction on a new harvest when none was recorded.³⁴⁹ While this points to a copy-and-paste approach to repetitive formulas, the *Vennerkammer* rarely made mistakes in their calculations. On the other hand, taking these *passation* texts at their face value can lead to important miscalculations.

Another crucial part of the patrimonial system worth mentioning is that the *Vennerkammer* always kept some discretion to reward a bailiff rather than adhering to strict guidelines. As the *passation* of Wagner's account mentions, some grain was left to him as a 'gratification'. While the whole auditing process was scrupulous, the *Venners* were interested in keeping a veil of non-transparency over the whole process, which ensured some discretion in determining the exact claims that the government had towards its officeholders. This opaque structure opened the door for clientelistic relationships and support for family members that could only be checked for by the rivalry between different factions within the *Vennerkammer*.

The bailiff received a copy of the *passation* comments, intended as a lesson in good governance to avoid future mistakes. Accordingly, the comments were often that certain expenses 'will not be admitted in the future.'³⁵⁰ Most accounts only triggered minor corrections by the *Venners*. On occasion, their concerns could be more severe. An example for particularly bad accountancy was Franz Ludwig Müller, the freshly appointed caretaker of the *Mushafen*, a charitable institution in the city.³⁵¹ When he presented his second account in 1733, the *Vennerkammer* not only rectified

³⁴⁸ Yverdon account 1732: ACV Bp 42/33.

³⁴⁹ Bauherr Burger account 1732: StABE B X 47.

³⁵⁰ Trachselwald account 1782: StABE B VII 2076.

³⁵¹ StABE B III 1158.

his errors carefully one by one, it also included a special report containing observations on his lack of accuracy. Müller in turn responded with his own defence. As Richard Feller suggested, family relationships could be more important than accuracy during a *passation*.³⁵² That a relatively small and unimportant charitable institution was scrutinised in such detail could even reflect the parsimonious nature of the Bernese government. However, there were numerous examples of high-standing officials who also found their accounts criticised in detail.³⁵³

Calculation errors were remarkably rare, given that most accounts contained several currencies that were all non-decimal. Stephan Hagnauer found that in the four counties he studied for the seventeenth century, 1.4% (1630s) and 0.75% (1680s) of all transactions were added wrongly. On average, this affected 0.3% of the total sums accounted for. Intriguingly, however, he also found that mistakes which favoured the bailiff occurred more often than those favouring the state.³⁵⁴

To sum up this section on Bern's fiscal constitution, the government relied on a sophisticated accounting system that reflected the patrimonial nature of the state. Officeholders were responsible with their own fortune. To determine their final debt to the state, accounting processes were tailored to the needs of recording transactions in kind and monetary units. The administration followed a strict set of rules, which seem customary in character rather than systematic. Detailed instructions for bookkeeping were only common towards the later part of the century, although there might be a tradition bias in this respect. In general, there was a trend towards more standardised forms of accounting. The increasingly frequent use of tables illustrates that magistrates of the late eighteenth century were struggling to get an overview of the financial situation of their state. In spite of this drive for standardisation, a number of old customs were left untouched, and innovations like double-entry bookkeeping only partially adapted. These developments mirror the characteristics of the Bernese government, torn between the desire to build a modern state and their adherence to traditional, legitimate forms of administration.

³⁵² Feller (1955): 126. It might not be a coincidence that the above mentioned Müller came from a relatively unimportant family.

³⁵³ Nyon account 1782: ACV Bp 35/33.

³⁵⁴ Hagnauer (1995): 56-57 and 133. I have not carried out systematic research on this in my database.

II-8 Conclusion: An Assessment of Patrician Rule

By the eighteenth century, Bern had been safely established as a territorial republic and most powerful member state of the Swiss Confederation. The government was staffed by an oligarchy of patrician *honoratiore*s, who successfully claimed exclusive access to power. Although this government had no competitors for its monopoly of legitimate violence, attempts to intensify state activity – state-building, in short – were checked for by a lack of resources for coercion. In Bern, the scope at which state-building could happen was smaller than in other European states, as the empirical results will later confirm (see Section IV-5 in particular). Despite a tendency to unify the canton, jurisdictional fragmentation remained important, not only within the canton, but even more so with other states of the Swiss Confederation. The government depended on the co-operation of its subjects, which it secured in two ways. First, local elites could participate in the lower levels of administration and, second, the population was taxed moderately. If the state never imposed a coercive machinery to extract revenue from its subjects, this was on one hand because it did not need to; on the other hand, it did not have the means to do so. Thus, Bern survived at a low-level equilibrium, where small expenditure and little revenue went hand in hand. Such an equilibrium could only work if the state's financial needs were curtailed, for which the absence of warfare was crucial. This in turn was secured by a combination of geopolitical inactivity ('neutrality') within the European balance of power and far-reaching co-operation with the most threatening rival, France. Bernese mercenary troops were an exported service that also provided education and investment opportunities for patricians. In addition, they contributed to foreign policy and were a necessary completion to the domestic militia in the canton's defensive strategy. They did not generate any direct revenue for the state, however.

An advantage of patrician rule was that the heredity of government offices ensured that coercion was applied with moderation. Government members recognised their dependence on co-operation from their subjects and wanted to sustain the basis of their rule for future generations. Patricians were generally well prepared for holding office, which was their professional objective for life. For the most part, they were relatively well-educated, incorruptible and carried out administrative tasks efficiently. This was guaranteed by numerous internal checks and balances, of which peer-monitoring by envious fellow patricians was probably the most effective. Government offices were well remunerated, which limited the incentives for

corruption – especially since the consequences of opportunistic behaviour were an exclusion from future office holding for an entire family. Also, the fact that the top-level administration was staffed by government members resulted in an alignment of interests between the two, curtailing agency problems and moral hazard. In this sense, the Bernese administration compared favourably with the situation in monarchic states.

The negative aspects of patrician rule were that the system of seniority and lifelong office holding in top positions led to a lack of internal renewal and ossified political structures. Insurmountable barriers of nepotism and co-optation limited the access to both government and top-tier administration for all but a small fraction of the population. The result was a distorted selection for the manning of offices, which was ultimately an inefficient way of allocating talent. The exclusion of wealthy and well-educated subjects from important positions in the republic made them suffer from status inconsistency. From today's perspective, there was also an obvious lack of individual freedom and political participation. However, it is not clear what the eighteenth-century alternative to Bernese rule was for the subject territories. Although independence and self-government might have been an option, it was unlikely to be in a more liberal and democratic state. Most subjects were probably better off living under a paternalistic but largely benevolent patrician rule, rather than being part of an absolutist monarchy or a guild-dominated city state, where political elites pursued their vested economic interests. This is illustrated with the provision of property rights, which was relatively free and fair in Bern, although mercantile contracts were not specifically protected.

When using Hilton Root's distinction between cronyism and corruption, Bern's political institutions tended more towards the former.³⁵⁵ Corruption in the form of bribes was relatively negligible, but the distinction between private and public finance of administrators was blurred. Co-monitoring and hereditary office holding had the effect that short-term exploitation by officeholders was curbed. Patricians had not become pure rent-seekers holding sinecures. In spite of securing exclusive access to offices, they still had to perform vital administrative tasks. As simony had been successfully contained, the only cost of access to office was the waiting time that patricians incurred. Therefore, the personal expenses that an officeholder had to cover during his term were significantly lower. Furthermore, the scope of private

³⁵⁵ For the distinction, see Root (1991), discussed in Section I-2 above.

appropriation was curtailed by the sheer fact that state revenue was relatively moderate. Bern's fiscal constitution is indicative of the government's half-hearted attempts to reform and unify administrative procedures.

When comparing these findings with the matrix of European state-building by Ertmann, infrastructure of the canton was patrimonial in character, since magistrates carried out administrative tasks without the support of a bureaucratic structure. Bern's political regime can less clearly be described as either absolutist or constitutional. Despite being formally organised as a parliament, it had absolutist traits.³⁵⁶ The government was only accountable to fellow patrician government members and citizens, which were only a fraction of the total population. If we classify this as absolutist, this leaves us with the intriguing conclusion that – still according to Ertman's model – Bern was part of 'Latin Europe'. Based on his explanatory variables, with an early onset of geopolitical competition and its participative form of local government in the early days of state-building, the model predicts Bern to develop into a patrimonial-cum-constitutional state.

³⁵⁶ See Ertman (1997): 10 (Table 1), discussed in Section I-2 above.

III Bernese State Finance in the Eighteenth Century (Analysis of Long-Term Developments)

III-1 Chapter Content and Analytical Framework

Abraham Stanyan, writing in 1714, gave the following account of Bernese state finance:

The revenue of the Canton of Berne arise from five Branches. First, the Lands or Demesmes [sic] of the Sovereign. Secondly, The Tenths [sic] of the Fruits of the Lands. Thirdly, a certain Tax upon Rural Lands, which they call in *French, Censes Fonçieres*. Fourthly, Duties and Customs upon merchandize. And Fifthly, the Revenue arising from the Sale of Salt [...].

I have not been wanting in my Endeavours, to find out what Sum these several Taxes may produce yearly in the Canton of *Berne*; but could not get any Satisfactory Account, because its Revenue, consisting chiefly in the Sale of Corn and Wine, are more or less, according to the Price those Commodities bear; and, as the Sovereign sells none in cheap Seasons, it happens, that, during some Years together, they put little or no Money into the Treasury, and at other times lay up in one Year the Revenue of many.³⁵⁷

In spite of the lack of detailed information, Stanyan's description was accurate and raised the thorny issue of the collection of revenue in kind. Essentially the aim of my empirical analysis is to address the gaps in his account. The primary objective in this is to provide quantitative data underlying the concept of Bern as a *Surplus State* which was outlined in the introduction. The first part of the analysis – this chapter – will discuss the long-run developments in Bernese state finance. This is followed by a detailed study of the state's financial structure in two sample years in the next chapter (IV). Finally, Chapter V will discuss one of the most salient features of government finance: overseas capital investments.

The remainder of this section will provide a historiography of Bernese state finance. I will then present the framework that underlies my analysis. The empirical presentation starts in Section III-3 with an overview of the accounting system. Section III-4 is a discussion of the major long-run financial developments; it is mostly

³⁵⁷ Anonymous [Abraham Stanyan] (1756): 171-173 (his italics). Stanyan wrote that the state domain produced 'great Quantities' of grain and wine, which were then stored and sold at the government's discretion; the tithes had to be 'very high' in such a rich country, and salt sales were 'very considerable, because the Sovereign alone sell it by retail to the Subject, and imposes upon it what price he thinks proper'. The other sources of revenue were less important.

based on so-called *General-Bilanzen*, which can be taken as a proxy for the overall state budget. A subsequent section (III-5) will examine how some of the prime government assets contributed to overall revenue and expenditure. The cash reserve, financial investments, salt trade and public granaries will all be discussed in this context. How government agents acted on the grain market is the topic of Section III-6, which will investigate this matter based on a sample from Nidau county. The main findings of the chapter will be summarised in the conclusion.

A Brief Historiography of Bernese State Finance

The financial history of *Ancien Régime* Bern has not been investigated in a comprehensive and thorough way. A number of studies discuss particular aspects of the topic. Early in the twentieth century, authors writing in the spirit of the German historical school of economics have investigated public salt trade (Guggisberg), customs (Beck) or overseas investment (Landmann).³⁵⁸ More recently, social and economic historians have studied refugee support (Küng), public building activities (Ebener), poverty relief (Flückiger Strebel) and economic policy (Brandenberger) using financial data.³⁵⁹ Körner has included material from Bern for his work on state finance in the Swiss Confederation, which was part of a larger research project on European state finance.³⁶⁰

Based on the published literature, it appears that scholarly attention to Bernese state finance has been inversely related to the amount of primary data available. Only a small percentage of the original documents stored in the archives of Bern, Argovia and Vaud have been edited so far. To address this situation, a research project at the University of Bern has compiled a database of transcripts from primary documents covering the canton's finances from the sixteenth to the eighteenth century, which I have used extensively for this study.³⁶¹ The project was supervised by Martin Körner and ran from 1995 to 2002. Many of the recent publications on the topic spun off from this project.

³⁵⁸ Beck (1923); Guggisberg (1933); Landmann (1903); Landmann (1904).

³⁵⁹ Küng (1993); Ebener (1999); Flückiger Strebel (2002); Brandenberger (2004).

³⁶⁰ Körner (1999); For the overall research project: Bonney (1995b); Bonney (1999b); see also the European State Finance Database with empirical data: <http://www.le.ac.uk/hi/bon/ESFDB/>.

³⁶¹ *Forschungsprojekt BeFin (Bernische Staatsfinanzen in der Frühneuzeit)*: <http://www.befin.hist.unibe.ch>. See also Körner (1997).

In line with the approach Körner took in analysing state finance in Lucerne, Niklaus Bartlome and Stephan Hagnauer developed a set of analytical tools geared towards investigating Bernese public finance in the sixteenth and seventeenth centuries. To this date, the main thrust of their work is still in progress; only a summary article, preliminary findings and methodological issues are published.³⁶² A number of Körner's other students have employed this methodology to investigate bailiff accounts for selected counties.³⁶³

Bernese financial accounts have also been used as a rich source for cultural history. In this respect, Adolf Fluri's pioneering work has not been surpassed.³⁶⁴ Jolanda Leuenberger-Binggeli has written about the formal aspects of treasury accounts without a thorough analysis of their content.³⁶⁵ Finally, Béla Kapossy has approached the topic of state finance from a non-quantitative perspective, focusing on ideological and political aspects. His studies of foreign capital investments and the Bernese agricultural-military state without taxation offer an alternative to my quantitative-empirical angle.³⁶⁶

III-2 A Framework for Analysing Financial Developments

In this section, I will explain the basis on which I have analysed financial developments in eighteenth-century Bern. Parts of this discussion will be covered in more detail in the following chapter, when the state's financial structure will be scrutinised (Section IV-1).

Martin Körner pioneered the application of analytical criteria based on the modern understanding of public accounting to the study of early modern state finance. This has been refined by Niklaus Bartlome and Stephan Hagnauer.³⁶⁷ I will use a similar approach with some minor adjustments. In general, my framework is

³⁶² Hagnauer (1994); Hagnauer (1995); Hagnauer/Bartlome (1998); Bartlome/Hagnauer (2006). Both authors are currently working on their dissertations on Bernese state finance in the sixteenth and seventeenth centuries respectively. I am indebted to them for support and advice for my own research.

³⁶³ Caminada (1990); Cardis Isely (1996); Scheuermeier-Poglajen (1992); Weber, S. (1997).

³⁶⁴ Fluri (1917). For cultural aspects of financial records also: Körner (1993).

³⁶⁵ Leuenberger-Binggeli (1999).

³⁶⁶ Kapossy (1998); Kapossy (2002).

³⁶⁷ Körner (1981): 389-392, who relied in particular on Wittmann (1970-74); Hagnauer (1994); Hagnauer (1995); Hagnauer/Bartlome (1998); Bartlome/Hagnauer (2006). Their main results are still unpublished and cannot be used for comparison. I have adapted their accounting plan (*Kontenplan*) slightly to suit my purposes: see Figure IV-2 and Section VII-12 in the appendix.

based on modern-day public accounting in Switzerland.³⁶⁸ This allows a more precise and structured consideration of historical transactions than relying solely on eighteenth-century categorisation. My analytical framework can in theory be used to study every state and I have made a few adaptations to make it more applicable to the particularities of eighteenth-century Bern. Accordingly, some categories that would be prominent in other polities, such as the cost of keeping up a royal court, expenses for the standing army or income from seignorage are insignificant.³⁶⁹ For a comparative study, these aspects could very easily be accommodated by the model. The main disadvantage of this approach, aside from it being very labour intensive, is that it is anachronistic. Eighteenth-century administrators did not employ the analytical categories described in my thesis. However, social science has to go beyond this limitation in order to answer meaningful questions. For this, an anachronistic framework is sometimes unavoidable. The alternative would be to limit the analysis to pre-enlightenment methods, which would hardly be a more accurate way of doing research.

A further limitation is that the distinction between categories is not always easily established. I have tried to be consistent in my analysis, noting cases without proper identification as *unspecified*. In practical terms, my approach is constrained by the trade-off between the use of easily accessible, aggregated data with less accuracy versus the disaggregated material which would be more time consuming. To derive a balanced perspective and mitigate the shortcomings of the data, I have opted for a two-pronged approach which combines the long-term study of aggregated data (this chapter) with a detailed analysis for two sample years (next chapter). The first step in conducting a long-term analysis of Bernese state finance is the consideration of which account transactions were recorded in, which can be an effective proxy for the functions they performed. For example, if the salt trade account recorded expenditure, it can be reasonably assumed these were connected to the government's entrepreneurial activities. The only problem with calculations on the account level is that transfer payments (*assignments*) between accounts in the sample have to be excluded to avoid inflating the figures.

³⁶⁸ This is known as the *Neues Rechnungsmodell (NRM)* for public accounting in Switzerland: Finanzverwaltung des Kantons Bern (c. 1989).

³⁶⁹ I have excluded gains from *seignorage* completely for my analysis. These were not important any more in the eighteenth century, although they had played an important part earlier and led to the peasants' revolt of 1653 (see Section II-2). See also Furrer (1995).

Categorising transactions by nature is more complex. The main distinction is between current and inventory transactions. Current transactions embody all revenue and expenditure that did not have an impact beyond the accounting period, whereas inventory transactions were like investments, for which a future return could be expected. Inventory transactions can therefore be defined as capital formation that produces a stream of goods and services beyond its recorded period. Such investments in the public inventory could also be negative; they would then be divestments. This is illustrated in Figure IV-2 with T-style accounts, representing revenue on the right and expenditure on the left-hand side.

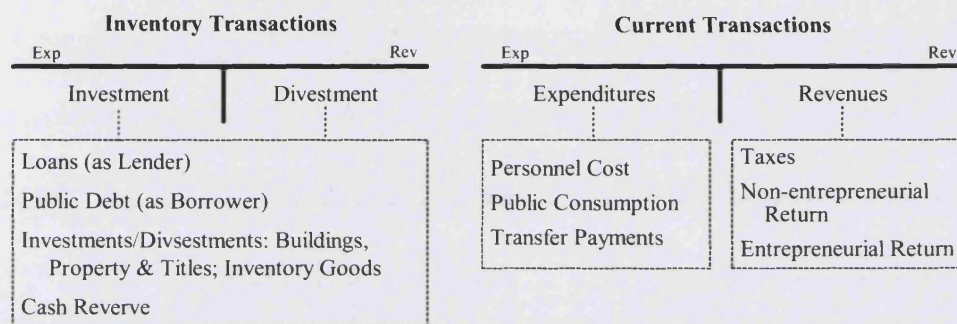


Figure III-1: Analytical Framework: Nature of Transactions

Based on Hagnauer (1995): 22-23 For a more detailed version, see Figure IV-2 and Section VII-12 in the appendix.

The distinction between current and inventory transactions can also be referred to as that between *state consumption* and *investments*.³⁷⁰ Using an analogy from corporate finance, the former is the profit and loss statement of a firm, the latter its balance sheet. However, unlike for a company's balance sheet parts of the public inventory are not measurable.³⁷¹ Any quantification of state sovereignty in particular, including the right to legislate and tax, is impossible. The state's accounts only contain information about the relative change in the stock of public assets and liabilities without information about their overall value. Between different types of *current revenue*, the first distinction which should be made is between taxes and returns. These can come from sovereign (or non-entrepreneurial) and entrepreneurial

³⁷⁰ Hagnauer (1995) speaks of *Verbrauchs-* and *Investitionsrechnung*; Körner (1981) distinguishes between *Verbrauchs-* and *Vermögensrechnung*.

³⁷¹ Similar to a company's balance sheet, assets of a state would contain property in real estate and movables, financial assets and reserves. In addition, it would also include sovereignty and judicial rights.

activities of the state. Entrepreneurial returns are incomes from previous investments. *Current expenditure* consist of personnel cost, public consumption and welfare transfers.³⁷² *Inventory transactions* of the state describe relative changes affecting its assets, such as financial claims (loans as a lender or debts as a borrower) and real capital (buildings, infrastructure, titles, etc.). A special form of inventory transactions is the withdrawal from and deposits into a cash reserve.

The distinction between the current and inventory transactions reflects the sustainability of a state's financial position. If current revenue exceeded expenditure, a government could invest and benefit from future returns. The opposite situation applied when assets had to be sold to cover current expenditure ('selling the family silver'). Figure III-2 shows the relation between the key figures profit, net investment and budget surplus with stylised T-accounts.

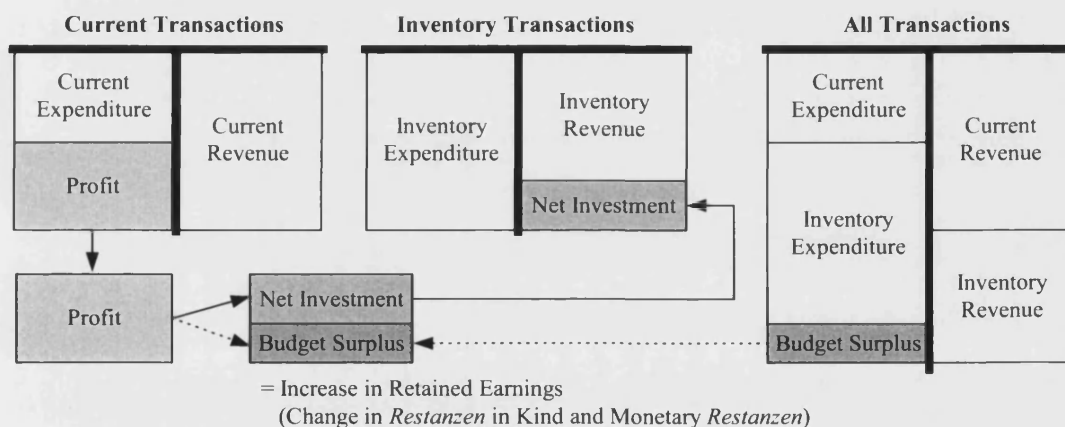


Figure III-2: Profit, Net Investment and Budget Surplus

First, *profit* is defined as the difference between current revenue and current expenditure. It can be positive or negative. A profit can either be invested or put aside as a reserve ('retained earning'). *Net investment* is defined as the difference between inventory expenditure and revenue: it describes the amount of profit used for investment. The remainder of the profit is a *budget surplus*, which is the equivalent of the difference between total revenue and expenditure. It is equivalent to a relative change in the state's retained earnings, which in Bern had the form of financial claims

³⁷² These are not to be confused with accounting transfers, which are excluded from the analysis (see above).

towards government members (*Restanzen* or arrears). These could be purely financial (monetary arrears) or inventories leased out to officials (grain arrears).³⁷³ For single accounts, Hagnauer defines the difference between current revenue and expenditure as the ‘skimming potential’ (*Abschöpfungspotential*) for the government.³⁷⁴ I use the term *profitability* to describe the ratio of an account’s profits to its current revenue.

III-3 The Bernese Accounting System

This section will present different types of accounts that were used by the government. Instead of relying on a central budget covering all state revenue and expenditure, Bern followed a complex system of accounts that had grown and overlapped through time. I will first discuss the absence of a central account and then present how different ledgers were connected. Some accounting practices have already been discussed in the previous chapter (see Section II-7 above).

The Absence of a Central Account

The Bernese republic did not have a central budget which covered all activities of the state. One reason for this was the absence of a written constitution. Since the Bernese state had grown organically from a medieval city state, there was no clear division between offices and many administration problems were solved on an *ad hoc* basis. This was mirrored by a fiscal constitution in which responsibilities were not always clearly assigned and often overlapped. The exclusive nature of the government also implied a low level of transparency in state decision making processes. The introduction of a financial structure with clear accountability might have exposed the government to what it perceived as undesirable public scrutiny. Therefore all internal auditing was carried out behind closed doors. A strategic reason for such secrecy was the connection between finance and national defence, as budgetary information would be valuable to Bern’s opponents.

The closest Bern had to a central budget was the *Deutsche Standesrechnung*, translated literally as the Account Covering the German Speaking Canton (Estate). As

³⁷³ For a detailed discussion of *Restanzen*, see Section VII-5 in the appendix.

³⁷⁴ Hagnauer (1995): 156-158. This potential consists of the realised skimming (in the form of a transfer to the central government) and retained earnings within the county.

the name implies, this only covered the German speaking territories; for French-speaking Vaud, the *Welsche Standesrechnung* was its equivalent. For simplicity, I will refer to them as central accounts. Contrary to their name, the *Standesrechnungen* were not all-encompassing and only recorded a limited number of state transactions. The rest were recorded in accounts with either limited or no connection to the central accounts (see below).

The *Standesrechnung* was also referred to as the *Säckelmeister-Rechnung*, named after its bookkeeper, the Treasurer (*Säckelmeister*).³⁷⁵ Each *Standesrechnung* covered a period from 26 December until the same date the following year. The Treasurer had to submit his accounts to the *Vennerkammer* for scrutiny within two months of the end of the financial year. From there it was passed on to the Great Council, who normally passed it after the Easter elections.

Since 1683, the ledger had been recorded in Arabic numbers. Prior to that year, Roman numerals were used, which increased the likelihood of calculation mistakes. Throughout the eighteenth century, the sums were consecutively listed in one currency, with one column for each sub-unit. Until 1770, the currency was the Bernese Pound, after 1770 the Bernese Crown (see Section VII-13 in the appendix). During the first few years of this change, the ledger contained all figures in both currencies to avoid confusion.³⁷⁶

The *Standesrechnung* was not organised chronologically, but by content. The categories varied slightly over time, but generally followed the same structure. Table VII-1 in the appendix lists these categories for the year 1732 as an example. They can be grouped together into the main categories shown in Figure III-3 as a T-style account, with revenue on the left and expenditure on the right-hand side of the balance.³⁷⁷

³⁷⁵ For a list of *Deutsch-Säckelmeister*, see Leuenberger-Binggeli (1999): 158. There were 22 office holders in the eighteenth century.

³⁷⁶ Leuenberger-Binggeli (1999): 178.

³⁷⁷ There was a complete re-organisation of the *Deutsch-Standesrechnung* in 1796, which will not be considered here in detail: Leuenberger-Binggeli (1999): 175-176.

<i>Standesrechnung</i>	
Expenditures	Revenues
Salaries	Bailiff Arrears:
Expenses	-old
Bailiff Arrears (passive)	-current
Purchase of Goods	Fiscal Revenues
Granted Loans	Regalia
Subsidies	Interest Payments
Meals	Loan Redemption
Construction, Maintenance	Fines and Confiscations
Quasi-Salaries and <i>Ad Hoc</i>	Contributions
Military Expenses	Proceeds (sale)
Currency Account	Assignations
Assignations	Liquidation of Cash
Formation of Cash Reserve	Reserve
Various Expenses	Various Revenues
Arrears	Previous Arrears

Figure III-3: The Bernese *Standesrechnung*: Main Categories Used in Contemporary Accounts

Bailiff Arrears are debts of officeholders (see Section VII-5 in the appendix); *Assignments* are transfers from other accounts; *Arrears* are debts of the Treasurer to the state; *Bailiff Arrears* are debts by other officeholders.

The *Welsch Standesrechnung* had fewer sub-categories, but followed a similar scheme. In addition to Figure III-3, it had numerous types of expenditure related to wine growing by the state. It is crucial to note that while at a first glance this looks quite comprehensive, there are some conspicuously absent items, most importantly all the revenue and expenditure that was collected locally by bailiffs. These were not recorded directly, but only through the bailiff's debt to the government, their arrears (*Restanzen*). This will be analysed in more detail in the next two sections.

Types of Accounts

Revenue and expenditure of Figure III-3 can be organised according to how the different accounts were related to the *Standesrechnung* as a central account. This is illustrated in Figure III-4, again in a stylised T-account with revenue on the right and expenditure on the left-hand side. Revenue and expenditure could be either: [1] recorded directly in the central account; [2] transferred in total from other ledgers (= indirect revenue of the *Standesrechnung*); [3] recorded in different accounts and included through the debt ('arrears') of bailiffs; or [4] recorded in accounts entirely

independent of the *Standesrechnung*, from where transfer payments ('assignments') were made. Finally, the balance of the previous year's account, the arrear (*Vorjahresrestanz*) was also included in the ledger [5], because balances were summed up over the Treasurer's tenure of five years. If the current arrear was larger than in the previous year, the account was in loss and *vice versa* [5b]. For expenditure, the categories are mirroring revenue.

The Bernese *Standesrechnung*

Direct Expenditure from <i>Standesrechnung</i>	Direct Revenue to <i>Standesrechnung</i>	①	Transactions only recorded in <i>Standesrechnung</i>	
Indirect	Indirect	②	Recorded in accounts fully integrated in <i>Standesrechnung</i>	Type C account
Debt to Bailiffs ("Passive Arrears")	Debt from Bailiffs ("Arrears")	③	Balance of transactions from bailiff accounts	Type D account
Transfers ("Assignations")	Transfers ("Assignations")	④	Contributions from entirely independent accounts	Type B account
Arrears	Previous Arrears	⑤	Balance of last year's <i>Standesrechnung</i>	
Surplus	Loss	⑤b	Negative balance = increasing arrear = loss (budget deficit)	

in Figure III-5:

Figure III-4: The Bernese *Standesrechnung*: Types of Revenue by Nature of Account

Following this distinction, I have classified Bernese accounts into four types, from A to D (Figure III-5). The *Deutsch-* and *Welsch-Standesrechnung* are the only central accounts (Type A). Independent Type B accounts, of which there were four, covered the state's major entrepreneurial activities: salt trade, salt production, gunpowder manufacturing and foreign capital investment. Minor activities were covered by Type C accounts, while Type D accounts included most government offices and bailiffs. Therefore, their number could change with every administrative reform.

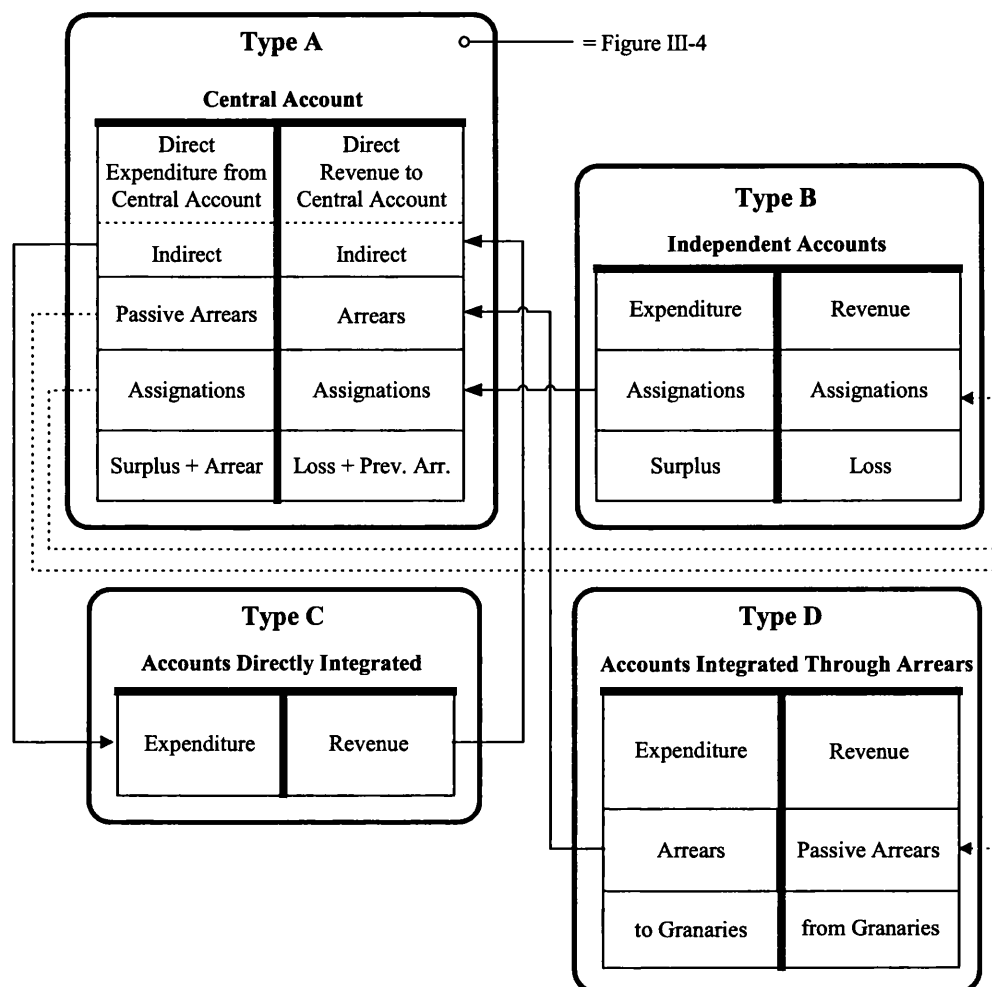


Figure III-5: Types of Bernese Accounts

For an empirical distribution of funds to these types of accounts, see below.

The contributions ('assignations') of Type B accounts towards the central budget were irregular and happened mainly to level out revenue shortfalls. For example, in 1782 the *Vennerkammer* ordered the gunpowder administrator Beat Fischer to transfer the content of his trading fund in excess of 30,000 Crowns to the *Deutsch-Standesrechnung*.³⁷⁸ In addition to such transfers to the central accounts, Type B accounts also contributed directly to the state's cash reserve (see also Sections III-4 and III-5 below).

Type C accounts were little more than detailed ledgers containing transactions that would have been too voluminous for inclusion in the *Standesrechnung*. They were relatively small in number and in the sums accounted for. Most revenue and

³⁷⁸ StABE BII 555.

expenditure covered activities that occurred within the city that would normally count as communal finance, such as schools and prisons. Since the city itself was not organised as a separate commune, these transactions were recorded by minor officials, who were directly accountable to the German Treasurer. Accordingly, the overall total of their ledgers was integrated into the central account. Thus, Type C accounts added nothing to total state revenue, but specified transactions in more detail. One example is the account of the *Stadt-Physicus*, the city doctor. The gross sum of his ledgers appeared in the *Deutsch-Standesrechnung*, along with fourteen other Type C accounts. The *Welsch-Standesrechnung* for the same years contained only six Type C accounts.

The bulk of the canton's finances were registered in Type D accounts, whose balance was transferred to the *Standesrechnungen*. In 1732, Bern had 52 bailiffs, plus 32 other offices that followed the same accounting technique. The latter were specialised functions, such as customs or hospitals in the city. The transfer to the central account happened through changes in the officeholders' debts towards the state ('arrears'), which they settled at the end of tenure. This is explained in detail in Section VII-5 in the appendix. Changes to these debts were recorded yearly in the *Standesrechnungen*; if locally collected revenue exceeded expenditure, the bailiff's debt to the state would increase, which showed up in the ledger as a higher arrear.

Some accounts cannot be accurately described by this categorisation. This applies in particular to lower levels of administration which were accountable to a specific officeholder. Examples include the former monastery of Biberstein, which reported to the bailiff of Königsfelden, or the city of Bern's *Kaufhaus*, whose accounts were included in the General Customs account. The Great Hospital of the City also contained various smaller outlets with their own ledgers, such as the city mill, the former monastery on St Peter Island or the Hygiene Police (*Siechenvogt*). All these accounts covered small sums.

The Bernese state used *ad hoc* accounts for specific exceptional occurrences, such as major land purchases or military campaigns like the 1712 Villmergen war. Ultimately their funds came from other state accounts, usually the *Standesrechnungen*, or at times directly from the cash reserve. These *ad hoc* accounts were similar to Type B accounts in character. The difference is that they were not annual and only covered one-off events. Their exact number is not known, since the

government kept no detailed lists of *ad hoc* accounts. However, it can be assumed that this method was only used in exceptional circumstances.

III-4 Long-Run Analysis of *General-Bilanzen*

Because the Bernese state did not have a regular budget which encompassed all its accounts, it is difficult to obtain an overview of financial developments throughout the eighteenth century. This is not only problematic for historians; contemporaries struggled with the fragmented nature of state finance as well. As a remedy, the Bernese government established tables with some key figures from its most important accounts for the time after 1764, the *General Bilanzen*. Although this name refers to a balance sheet (*Bilanz*), the character of this document is better described as a profit and loss statement or budget. The Bernese archives contain several attempts of compiling the information from *General-Bilanzen* into tables. Even though most of these would fail modern-day standards of methodological accuracy and consistency, they are proof of a desire by officials to enquire the financial situation of the government (as discussed in Sections II-7 and III-3 above).³⁷⁹

I will first discuss the nature of the data, then analyse it by account and category, before ending this section with some additional information from documents similar to the *General-Bilanzen*.

The Data

In addition to the *Deutsch-* and *Welsch-Standesrechnung*, accounts included in the *General-Bilanzen* covered foreign funds (AUS), salt trading (SDI), salt production (ROC) and gunpowder production (PUL).³⁸⁰ In other words, the *General-Bilanzen* contained information for all A- and B-Type accounts of the Bernese state. While this included C-Type accounts by definition, D-Type accounts were only considered through the transfer of surpluses via *Restanzen*.³⁸¹ The *General-Bilanzen* therefore represented rather the gross profits from administrating the canton than total

³⁷⁹ Examples are: StABE B VII 680, 2179 or 2520a.

³⁸⁰ They also included accounts for the mint (*Münz*) for some years; these are very small quantitatively, however.

³⁸¹ C-Type accounts were included in the *General-Bilanzen* by definition, although not in detail. See Section III-3 above for details; for *Restanzen* transfers, see Section VII-5 in the appendix.

revenue and expenditure. This distinction is important when comparing relative figures. Since the data only shows the *difference* of underlying revenue and expenditure, it is likely to overstate relative change. Accordingly, this chapter can only reasonably assert conclusions about seminal trends rather than absolute levels. For the latter, a detailed analysis of all Bernese accounts for two sample years in the following chapter will provide more accurate information.

The *General Bilanzen* were tables of large format, drawn on information from Bernese accounts, listing them by category headings.³⁸² I have re-classified the data, following the empirical framework outlined in Section III-2 as closely as possible. The exact categories used are specified in Section VII-8 in the appendix. I have also added information on salt trading that was not in the original data.³⁸³ The way in which revenue and expenditure were recorded in the *General Bilanzen* changed twice, in 1769/70 and 1775/76. The former change was related to the use of Crowns as the major unit of account. It also introduced the idea of *real* (and *non-real*)³⁸⁴ revenue and expenditure, which bears great similarity to the distinction between current and inventory transactions. The distinction was done away with again in 1775. As explained above, I have excluded all transfers between accounts in the sample to avoid double-counting. Different monetary units were converted using figures in Table VII-11 in the appendix. For the rare conversion of transactions in kind, I have used the most accurate price available from the ledgers, following the proceedings explained in Section VII-13 in the appendix.

I have also extended the *General-Bilanzen* back to the beginning of the century, drawing on the same sources. The result is a long-run series of Bernese revenue and expenditure by aggregated category from 1700 to 1796.³⁸⁵ The *Deutsch-* and *Welsch-Standesrechnung* and the salt trade accounts (SDI) were fully integrated.³⁸⁶ For foreign capital investments, I relied on data from the *Historie der Ausländischen Stands Capitalien* of 1776 and on the accounts for foreign funds (AUS), which will both be discussed in more detail in Chapter V.³⁸⁷ I have only accounted for overall changes in the sums invested abroad, leaving the discussion of portfolio adjustments

³⁸² StABE B VII 2179. There were between 1 and 15 headings for revenue, 1-27 for expenditure.

³⁸³ The *General-Bilanzen* only showed profits from salt trade. See Section VII-16 in the appendix.

³⁸⁴ *Reale* and *Nicht-Reale Einnahmen (Ausgaben)*. Before, the distinction was between *regular* and *additional* transactions.

³⁸⁵ For the period after 1794, some accounts are missing (only DSR, AUS and SDI available).

³⁸⁶ See Section VII-6 in the appendix for details.

³⁸⁷ StABE B VII 2389 and StABE B VII 2396-2473.

for later. In addition, my database includes figures about deposits and withdrawals from the cash reserve that were recorded in a Treasury Ledger (*Gwölb-Büchli*) between 1750 and 1790.³⁸⁸ Information about transactions with the cash reserve after this date is missing. For earlier years, I relied on figures from corresponding accounts and anecdotal evidence.³⁸⁹ This data will be discussed in more detail in a subsequent section about the cash reserve itself (Section III-5). The database does not cover salt production (ROC) and gunpowder production (PUL) before 1764 on the basis that the sums involved were small, judged on their post-1764 position.³⁹⁰ Strictly speaking the data before and after 1764 is not identical. However, the differences are likely to be small.

Overview

As a first overview, Figure III-2 shows total revenue and expenditure and the *Budget Surplus Rate*, which is the difference between revenue and expenditure expressed as a share of revenue.



Figure III-6: Revenue, Expenditure and Budget Surplus Rate, 1700-1796

³⁸⁸ StABE B VII 2388a (see Section III-5 below for more details).

³⁸⁹ Feller (1955): 226-227 and 318. Outflows to the *Deutsch-Standesrechnung* before 1750 are missing.

³⁹⁰ Profits from gunpowder production were occasionally recorded in the *Deutsch-Standesrechnung* in the early eighteenth century; Salt production in Roche was partly included in the salt trade accounts (SDI) until the late 1730s.

Sources: Long-run Database (see Section VII-6 in the appendix for details). Data for 1764-1794 is from the General Bilanzen (StABE B VII 2179), the remainder from original accounts. The composition of the data changed in 1764 and 1794 (hence the vertical lines). The *Budget Surplus Rate* is calculated as the budget surplus expressed as a percentage of revenue.

A few things are obvious from Figure III-6. First, the Bernese state consistently ran budget surpluses: in 78 years of the 96 for which information is available, revenue exceeded expenditure. The *Budget Surplus Rate* was on average 11.8%, but fluctuated strongly from year to year.³⁹¹ Second, there were remarkable peaks in both revenue and expenditure around 1710. As will be shown later, these were caused by military expenditure (1707, 1712)³⁹² and massive loans to the Dutch and English in 1710. Finally, with the exception of these particular years, revenue and expenditure increased over time.

A rough distinction between current and inventory transactions – at least as far as the categories of the *General-Bilanzen* allow for – is shown in Figure III-7, with revenue as positive and expenditure as a negative values. Most transactions were current, and the fluctuations for inventory transactions were larger. This is not surprising, given that inventory transactions usually had a one-off character, such as investments or loans.



Figure III-7: Current and Inventory Transactions, 1700-1796

³⁹¹ Minimum = -48.9%, Maximum = 43.9%, Standard Deviation = 17.0%.

³⁹² In 1707, the government also stocked up its salt inventory at a high cost (discussed below).

Sources: Long-run Database (see Section VII-6 in the appendix for details). Expenditure shown as negative values. Vertical lines (1764 and 1794) are for changes in the data sample (see Figure III-6).

Some of the extraordinary events mentioned above become clearer in Figure III-7: in 1710, the cash reserve was depleted to cover for overseas loans, which shows as an increase in inventory transactions. In 1712, when the cash reserve contributed towards extraordinary military expenditure, this shows as an increase in inventory revenue and current expenditure. I will discuss the underlying categories for the financial developments in Figure III-7 in more detail below.

Isolating current revenue and expenditure, it is possible to establish the profit of Bernese administration (see Figure III-8). I have also added estimations for current revenue per capita, based on population estimates for 1700, 1732, 1764, 1782 and 1798.³⁹³ The figures for revenue per capita should be considered rough estimates of a long-term trend rather than absolute figures.

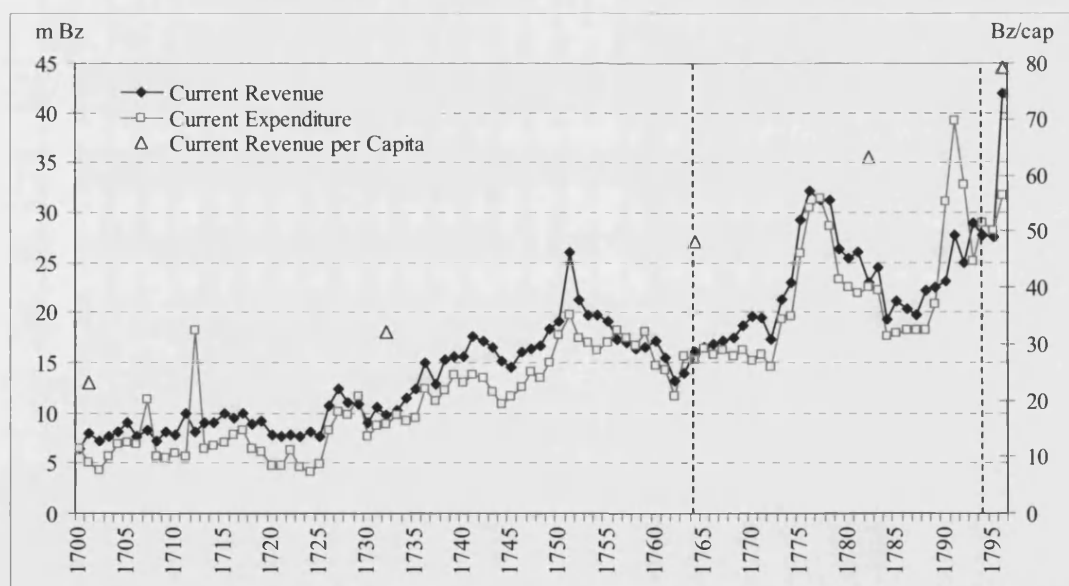


Figure III-8: Current Revenue, Expenditure and Revenue per Capita, 1700-1796

Sources: Long-run Database (see Section VII-6 in the appendix for details). Population estimates calculated as in Section II-3, with values for 1732 and 1782 based on linear trends (as explained in Section IV-2). *Revenue per capita* is calculated based on three-year moving averages for 1701, 1732, 1764, 1782 and 1796. Vertical lines (1764 and 1794) are for changes in the data sample (see Figure III-6).

³⁹³ Based on Pfister, C. (1995); HLS (2002), article *Bern*; Mesmer (1987) and Schluchter (1988), as discussed in Section II-3. Figures for 1732 and 1782 are based on the assumption of linear population growth (see Section IV-2).

Between 1700 and 1796, Bern made a profit on current transactions in 84 years. The average yearly profit rate was 12.6%, but fluctuated highly.³⁹⁴ It followed a similar pattern to the Budget Surplus Rate from Figure III-6. Current expenditure markedly exceeded revenue in 1707, 1712 and 1792 only. All three peaks can be explained by military emergencies.

The estimates for current revenue per capita should not be taken at face value because the population figures for 1732 and 1782 are based on the assumption of linear population growth, hence the linearity of revenue per capita might be overstated. When measured in Batzen, current revenue per capita more than doubled over the century (+241% from 1701 to 1796). This is equivalent to a linear growth rate of 1.30% per annum. As will be explained in the next chapter, this is not necessarily representative of an increase of overall state revenue per capita. It might simply reflect the fact that more transactions were covered by the accounts included in the long-run database sample (see Section IV-5).³⁹⁵

Revenue and Expenditure by Account

The most straightforward way of analysing at the long-run database is to consider the accounts in which transactions were recorded. On one hand, this can provide further insights into the administrative organisation of the canton. It can also serve as a proxy for what transactions were used for, if a more accurate categorisation is impeded by the nature of the data. By eliminating transfers between accounts (*assignments*) from the analysis, the figures are not necessarily representative of how much was recorded in each account, but about where a transaction originated.

Figure III-9 shows the distribution of revenue by account. In order not to overload the graphs, I have used five year averages for this section. The yearly figures can be seen in the appendix (Section VII-7) and will be referred to throughout the text.

³⁹⁴ Minimum = -146.0%, Maximum = 48.9%, Standard Deviation = 22.2%.

³⁹⁵ The figure in this chapter only includes transactions from a limited number of accounts. Overall transactions of the state grew by 95.8% from 1732 to 1782, which is equal to a linear annual growth rate of 1.25% (see Section IV-2). See also the discussion in Section VII-10 in the appendix.

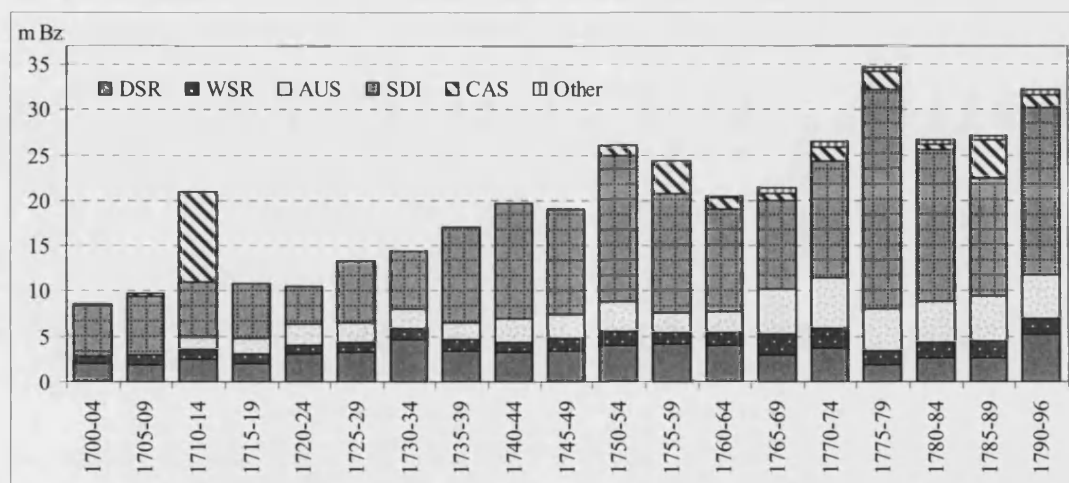


Figure III-9: Revenue by Account, 1700-1796 (5-Year Averages)

Sources: Long-run Database (see Section VII-6 in the appendix for details). All figures are five year means; the last column is for seven years (1790-96). Abbreviations: DSR = Deutsch Standesrechnung, WSR = Welsch Standesrechnung, AUS = foreign funds, SDI = salt trade, CAS = cash reserve, *Other* includes data from salt production (ROC), gunpowder (PUL) and minor accounts. For a yearly breakdown, see Figure VII-3 in the appendix.

A surprisingly small amount of revenue came from the two *Standesrechnungen* (DSR and WSR). This is partly down to the way in which transactions are categorised. In reality, both accounts recorded larger revenue, which mostly came from transfer payments from other accounts. The biggest contributors to Bernese revenue were accounts about salt trade (SDI). They regularly covered over half of the state's income and were growing in absolute terms. After 1710, the accounts for the management of foreign funds (AUS) became another major source of revenue as well. In the period 1710-14, the cash reserve was depleted. From the yearly figures it becomes obvious that withdrawals occurred in 1710 and to a lesser extent in 1712.³⁹⁶ This situation was repeated on a smaller scale in 1787, when a loan to the Emperor was covered by a cash withdrawal (see yearly figures in Section VII-7 in the appendix).

The situation for expenditure is shown in Figure III-10.

³⁹⁶ The fact that there are no contributions of the cash reserve towards revenue between 1715 and 1750 might also be caused by the lack of accurate data discussed above.

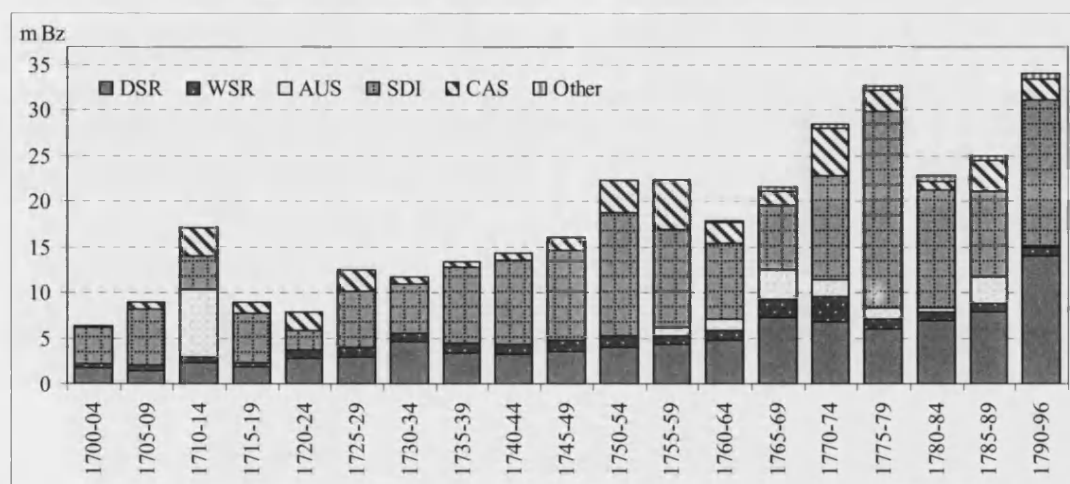


Figure III-10: Expenditure by Account, 1700-1796 (5-Year Averages)

Sources: Long-run Database (see Section VII-6 in the appendix for details). All figures are five year means; the last column is for seven years (1790-96). For abbreviations, see Figure III-9. For a yearly breakdown, see Figure VII-4 in the appendix.

The share of expenditure covered by the *Deutsch--Standesrechnung* (DSR) is significantly larger than that for revenue. This illustrates the point about transfer payments made earlier. While it was not the ultimate origin of its funds, the *Deutsch-Standesrechnung* recorded much of the overall government expenditure. This applies to a lesser extent to the *Welsch-Standesrechnung*. As expected, the salt trading account was also a major source of expenditure. The peak in expenditure recorded in the account for foreign funds (AUS) in the 1710-14 period is uniquely down to the loans in 1710. After this date, the Bernese state did not increase its investments by sending money abroad. As will be discussed later, the increase in overseas investment was funded by re-investing interest payments. After 1750, the share of expenditure on foreign funds increased, although some of it was simply due to reallocations within the portfolio of foreign funds, with the noticeable exception of the Imperial loan of 1787 (see Chapter V for details).

As I will discuss later in depth, a categorisation that relies on the account in which transactions were recorded can only proxy state functions (see Section IV-4). A more accurate picture would require a degree of detail that the aggregated categories of the *General Bilanzen* fail to offer. By the same token, a regional breakdown about where in the canton transactions occurred is not possible with this data.

Revenue and Expenditure by Category

The further breakdown of revenue and expenditure follows the structure outlined in Section III-1 above. The nature of the *General-Bilanzen* did not allow the detailed distinction explained above; for example, non-entrepreneurial returns were not recorded in separate categories. I have classified the data into the main categories listed in Figure III-11.

	Expenditure	Revenue	
Personnel Cost	Personnel Cost	Salt Monopoly (Profit)	Taxation
General Consumption	Salt Purchases (Current)	Salt Sales (Current)	Entrepreneurial Returns
	Military Expenditures	Interest Revenues	
	Other Consumption	Other Current Revenues	Unspecified Current Revenue
Passive Arrears to Bailiffs	Arrears from Bailiffs		
Investments	Loans (Redeemed)	Loans (Granted)	Divestments
	Investments	Divestments	
	Salt Inventory: Reduction	Salt Inventory: Increase	
	Cash Reserve: Deposit	Cash Reserve: Withdrawal	

Figure III-11: Categories for Analysing *General-Bilanzen*

See Figure IV-2 for comparison.

Some categories require further explanation. *Arrears* are the debts of office holders towards the state (*Restanzen*). *Passive Arrears* are debts of the state towards its officials. They represent the profits of D-Type accounts, as will be explained in more detail in the next chapter (see also Section VII-5 in the appendix). For data from the Bernese salt trading account (SDI), I have separated current *Salt Sales* and *Purchases* from changes in inventory, which were categorised separately. In addition, I have deducted the *Salt Monopoly Profit* from the proceeds of salt sales and categorised as a distinct category. The reason for this is that the government's monopoly profit on this trade has the character of an indirect tax. This will be discussed in more detail in the next chapter (and in Section VII-16 in the appendix). *Other Current Revenue* include production, taxes, and non-specified current revenue (*General Einnemmen*). *Consumption* includes all other current expenditure, notably

the state's payments for the maintenance of buildings and purchases of non-inventory goods. Strictly speaking, *Military Expenditure* is not a factual category, but consists of a combination of personnel cost and other current expenditure for ammunition or foodstuffs. Because of its distinct qualities and the fact that military expenditure was sometimes not further specified, I have classified it as a separate category.

Figure III-12 combines expenditure to five-year averages; yearly figures can be seen in Section VII-7 in the appendix.

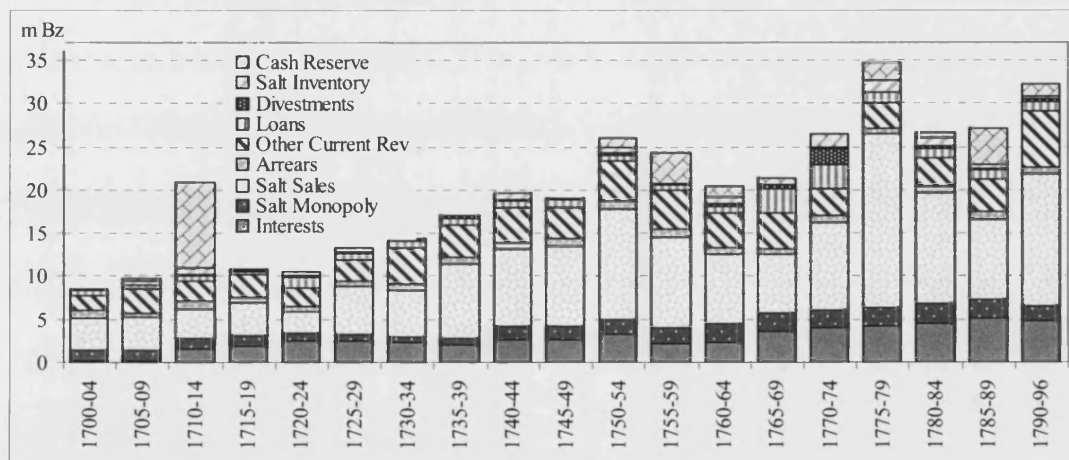


Figure III-12: Revenue by Category, 1700-1794 (5-Year Averages)

Sources: Long-run Database (see Section VII-6 in the appendix for details). All figures are five year means; the last column is for seven years (1790-96). For a yearly breakdown, see Figure VII-5 in the appendix.

The most important contributors to state revenue were proceeds from salt sales. Interest payments and salt monopoly profits steadily increased over time. The share of arrears – the profits from administrating the counties – was surprisingly small. Outflows from the cash reserve were particularly large in 1710-14, when loans were granted (1710) and the second war of Villmergen paid for (1712). In the second part of the century, revenue from the cash reserve could be considerable, but this will have to be qualified in comparison with inflows to the cash reserve.

Expenditure are also shown in five year averages (see Figure III-13, with yearly figures in Section VII-7 in the appendix).

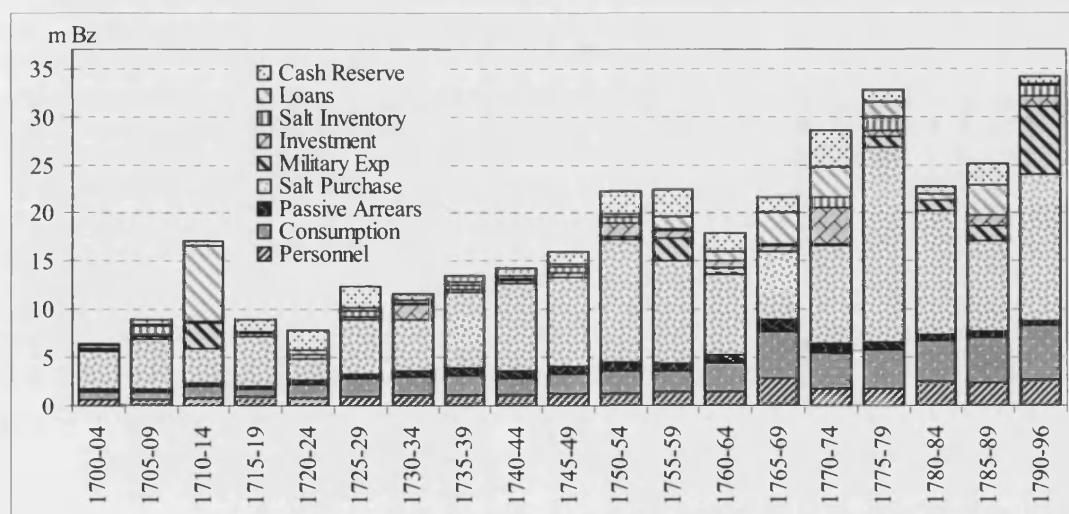


Figure III-13: Expenditure by Category, 1700-1794 (5-Year Averages)

Sources: Long-run Database (see Section VII-6 in the appendix for details). All figures are five year means; the last column is for seven years (1790-96). For a yearly breakdown, see Figure VII-6 in the appendix.

Current salt purchases were the single most important category. Together with expenditure for personnel and other state consumption, the purchase of salt increased steadily over time. Military expenditure was highly volatile, because particular years of activity denoted when Bern used its troops for civil wars or to support allied governments. Such deployments included the second war of Villmergen in 1710, as well as expeditions to prevent riots in Lucerne (1763), Fribourg (1781) or Geneva (1707, 1737, 1768, 1782).³⁹⁷ However, these interventions were usually small in their financial costs. In the 1790s, the threat from Revolutionary France had an important budgetary impact, with the cost of guarding its Western frontier showing as a significant expenditure. The peak in investment in 1770-1774 was mainly caused by the purchase of grain to alleviate the effects of a severe harvest failure in 1770. This crisis and the government's reaction have been discussed in much detail by Bernese scholars.³⁹⁸ Bern mobilised resources from the cash reserve to purchase grain abroad. In the years after 1770/71, the cash reserve was gradually filled again, partly by the proceeds from selling grain at high prices. Overall, the state did not make a profit on

³⁹⁷ For the political background of these deployments, see Feller (1955): 416-426 and Wälchli (1981): 147-148.

³⁹⁸ Brandenberger (2004); Flückiger Strebel (2002); Pfister, C. (1975); Pfister, C. (1995); see also my discussion in Section III-6 below.

its grain trade during the crisis, as will be discussed in more detail below (Section III-6).

For further analysing the data, we can first look at the *net* contributions of each category. This highlights relative changes and reveals how activities were financed. To establish net contributions, I have subtracted expenditure from revenue for each category. The results are net values for current transactions, arrears, investments, salt inventory, loans and cash reserve.³⁹⁹ They are represented as five year averages in Figure III-14, where values for revenue are positive and expenditure negative.

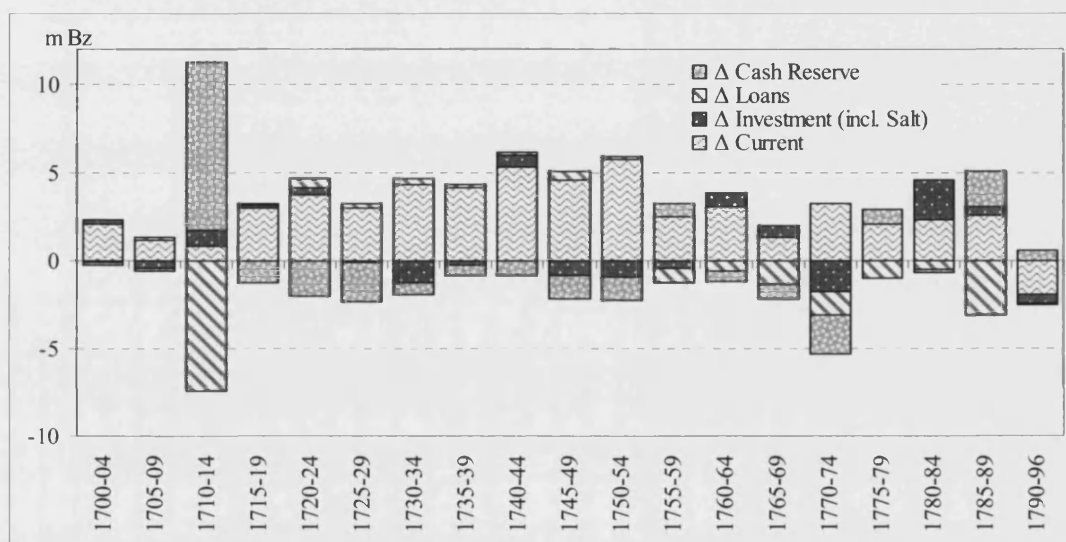


Figure III-14: Net Contributions by Category, 1700-1796 (5-Year Averages)

Sources: Long-run Database (see Section VII-6 in the appendix for details). All figures are five year means; the last column is for seven years (1790-96). For a yearly breakdown, see Figure VII-7 in the appendix.

Current surpluses have already been discussed earlier (see Figure III-8 for yearly figures). The years 1710-14 are again outliers. The only net expenditure was for overseas loans, but the surplus of current transactions is significantly smaller than in other years with the exception of the 1790s. This was caused by the military campaign of 1712. Net investment for loans resumed from the mid-1750s, peaking with the Imperial loan of 1787. For the period 1770-74, using yearly figures provides a more accurate picture. In 1770, money from the cash reserve was used for food

³⁹⁹ Please note that *net current transactions* and *net investment* in this context have a different meaning from the way they are normally used in this thesis.

purchases, which I classified as investment in the grain inventory. They could also be considered current expenditure for immediate food consumption. In 1773 and 1774, the cash reserve was refilled. At the same time, the salt inventory increased sharply. It appears that the cash reserve was used as a buffer to cover unforeseen events or large-scale investments, loans in particular.

Additional Data from *General-Tabellen* and *Special-Tabellen* (1785-1794)

Establishing *General Bilanzen* had been a first step by government officials to obtain an overview of their financial situation. They were fully aware of the deficiencies of this approach, in particular the fact that it left out all transactions within the counties. The fragmentation of the data and a lack of capacity by the Bernese administration were impediments to establish a more comprehensive budget. In a heroic attempt to overcome these issues, the government – it is not clear which part or administrative unit, but presumably the *Vennerkammer* – began collecting information from all its accounts in a standardised format, with tables. The so-called *General-Tabellen* included yearly figures for all monetary transactions by the government between 1785 and 1794. Other than the *General Bilanzen*, the tables covered all administrative units of the state. For a breakdown of revenue and expenditure, the *General-Tabellen* divided transactions into 12 types of revenue and 17 types of expenditure. For my analysis, I have classified them into the broad categories *Rents* (for feudal income in general), *Tithes and Production*; *Duties and Taxes*; *Interests* and *Entrepreneurial Returns*. For expenditure, I distinguish between *Personnel Costs*, *Military Expenditure*, *Transfers* (welfare payments) and *Consumption*. A full list of categories is provided in Section VII-8 in the appendix. Unfortunately, a distinction between current and inventory transactions was not possible with the categories of the original documents.

The overall monetary revenue and expenditure of the Bernese state are shown in Figure III-15.

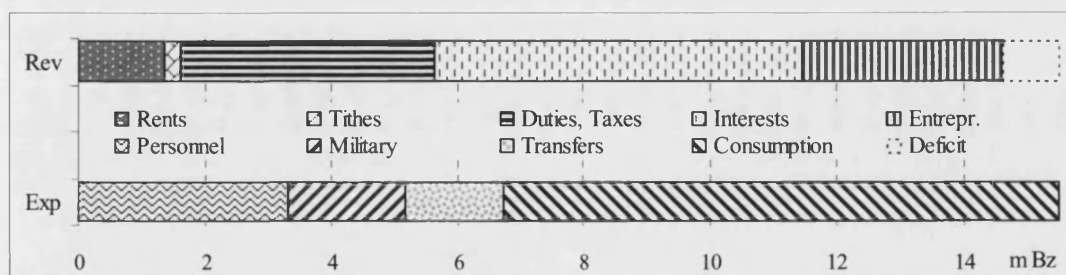


Figure III-15: Monetary Revenue and Expenditure, 1785-1794 (Yearly Average)

Source: General-Tabellen (StABE B VII 2520), monetary transactions only. The figure is based on the yearly averages calculated in the original document. *Rev* is for revenue, *Exp* for expenditure, and *Entrepr.* for entrepreneurial returns.

Initially, the fact that there was a budget deficit seems surprising. This is because Figure III-15 only covers monetary revenue and not transactions in kind. By selling some of the proceeds from its revenue in kind, the government could easily cover this deficit. The relative composition is skewed towards transactions that were monetised, such as interest payments. On the other hand, tithes, which almost entirely were collected in kind, seem negligible in Figure III-15. This was not the case in reality, as a more detailed analysis of the figures shows.

Another set of documents, the so-called *Special-Tabellen*, compiled information about all transactions, including those in grain and wine, for all accounts in the 61 counties of the time. It listed monetary values for each year, as well as a ten-year average for transactions in kind.⁴⁰⁰ It is not clear why this solution was adapted; presumably for administrative reasons, because adding transactions in kind for each type of grain was complicated and time consuming. It could not have been for the argument that transactions in kind fluctuated less, since tithes in particular varied according to the size of the harvest.⁴⁰¹ I have capitalised all these transactions in kind based on yearly market prices from the city of Bern, which have been collected by Christian Pfister.⁴⁰² By calculating figures that are based on a ten-year average and yearly prices, changes in the value of transactions are only indicative of grain price

⁴⁰⁰ StABE B VII 2521. Interest revenue was also recorded in the *General-Tabellen* as an average figure for the whole decade, rather than for each single year.

⁴⁰¹ For a discussion of tithe data, see Figure III-20 and Pfister, C. (1975).

⁴⁰² Pfister, C. (1975): table 28/1. I have calculated a yearly price as the mean of all monthly prices per calendar year. Wine prices were only available from January 1784 to April 1786 and from June 1792 to December 1795; I have therefore used a single value throughout the whole period, calculated as the mean of available monthly data. Where grain categories in the *General Tabellen* differed from Pfister's, I have converted them as explained in Section VII-13 in the appendix. For unspecified grain, I have used the overall geometrical average (mean).

inflation, which was relatively high in this period. Given the lack of reliable price series, it is not clear how representative price data from the city is for the remainder of the territory.⁴⁰³ Because of the inaccuracies of converting values into Batzen and some imprecise recording of the source itself, the following results should only be taken as a rough indication of actual revenue and expenditure in the counties.

If the information from the *Special-Tabellen* is combined with that of the *General-Tabellen*, the result is an overview of the state's financial situation in the period 1785-94 (see Figure III-16). A yearly breakdown of the data was not possible.

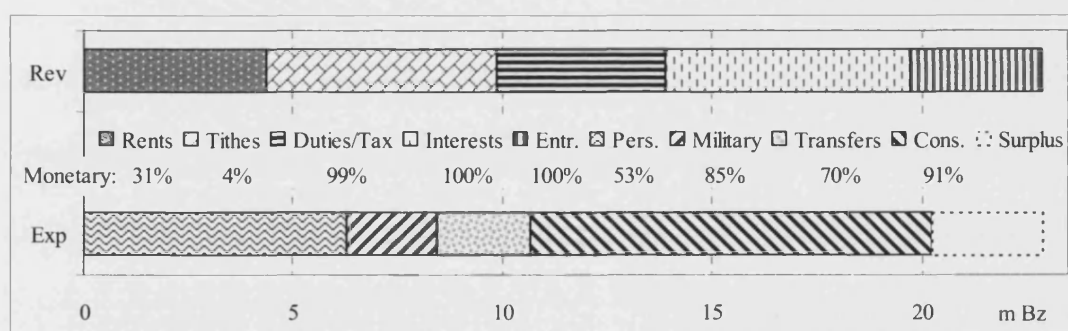


Figure III-16: Revenue and Expenditure by Category, 1784-95 (Yearly Average)

Source: *General-Tabellen* (StABE B VII 2520) and *Special-Tabellen* (StABE B VII 2521). Grain transactions were only recorded as 10-year averages in the *General-Tabellen*; I have converted them using an overall mean price for each type of grain based on Pfister, C. (1975): table 28.1. Percentage figures below each category show the share of monetary transactions.

The deficit observed for monetary transactions is transformed to a surplus if all transactions are considered. I will not discuss the relative share of categories in depth here, because a more detailed – and more reliable – analysis of the structure of Bernese revenue and expenditure will follow in the next chapter (IV). Percentage figures below the categories in Figure III-16 show how much transactions occurred in monetary units. Interests and taxes were monetised, rents and tithes were mostly paid in kind. Roughly half of personnel expenses were paid in kind; all other expenses were highly monetised. Isolating the bailiff accounts, the result is remarkably different (see Figure III-17).

⁴⁰³ See also Section VII-14 in the appendix for more price data.

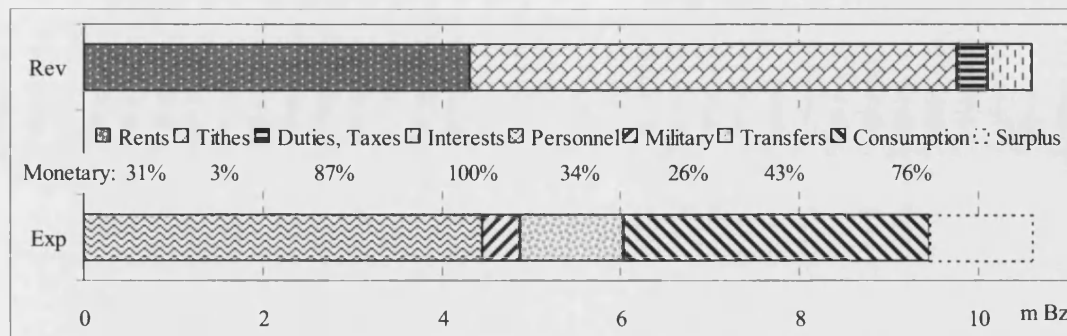


Figure III-17: Revenue and Expenditure by Category, Bailiff Accounts of Counties in *Special-Tabellen*, 1784-95 (Yearly Average)

Source: *Special-Tabellen* (StABE B VII 2521) for 61 counties. See Figure III-16 for details.

In the counties, feudal rents and tithes were by far the dominant revenue categories; taxation and interest payments only counted for a fraction of overall revenue. Most of the money that the state spent through its bailiffs went towards salaries and the consumption of goods and services. Welfare payments and military expenditure were comparably small. While the former were generally unimportant in Bern, the latter was not recorded at a county level, except for fodder for the army's horses. The difference between revenue and expenditure in Figure III-17 can be a proxy for the surplus of the state's administration in the counties. This surplus was partly transferred to the government in the form of monetary *Restanzen*, or it could have the form of increased grain inventories for which the bailiffs were liable (grain *Restanzen*).

If we consider the data on a yearly basis, the result is shown in Figure III-18, in which revenue are positive, expenditure negative values (the last column is the equivalent of Figure III-17, rotated by 90°).

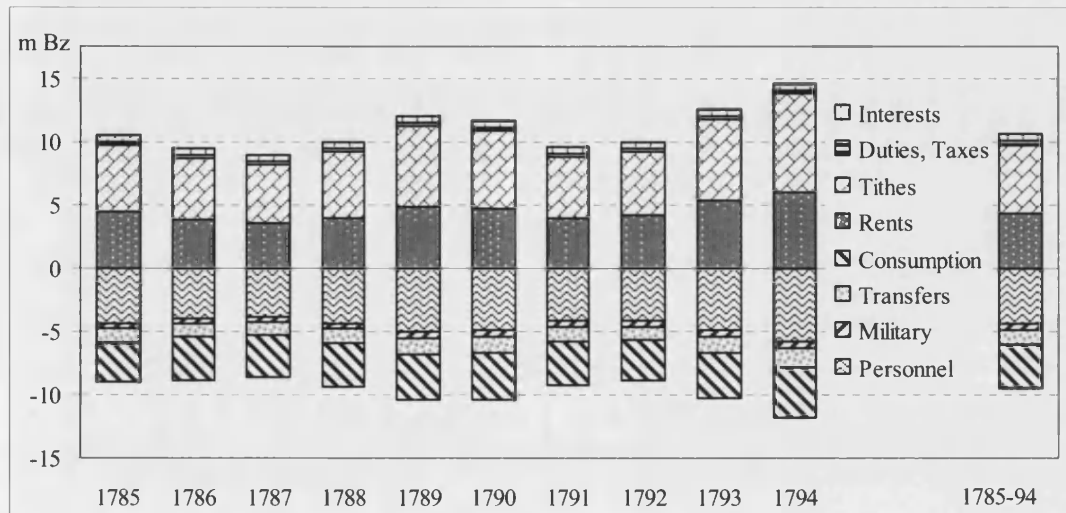


Figure III-18: Revenue and Expenditure by Category, Counties in *Special-Tabellen*, 1784-95

Source: *Special-Tabellen* (StABE B VII 2521); see Figure III-17 for details. Revenue is shown as positive, expenditure as negative values.

Yearly differences are difficult to analyse because they are prone to spurious results caused by the inaccurate conversion of grain transactions. This can be illustrated if total revenue and expenditure of the bailiff accounts are separated into a monetary and ‘in kind’ component (see Figure III-19).

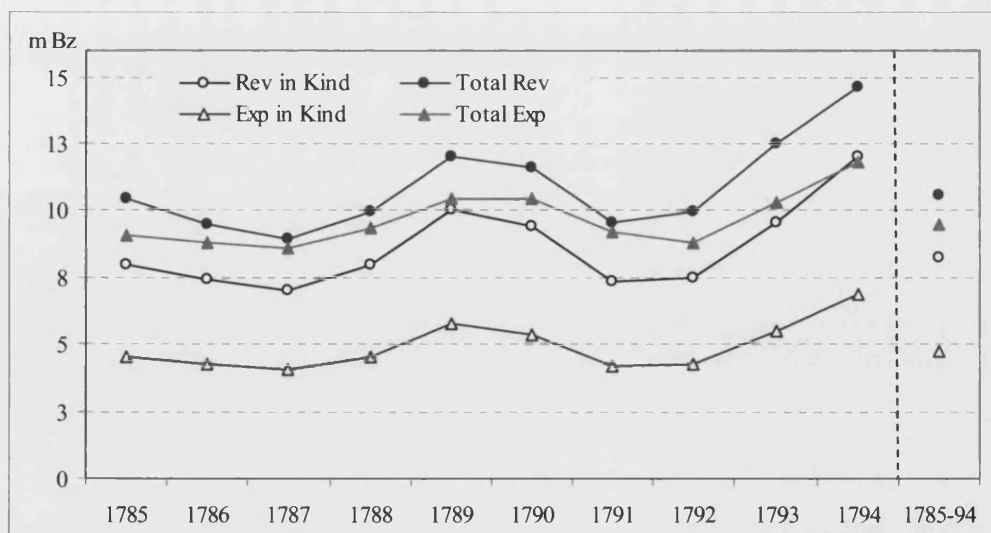


Figure III-19: Total Revenue and Expenditure for Counties from *Special-Tabellen*, 1785-1794

Source: *Geneal-Tabellen* (StABE B VII 2520) and *Special-Tabellen* (StABE B VII 2521). Grain transactions were only recorded as 10-year averages in the *General-Tabellen*; I have converted them

using yearly price data from Pfister, C. (1975): table 28/1. The figures for 1785-95 show the original value from the document, converted by an overall mean price for each type of grain.

Since most of the transactions occurred in kind and were only known as averages, changes in revenue and expenditure were mainly driven by grain inflation. For tithe revenue in particular, the yearly fluctuations were high and not identical with prices, as work by Christian Pfister has demonstrated. For the period 1755-1796, the correlation between prices and tithe revenue was significant, but relatively low (0.48).⁴⁰⁴ Based on Pfister's data, Figure III-20 shows tithes collected by the Bernese state expressed by weight and value. The latter series was calculated using wheat prices for the city of Bern, which have also been collected by Pfister.⁴⁰⁵ Using a single price for conversion is a very crude measure; ideally, one would use local prices for each type of grain. Unfortunately, these figures were not available for the canton in the long run.

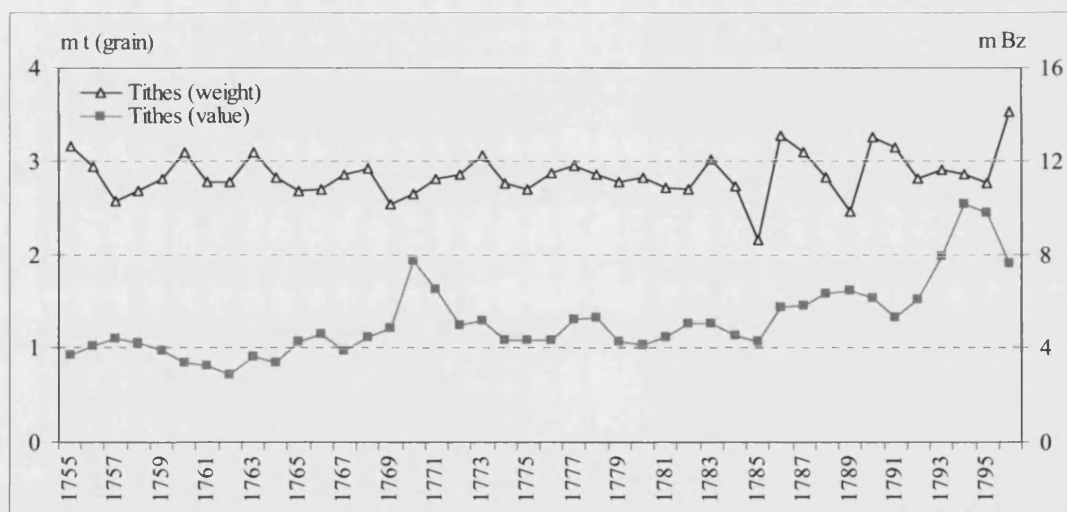


Figure III-20: Bernese Tithe Revenue by Weight and Value, 1755-1796

Source: Pfister, C. (1975): table 25 (tithes, value for *Altbern*) and table 28/1 (prices, value for *Kernen*). Values were calculated based on the price of wheat in the city of Bern. I have converted Pfister's Doppelzentner (Dz) into tonnes.

⁴⁰⁴ Pfister, C. (1975): 159 (table 20). This is significant at a 1% level. With a two-year moving average, the correlation improves to 0.52, showing the effects of grain storage carry-overs.

⁴⁰⁵ Pfister, C. (1975): table 25 (tithes, value for *Altbern*) and table 28/1 (prices, value for *Kernen*). I have used the relative weight of wheat to convert the original data from Bz per ms to Bz per kg.

Compared to the figures from *Special-Tabellen* discussed above, the figures followed a distinctly different path in the late 1780s and early 1790s. Yearly fluctuations were very high for tithe revenue, both when measured by weight and by value. The coefficient of variation (standard deviation divided by the mean) is 8.35% for the tithe series measured by weight and 32.7% for the series by value. Grain prices as a time series were also characterised by high volatility, with a coefficient of variation of 32.9%. This illustrates the difficulties of analysing revenue that was collected in kind. In addition, Figure III-20 ignores regional differences, which could be considerable for tithe revenue as well as for prices. This will be discussed in more detail in the next chapter (IV).

Tithe revenue for the period before 1755 is available from a different series by Christian Pfister.⁴⁰⁶ For their monetary value, I had to use less reliable prices data from the bailiff accounts of Aarberg.⁴⁰⁷ The result is shown in Figure III-21.

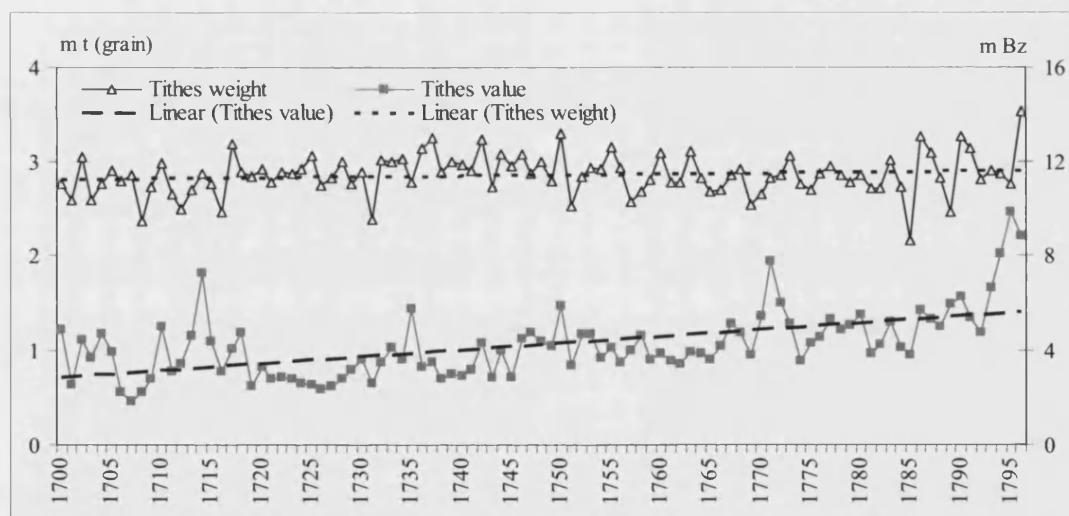


Figure III-21: Tithe Revenue by Weight and Value (including Linear Trend), 1700-1796

Source: Pfister, C. (1984): vol. 2, table 2/7.2; values calculated with prices from grain sales by Aarberg bailiffs (StABE B VII 851-872; price for *Kernen*; missing values extrapolated by relative changes for the price of oats). I have converted Pfister's Doppelzentner (Dz) into tonnes.

The same caveats for using a single price series to convert tithes into monetary values apply. Adding a linear trend line shows that while tithes measured by weight

⁴⁰⁶ Pfister, C. (1984): vol. 2, table 2/7.2. Values after 1755 are identical to Pfister, C. (1975): table 25.

⁴⁰⁷ Prices for grain sales by Aarberg bailiffs from StABE B VII 851-872.

remained stable throughout the century, when measured by value they increased over time, showing the secular price inflation for grain.⁴⁰⁸ The volatility of both series was again very high, with coefficients of variation of 7.6% (by weight) and 35.7% (by value).

To sum up the findings of this section, a number of contemporary tables allow for a proximate overview of Bernese state finance throughout the century. They reveal that the canton ran consistent budget surpluses while revenue and expenditure were generally increasing over time. Yearly fluctuations could be high, and extraordinary events, such as the loans of 1710, had a great financial impact. The salt trade was the main contributor to government finance; tithes remained stable over time when measured by weight but increased in monetary value because of grain price inflation. A more detailed breakdown of the structure of revenue and expenditure will be provided in the following chapter (IV).

III-5 The State's Assets

This section will discuss the development of the state's most important assets over time. It starts with a general overview based on a contemporary document, then discusses the cash reserve, financial investments, salt trade and grain inventories in more detail. The purchases and sale of property or titles are missing from this analysis because there are no readily available inventories or accounts on them.

To create an overview of changes in the canton's wealth, the government had compiled a table containing information about its major assets between 1750 and 1790.⁴⁰⁹ The data was charted by decade for the 1750s and 1760s and by half decade from 1770 onwards. It noted the overall increase and decrease in each asset category, distinguishing between *Cash Reserve*, *Foreign Funds* and *Domestic Investment*. The latter includes domestic loans and purchases of landed titles.⁴¹⁰ For Figure III-22, I

⁴⁰⁸ See the discussion in Pfister, C. (1975): ch. 4 and Section VII-14 in the appendix.

⁴⁰⁹ StABE B VII 2520a.

⁴¹⁰ The document distinguished between capital investments (*angewendtes Capital*) and the purchase of land titles (*erkaufte Lehen, Bodenzinsen und Zehnten*), but combined the two categories for divestments (*Abgelöst oder Verkauft*). For all these categories, a distinction was made between the German and the French-speaking territories.

have converted all values into yearly averages, showing divestments as negative and investments as positive values.

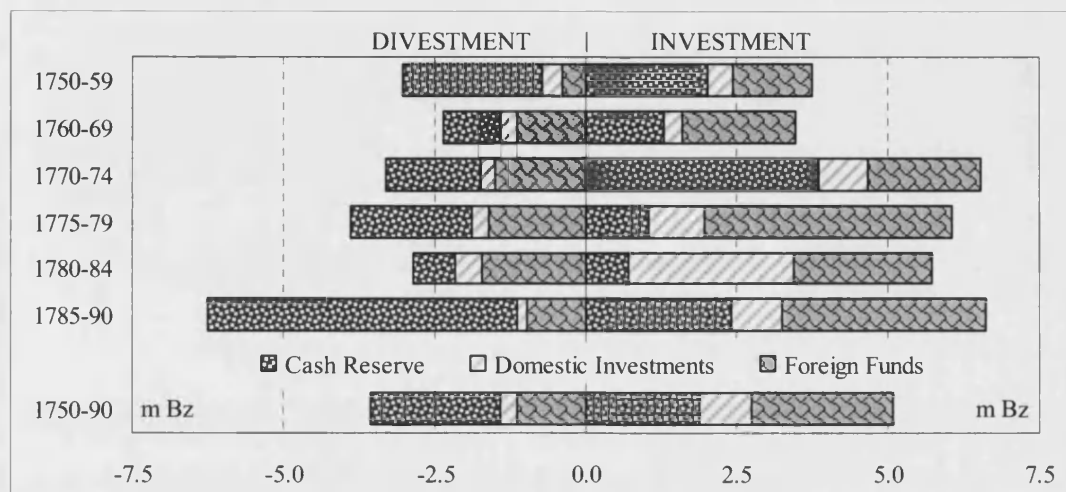


Figure III-22: Investments and Divestments by Category, 1750-1790 (Yearly Average)

Source: *Tabelle Staatsschatz* (StABE B VII 2520a). The yearly average figures were calculated from data compiled by decade (1750-69) or half decade (1770-1790); the original document did not provide yearly data directly. Negative values (left-hand side) show divestments; positive (right-hand side) values investments. For the category *Domestic Investments*, see footnote 410.

The figures confirm what was discussed earlier: the money that filled the cash reserve in the early 1770s was used for the Imperial loan of 1787, which shows as an increase in foreign funds in the late 1780s. A decade earlier, the foreign funds also increased considerably. Domestic investments, on the other hand, increased mainly in the early 1780s. The major problem of these results is that they were only calculated by 5- or 10-year averages. In order to determine annual changes, the original accounts should be considered, as far as they have not been destroyed. My discussion begins with the most secretive and glamorous of Bernese assets, the cash reserve.

The Cash Reserve

The Bernese cash reserve (*Staatsschatz*) was legendary in the eighteenth century. The government kept few written records about the contents of its coffers, and the precise amount of the cash reserve was kept secret. Contemporary observers speculated about how much money the government had locked away in the vaults of

the city hall. It can be argued that hunger for bullion was one of the major reasons for the invasion of Switzerland by Napoleonic troops in 1798. The looted Bernese treasure, so the legend goes, was used to fund the French campaign in Egypt and sank with her fleet near Abukir. As with many other legends, one reason for its emergence is the lack of documents. The circumstances of the French invasion further promoted the anecdote that the axle of a chariot that a greedy French *Maréchal* ‘requisitioned’ from the Bernese Mayor broke under the weight of stolen goods soon after he left the city.⁴¹¹

Early modern states commonly possessed cash reserves as war chests. This was necessary in an era in which short-term borrowing on capital markets was complicated, unreliable and slow. The origins of the Bernese cash reserve are unknown. They probably date back to the late sixteenth century, even though Bern was still borrowing money as late as 1656.⁴¹² There was no inherent contradiction between borrowing and hoarding a treasure at the same time, as the two were not perfect substitutes. Credit could not be used immediately to pay for military necessities, as negotiations with potential lenders needed time, whereas cash from the government’s vaults was instantly available. Ironically, one of the earlier propellants of the Bernese cash reserve had disappeared by the eighteenth century: payments by foreign powers for the use of mercenary troops, the so-called *pensions*. Its most important donor, the French crown, had become a political rival during the reign of Louis XIV. In this situation, it was not opportune to collect pension payments from the French ambassador and increase Bernese vulnerability to external political pressure.⁴¹³ Mercenary troops continued to serve France, but had evolved into a private enterprise, controlled by patrician families (see Section II-5 above).

Numerous safety features were in place to ensure that the cash reserve could not be used for illicit purposes. Eight different keys were required to open the vault and each was kept by an important government official.⁴¹⁴ The absence of written inventories listing the content of the cash reserve was a further precaution, inhibiting any unnecessary expenditure by the government. In 1697, the Secret Council inquired if there was enough money in the cash reserve to support an army of 30,000 men for a year. Four Councillors were ordered to investigate the matter by paying a superficial

⁴¹¹ Landmann (1904): 20. See also Feller (1960): 699-708.

⁴¹² Landmann (1903): 16; Peyer (1968); For the sixteenth century: Körner (1980).

⁴¹³ Feller (1955): 207.

⁴¹⁴ Landmann (1903): 15.

visit to the vault ‘without counting or touching the money in the treasure.’⁴¹⁵ Their response to the initial question was a simple ‘no’. Based on the cost of the Second War of Villmergen, Julius Landmann estimated that the amount in question was between 3.125m and 3.25m Thl (93.75-97.5m Bz).⁴¹⁶ We can therefore assume from this episode that the content of the cash reserve was less than 90m Bz at the turn of the century.

This estimate also qualifies the following statement by Abraham Stanyan from 1714:

Thus much is certain, that this Canton [Bern], and that of Zurich, are the only two [in Switzerland], that may be properly said to have Sums of Money in their Coffers. Berne, in particular, has at this time 300000 pounds Sterling at Interest; yet that Sum, as I am credibly informed, makes not a sixth Part of what remains in the Treasury.⁴¹⁷

According to Stanyan’s estimate, the cash reserve would have been worth £1.8m, which is the equivalent of 240m Bz. It is very unlikely that the treasure increased by that much between 1697 and the time of his writing, particularly since the Bernese government had lent 37.8m Bz to the Dutch and English in 1710 and paid 12.75m Bz for the Second War of Villmergen from its cash reserve two years later. The only reliable figure available is that at the French invasion on 5 March 1798, Bern had cash worth 106m Bz. Of this sum, 89.9m Bz was in the cash reserve, the rest with government offices. The French commanders only reported part of the sum to Paris; the rest – over 20m Bz (!) – went into their pockets.⁴¹⁸

To estimate the value of the accumulated cash reserve, I have collected all the information on it and subtracted the amount from the 1798 figure (see Figure III-23). The sources used are only reliable for the period between 1750 and 1790, when a ‘vault ledger’ (*Gwölb Büchli*) listing all deposits and withdrawals was created.⁴¹⁹ For previous years, I relied on information from other accounts, notably the *Welsch Standesrechnung* and the *Historie*, as well as anecdotal evidence about the direct withdrawal of cash for military campaigns. This was the case in 1707 (Neuchâtel

⁴¹⁵ StABE B I 2: 106-112 (quote: 108-109). The original words are: ‘ohne zedlung oder berührung deß gelds auß denen schatzgewölb.’ Again in 1723, the vault was sorted without any counting or inventory: Landmann (1903): 15-16.

⁴¹⁶ Landmann (1903): 17 (note 1).

⁴¹⁷ Anonymous [Abraham Stanyan] (1756): 173-174.

⁴¹⁸ Landmann (1904): 18-21.

⁴¹⁹ StABE B VII 2388a.

Succession) and 1712 (second war of Villmgergen).⁴²⁰ Probably the most important information missing for the period before 1750 is the amount of outflows to the *Deutsch-Standesrechnung*, which was not reported as a separate category.⁴²¹

For the 1790s, it is not clear if the lack of information about movements in the cash reserve was because they never existed or if documents are missing. The *Gwölb Büchli* stopped abruptly.⁴²² In spite of the geopolitical pressure that Bern was under, according to Richard Feller the Bernese treasure remained ‘untouched’ until the French invasion.⁴²³ Apparently, the cash reserve was seen as a last resort to secure independence. In 1793, communal funds for defence (*Reisgelder*) worth 7.4m Bz were released.⁴²⁴ In a last desperate move in January 1798, the government had asked private funds and charitable institutions to send their cash to the government for the country’s defence. This measure was intended to avoid using money from the government vaults.⁴²⁵ Part of the Bernese overseas assets had been liquidated during the 1790s to pay for troops, as will be discussed below.

For Figure III-23, I have calculated the size of the cash reserve back from the 1798 value, adding deposits and subtracting withdrawals.

⁴²⁰ Feller (1955): 226-227 and 318.

⁴²¹ They were combined with other ‘general’ revenue, such as payments for the postal lease and transfer payments.

⁴²² The reason for stopping was certainly not a lack of space, as the *Büchli* contains ample of empty pages at the end.

⁴²³ Feller (1960): 484.

⁴²⁴ Fischer, E.F.v. (1868): 50. This means that communes were allowed to use the money in case of an emergency. See Section II-5 for the communal funds.

⁴²⁵ Feller (1960): 487-488.

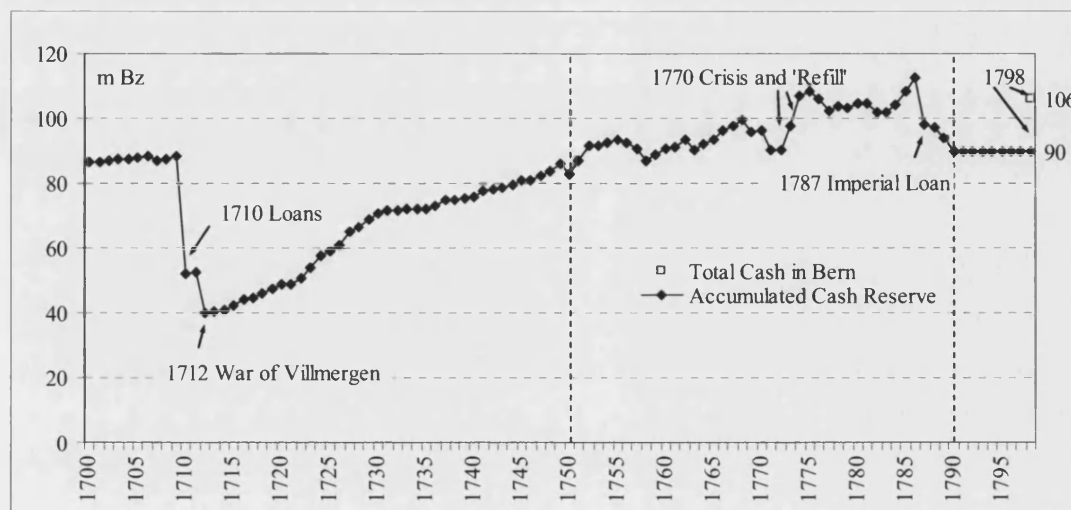


Figure III-23: Accumulated Cash Reserve, 1700-1798 (Estimate)

Sources: *Gwölb Büchli* (StABE B VII 2520a); *Historie* (StABE B VII 2389); *Welsch-Standesrechnungen* (StABE BVII 762-858); Feller (1955): 226-227, 318; Landmann (1904): 21 (values for *Staatsschatz* and *Oberlandgelder* in 1798). The period 1750-1790 is covered by the *Gwölb-Büchli* (hence vertical lines). For the period before 1750, outflows to the *Deutsch-Standesrechnung* are missing. The accumulated cash reserve was calculated backwards from the 1798 figure.

Some of the transactions discussed in earlier sections show very clearly. The most massive outflow occurred in 1710 to finance the Dutch and English loans. Two years later, the payment for the Second War of Villmergen incurred another reduction. In the subsequent years, the cash reserve was steadily refilled, although the lack of information on outflows for this period might overstate the rate at which this occurred. The reaction to the 1770 crisis is also evident from Figure III-23, as a withdrawal, followed by a ‘refill’ in subsequent years. This is when revenue for grain sales at high prices started flowing back, although their amount was smaller than the original outflow. The 1787 loan to the Emperor was mostly paid for by money that had accumulated in the preceding years.

With the detailed information from the *Gwölb Büchli*, it is possible to establish the ‘cash flow’ – the term can be used in its literal sense here – from 1750 to 1790 by destination (see Figure III-24).

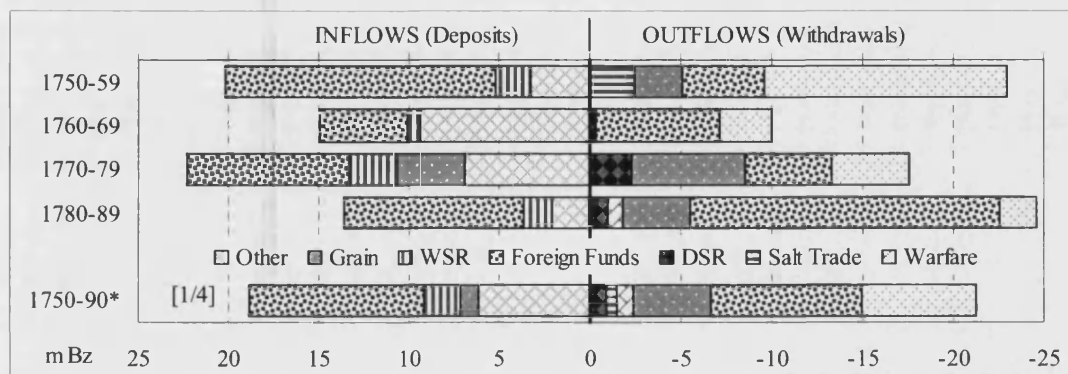


Figure III-24: Inflows and Outflows of Cash Reserve, 1750-1790

Sources: Gwölb Büchli (StABE B VII 2520a). Inflows to the cash reserves are to the left (positive scale), outflows to the right (negative scale). The figures for 1750-90* show added values for all years, divided by factor 4 to fit on the graph; DSR is for *Deutsch-Standesrechnung*; WSR for *Welsch-Standesrechnung*.

During these four decades, the cash reserve was used by the Bernese mint master regularly, who usually withdrew old coins and bullion for minting, sometimes replacing them with newer coins. The main contributor was the account for foreign funds, which also caused important withdrawals in single years, such as 1787. Overall, the funds were a net contributor to the cash reserve between 1760 and 1790. The *Welsch-Standesrechnung* also regularly deposited its surplus in the vault, while its sister account, the *Deutsch-Standesrechnung* benefited from the cash reserve to cover some of its expenditure. The salt trade account benefited from an *assignation* in 1750, presumably to increase the government's salt inventory.⁴²⁶ On specific occasions, funds from the cash reserve were used directly for military expenditure: in 1782 and 1783 for the Geneva expedition, and for a last time on 17 September 1790 to form a war chest.⁴²⁷ The *Gwölb-Büchli* does not record any transactions after this date. On the eve of its downfall, the Bernese government had not only cash stacked in its vaults, but more importantly, financial claims that were considerably larger in size which the French invaders failed to take advantage of.⁴²⁸

⁴²⁶ The reason for this assignation is not clear, given that the salt account itself made large profits and usually was used to fund expenditure in other accounts.

⁴²⁷ StABE B VII 2388a, *Ausgang* entry for 17 Sept 1790.

⁴²⁸ For the attempts to save the Bernese foreign funds from confiscation and reclaim assets after the Napoleonic era: Feller (1960): 699-708 and Landmann (1904).

Financial Investment

The Bernese government lent money mainly as a political tool to foster political alliances and create clientelistic dependencies. When it expelled foreign borrowers from the domestic mortgage market in 1677, this was also intended to provide an investment opportunity for government funds (see detailed discussion in Section III-5 above and Section V-2 below). To accommodate its newly acquired domestic loan portfolio, the government established a domestic loan registry (*Inneres Zinsrodel*), but this was never systematically updated. Because mortgages were administered by bailiffs in the county rather than by a specialised unit with its own accountability, it is impossible to obtain an overview about how much money was invested this way throughout the eighteenth century. In 1770, the Treasurer and *Venners* complained that the ledger was in such a state of ‘great falsehood and disorder’ that all too often financial claims by the government were forfeited because of a lack of proper documentation.⁴²⁹ They resolved to standardise and simplify the domestic loan registry. In addition, a table was compiled which listed all government loans as of 1 January 1769, based on bailiff accounts for the German-speaking territories. The resulting figure of outstanding claims was 5.38m Bz. If we add the Vaud’s share of loans, an estimated 35%, the overall sum of loans in the domestic credit registry was around 7.25m Bz.⁴³⁰ Contrary to the original intention, the tables in the domestic loan registry were never updated. It is not clear where Emanuel von Fischer, who reports the sums for loans outstanding in 1798 at 13.3m Bz (German-speaking territory) and 12.0m Bz (Vaud), obtained his information.⁴³¹

Another way of estimating the size of domestic loans is to use interest payments as a proxy. By multiplying this sum with an interest rate, we obtain the amount of capital invested. It can be assumed that in normal years, the amount of interests that were forfeited was equal to repayment of outstanding interests. What remains unspecified are defaults. Using interest data from my structural analysis for the years 1732 and 1782 (see next chapter), the amount of interest paid by accounts which were included in the domestic credit registry are shown as the category *Registered Loans* in Table III-1. I have calculated the principal by assuming interest rates of 5% and 4%. The former is based on the traditional rate for mortgaged loans, the latter relates to

⁴²⁹ StABE B VII 2338.

⁴³⁰ The figure of 35% is based on Vaud’s share in domestic interest payments for the years 1732 and 1782. See discussion below.

⁴³¹ Fischer, E.F.v. (1868). It is not clear where his figures are from.

anecdotal evidence from early modern capital markets, in which an oversupply of capital put pressure on the price a borrower could charge for lending money.⁴³²

	Interest		Capital (at 5%)		Capital (at 4%)		Capital (at 4%)	
	1732	1782	1732	1782	1732	1782	1732	1782
Registered Loans (m Bz)	0.55	0.34	10.94	6.90	13.67	8.62	18.23	11.50
Other Domestic Loans (m Bz)	0.23	0.16	4.60	3.24	5.75	4.05	7.67	5.40
Total Domestic Loans (m Bz)	0.78	0.51	15.54	10.14	19.43	12.67	25.90	16.90
Foreign Funds (m Bz)	2.59	4.44						

Table III-1: Interest Payments and Estimated Capital with an Assumed Interest Rate of 5% and 4%

Source: Database (see next chapter for details). *Registered Loans* are loans registered in the domestic loans registry (*Inneses Zinsrodel*); *Other Domestic Loans* are loans from accounts that were not included in the domestic loans registry; *Foreign Funds* are the interest payments from the account for foreign investments (AUS). *Capital (at r%)* is the principal calculated with the formula $P = I \times 100 / r$, where I is interest payment, P is the principal (capital) and r stands for interest rate (assumed at 5% and 4% respectively).

Comparing the estimated value of registered loans to the value of the loan register in 1770, an interest rate of 5% seems more plausible than 4%. Around half of the domestic interest payments came from claims by government institutions with no connection to the loan registry. Until 1744, both the *Deutsch-* and *Welsch-Standesrechnung* also included interest revenue. After that date, they only registered loan transactions (new loans and repayments), but did not collect interests any more. Once the capital was invested, financial claims were transferred to bailiff accounts.

Overall, domestic interest revenue fell by over a third from 1732 to 1782. During the same time, returns on foreign investments grew by 71%. This is consistent with other evidence about a shift in the government's portfolio from domestic to foreign lending. A *Balance Sheet* of the state's assets for the years 1750 to 1770 (discussed at the beginning of this section) failed to mention the level of loans, but stated new outlays and repayments. During the twenty year period covered by the document, the government lent 4.15m Bz while receiving 6.18m Bz from redemption. In other words, domestic loans declined by 2m Bz between 1750 and 1770. During

⁴³² See HLS (2002), article *Kapitalmarkt* and Schmidt, G.C.L. (1932): vol. 2: 66, 122-124. See also the discussion in Section II-6 above.

the same period, foreign capital investments increased almost tenfold, by 19m Bz.⁴³³ According to the *General-Tabellen* (see Section III-4 above), between 1785 and 1794 revenue from domestic interests were on average 0.6m Bz per year, those from foreign investments 5m Bz.⁴³⁴ The ratio of interest revenue between domestic and foreign loans therefore changed from 1:3.3 (1732) to 1:8.7 (1782) and fell to 1:8.3 (1785-1794).⁴³⁵

Bern's overseas investments began in 1710 with loans to the Dutch and English. In the following two decades, these were converted to portfolio investments on the London capital market. The expansion of overseas assets that ensued was largely funded by retained interest payments. After 1732, the canton also invested money on the Continent, either in the form of government bonds or by granting loans to sovereigns across Europe. I will discuss the details of Bernese investment strategies in a separate chapter (V). In this context, I will consider them a black box and only investigate foreign funds as part of the state's assets. The information for this is from the *Historie der Ausländischen Stands Capitalien* of 1776 and on accounts for foreign funds.⁴³⁶

⁴³³ StABE B VII 2520. Figures for the *Deutsch-Zinsrodel*: angewandt 120,850 Kr, abgelöst: 145,506 Kr; for *Welsch-Zinsrodel* angewandt 45,127 Kr, abgelöst 101,825 Kr; for *Außer Zins Gelter* angewandt 1,478,709 Kr, abgelöst 686,630 Kr.

⁴³⁴ StABE B VII 2521.

⁴³⁵ The latter was mainly due to new domestic loans in the early 1780s while foreign funds were reduced.

⁴³⁶ StABE B VII 2389 and B VII 2396-2473. I only used nominal data; the value of Bern's foreign funds will be discussed in Chapter V.

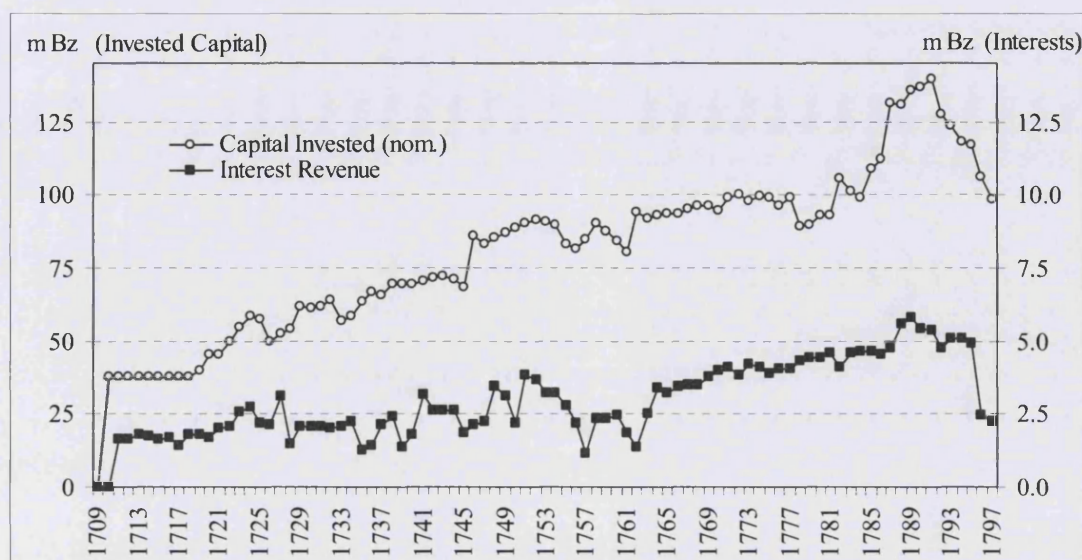


Figure III-25: Overseas Capital Investments and Revenue, 1710-1797

Sources: *Historie* (StABE B VII 2389) and foreign funds accounts (StABE B VII 2396-2473). *Interest Revenue* are shown on the right scale. *Capital Invested (nom.)* considers nominal sums only; the value of Bernese assets is discussed in Chapter I (see Figure V-6 in particular).

After the initial loans of 1710, capital investments grew steadily but with high yearly swings until the late 1780s. In 1787, the foreign funds rose to new heights reaching a peak in 1791, after which their sums were in sharp decline. In 1798, the Bernese portfolio had a nominal value of 98.75m Bz and an estimated market value of 104.5m Bz (see Chapter V).⁴³⁷ Interest payments followed roughly in line with these developments. The exact rates of return will be calculated and commented later. The connection of the account for foreign funds with the remainder of Bernese state finance was mostly through withdrawals from and deposits to the cash reserve, as well as *assignments*. In Figure III-26, I have accumulated all transfers to and from other accounts.

⁴³⁷ Landmann, using nominal values, gets the figure of 116.0m Bz: Landmann (1904): 60-62.

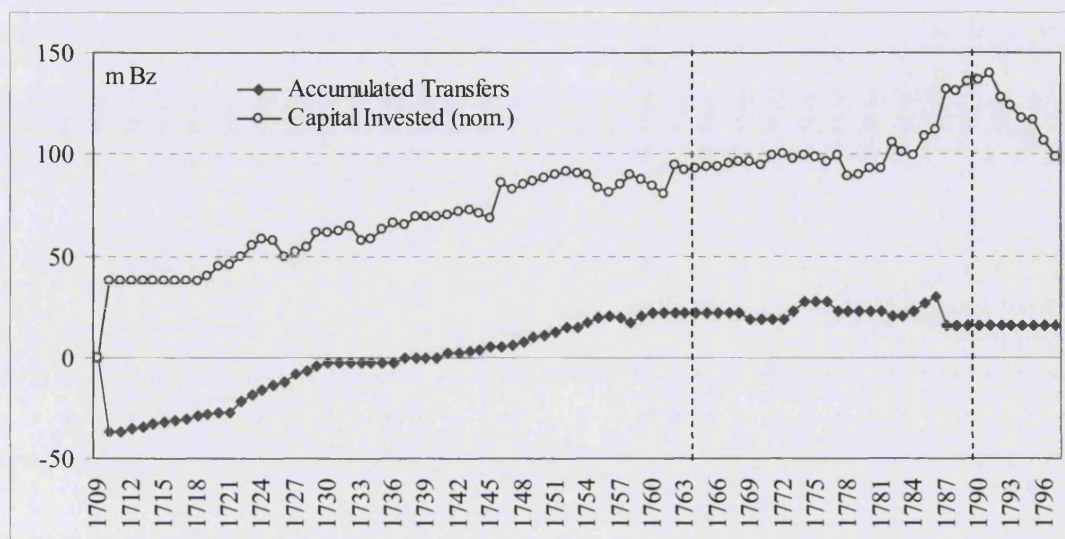


Figure III-26: Overseas Capital Investment and Accumulated Transfers from Foreign Funds, 1710-1797

Sources: *General-Bilanzen* (StABE B VII 2179), *Gwölb-Büchli* (StABE B VII 2388a), *Historie* (StABE B VII 2389) and accounts for foreign funds (StABE B VII 2396-2473). For the *Capital Invested (nom.)* series, see Figure III-25; *Accumulated Transfers* are payments from the accounts for foreign funds (AUS) towards the cash reserve or other Bernese accounts, accumulated over time. The full amount of deposits to the cash reserve is only known for the period before 1790, that of assignments for the 1764-1790 period (hence the vertical lines).⁴³⁸

As mentioned earlier, the first loans were funded by cash withdrawals from the treasury. During the next few years, interest payments from foreign funds steadily accumulated in the cash reserve. As far as data is available, the break even point at which more money was deposited in the vault than the sums for the original loans was reached in the early 1730s, around the time when Bern started to invest on the Continent.⁴³⁹ In the 1790s, with the imminent military threat from France, the Bernese portfolio was partially liquidated to fund military preparations.

The Salt Monopoly

When introducing the monopoly for the salt trade in 1623, the government failed to mention any fiscal reasons for its actions, arguing that only the state could

⁴³⁸ I have added the sums that the banker Gruner paid on behalf of *Malacrida & Comp* (3,247m Bz in June 1722 for interest payments that *Malacrida* had failed to deliver in 1720): See Landmann (1903): 94 (appendix 2). See also Chapter V below and Linder (2004) for a discussion of the *Malacrida* crash.

⁴³⁹ This calculation ignores assignments before 1764, as discussed above.

guarantee sufficient supply of this crucial product at a fair price.⁴⁴⁰ Of course such statements have to be considered – literally – with a pinch of salt. The salt monopoly soon became one of the most important sources of income for the Bernese state, as is evident from my analysis. The salt trade was farmed out until 1635.⁴⁴¹ Thereafter, the *Salzdirektion* (salt directorate) was responsible for purchasing and selling salt. Parallel to the trading monopoly, a privilege (royalty) for salt production existed, which was also assumed by the state after 1685. Domestic salt mining in Roche was insufficient, however, and most of the salt was imported from France and the Empire.⁴⁴² Bern's dependence on imports at times proved a sore spot in its geopolitical ambitions. Salt was not only crucial for food consumption, it was also a key ingredient for cattle farming and cheese production. Although it was officially not taxed, the state made a profit by selling salt at a higher price than the costs of purchasing and transporting. The salt ledgers calculated a profit, but this was only for informative purposes. I have deducted this figure as the government's *Monopoly Profit* from the proceeds from salt sales, which is comparable to salt duties in other states, such as the French *gabelle*.⁴⁴³

In its accounts, the Bernese *Salzdirektion* calculated the profit for each type of salt with the formula

$$P = (\text{Rev} + \text{Inv}_t) - (\text{Exp} + \text{Inv}_{t-1})$$

Where P is profit, Rev is revenue, Inv_t is the salt inventory at the end of the accounting period and Inv_{t-1} the inventory of the previous account (or the opening balance). The figure therefore represents the profit on the amount of salt sold by the state. It is important to note that this profit was not equal to the profit of the accounts of the *Salzdirektion*, defined as the difference between current revenue and expenditure.⁴⁴⁴ To correct for the effects of inventory changes, I have categorised

⁴⁴⁰ Guggisberg (1933): 21-22.

⁴⁴¹ Feller (1955): 128-129 and Guggisberg (1933): 26, 31, 39. In some districts, the monopoly remained farmed out after that date until 1651.

⁴⁴² Roche is in the county of Aigle. Salt production there had started in the sixteenth century: Guggisberg (1933): 17-18.

⁴⁴³ Bonney (1995c): 494-496.

⁴⁴⁴ The difference consisted of current revenue and expenditure of the account that had no direct connection with its commercial activities.

them separately, deducting inventory increases from current expenditure and inventory reductions from revenue.

My analysis covers summarised versions of the *Salzdirektion* ledgers from 1700 to 1797. The structure of the accounts changed after 1725. For the years prior to this date, the revenue from salt sales and profits was recorded separately from the overall revenue of the salt account. After 1725, only total revenue was recorded. They included end-of-year inventories as well as revenue that was not directly related to salt sales and accounting transfers. By deducting the inventory from this sum, we can obtain a proxy for revenue from salt sales. For the sample year 1782, only 78.5% of this proxy figure was actual revenue from salt sales, the rest was comprised of loan repayments and pure accounting transfers that occurred when two different types of salt were mixed together which had been inventoried as separate entities.

Ignoring the distinction between current transactions, inventory changes and monopoly profits for the moment, total revenue and expenditure are shown in Figure III-27. These figures exclude payments to and from other accounts (*assignments*).

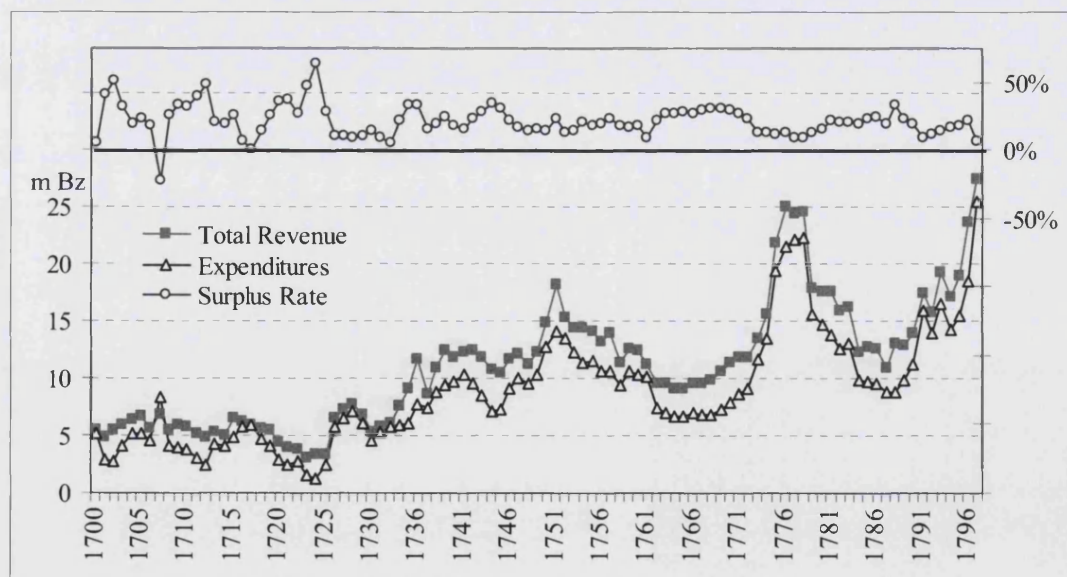


Figure III-27: Total Revenue, Expenditure and Surplus Rate of Salt Account, 1700-1797

Sources: Salt trade accounts (SDI), 1700-1797: StABE B V 481-578. *Surplus Rate* is the difference between revenue as expenditure as a share of revenue (right scale).

With one exception, the accounts of the *Salzdirektion* closed with a surplus every year between 1700 and 1797. The exception is 1707, when the inventory was increased, which will be discussed later. In most years, the difference between revenue and expenditure was equal to the amount of *assignments* to other accounts (see Figure VII-12 in the appendix). For the period between 1764 and 1775, the *General Bilanzen* specified the destinations of such transfer payments (see Figure III-28). After this date, they were recorded without destination. For comparison, I have added figures for contributions in 1732 and 1782. Values for the latter year were divided by two to fit the scale.

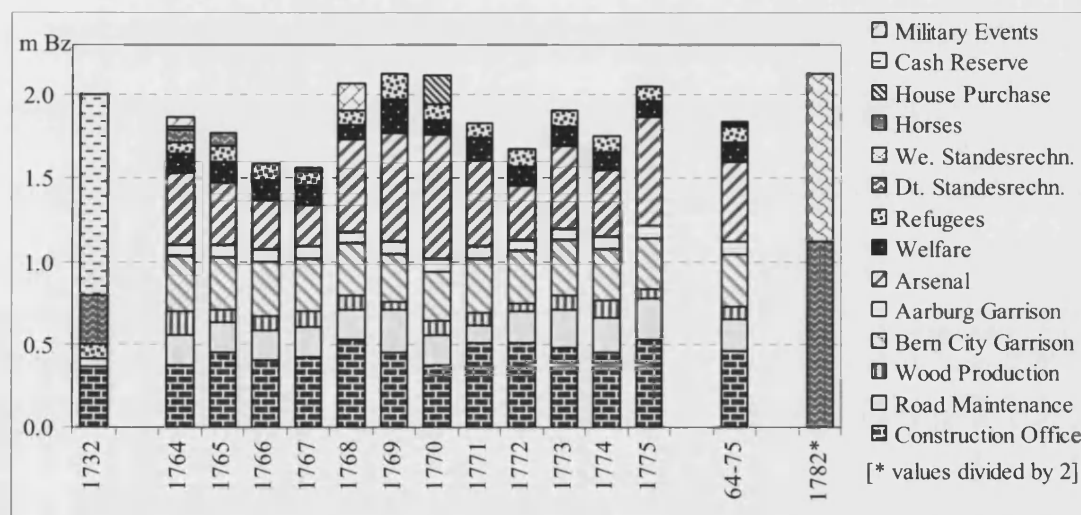


Figure III-28: Assignations from Salt Account by Destination, 1764-1775

Source: *General Bilanz* (StABE B VII 2179); salt trade accounts for 1732 and 1782 (StABE B V 512 and 563a). Values for 1782 were divided by 2. After 1775, the destination of *assignments* was not listed in the *General-Bilanzen* any longer. *Ave* stands for the arithmetic average over all years. The destinations in their original wording were (from bottom to top in legend to Figure III-28): *Bau-Amt*, *Strassenbau-Rechnung*, *Oberländische Holz-Entreprise*, *Stadtwacht*, *Garnison Aarburg*, *Zeughaus*, *Gross-Almosen-Direktion*, *Exulanten-Kammer*, *Deutsch-Standesrechnung*, *Welsch-Standesrechnung*, *Pferdezucht-Kommission*, *Spitalgass-Häuser Ankauf*, and *Gewölbe*. The contributions towards *Luzernische Unruhen* (1764) and *Neuenburger Unruhen* (1768) were combined to Military Events.

Between 1764 and 1775, the *Salzdirektion* regularly contributed towards government institutions responsible for construction (*Bau-Amt*, road maintenance and wood production), defence (*Stadtwacht*, Aarburg garrison and Arsenal) and welfare (*Gross-Almosen-Direktion* and *Exulanten-Kammer*). Other *assignments* seemed to be one-off events, such as house purchases (1770) or military emergencies in Lucerne (1764) and Neuchâtel (1768). From the 1732 figure, it looks as if contributions to

Bau-Amt, Aarburg garrison and *Exulanten-Kammer* were established permanently. There was also a significant transfer of money to the cash reserve in that year.⁴⁴⁵ In 1782, the figures were entirely different, with *assignments* only contributing towards *Standesrechnungen*. Their figures were more than twice the amount of previous periods. Although figures from single years can be misleading, it seem like the system of transfer between accounts had been simplified and concentrated on the *Standesrechnungen*, and *arrears* increased in value.

Returning to the *Salzdirektion* accounts, one problem of considering revenue and expenditure alone is that this neglects the effects of inventory changes. In years when the stock of salt increased, it would show as if the government spent more money than it actually did. Therefore, we have to consider the salt inventory separately, and ultimately deduct its changes from current revenue and expenditure. Salt accounts provide information of the level of the inventory at the end of each accounting period. In addition, the rate of inventory to sales provides information about how much of a year's salt supply was covered by the government's reserves (see Figure III-29).

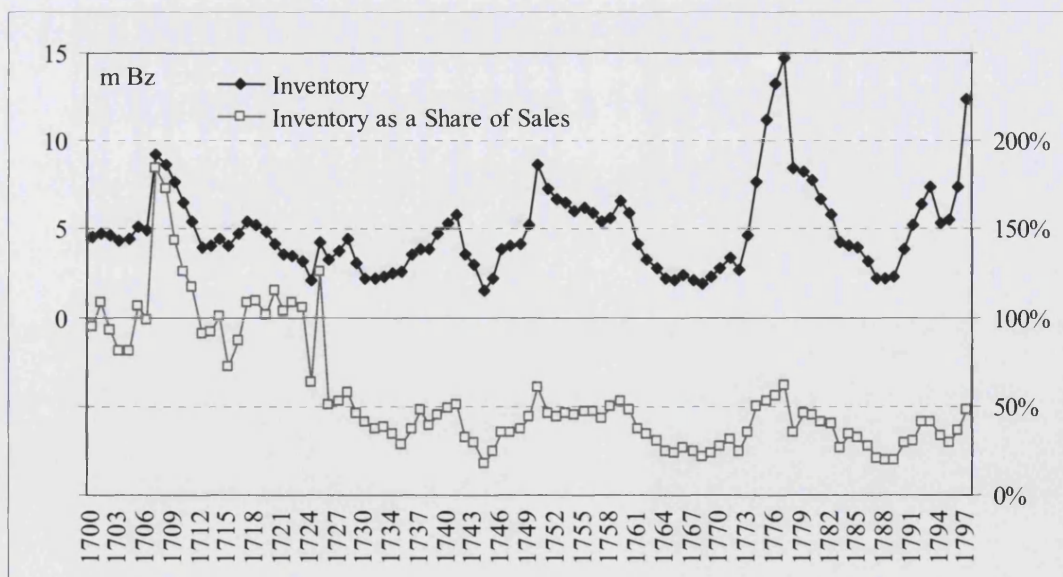


Figure III-29: Salt Inventory in m Bz and as a Share of Salt Sales

Sources: Salt trade accounts (StABE B V 481-578). For *Inventory as a Share of Sales*, I have expressed the inventory as a percentage of total salt sales (including profits).

⁴⁴⁵ If this value does not show up in the structural analysis of Chapter IV this is because as an *assignment*, it was a transfer between accounts.

A value of 100% means that a full year's supply of salt was stocked by the government. While this was the case until the mid-1720s, the coverage was less than half for most of the remainder of the period. In other words, the government had barely enough salt in stock to survive for a few months. This made it vulnerable to geopolitical pressure. On the other hand, purchasing salt from different regions – France, Tyrolia and Bavaria – could somewhat limit the dangers of being at the mercy of a single provider. It is not surprising that the Bernese stocks reached their highest level in 1707, when Bern was at loggerheads with France over the Neuchâtel succession. At this point, the inventory almost reached the level of two year's consumption. The increase of the 1770s might have been caused by a higher degree of awareness for crisis prevention after the 1770 harvest failure. The alternative explanation, that inventories increased because pre-ordered salt could not be sold during agricultural crisis, is very unlikely given that turnover figures increased sharply during the same period.

To analyse the profitability of the salt trade, changes in inventory have to be deducted from current transactions. The government realised this when calculating its own profits (as discussed above). Figure III-30 compares these profits with the amount of salt sold for each year.

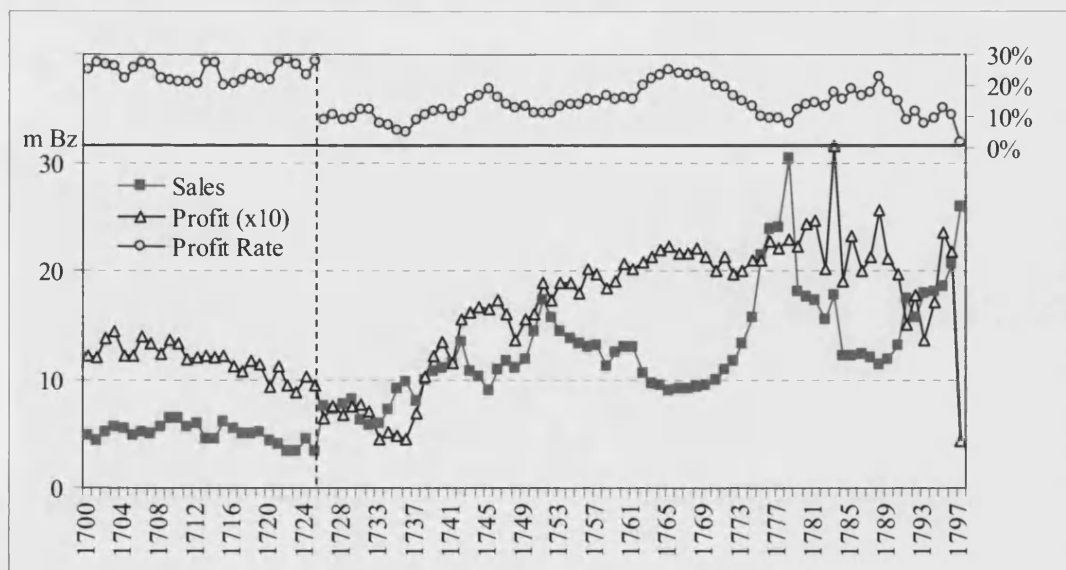


Figure III-30: Profits and Salt Sales, 1700-1797

Sources: Salt trade accounts (StABE B V 481-578). Please note that *Profits* have been multiplied by factor 10 and the data changed in 1725, hence the vertical line. Values before 1725 relate to actual salt sales; for the following years, salt sales were proxied by subtracting incoming assignments, inventory increases and 'other revenue' from total revenue.⁴⁴⁶

The interpretation of the data is complicated by the lack of reliable figures for revenue from salt sales. Before 1725, these were explicitly mentioned. After this year, they had to be proxied, which makes the data prone to errors caused by accounting practice. Regardless of this, it seems that salt sales slumped in the 1760s and soared by the late 1770s. They increased again in the 1790s. It is not clear what caused the sharp rise in sales in 1778 and the fall in 1779; they might be caused by accounting transfers. The government's profit on salt sales moved roughly parallel to sales until 1750, after which profits remained stable in absolute terms, though fluctuating strongly in the 1780s. It is plausible that the government was setting absolute profit targets at the time, although there is no proof of such a measure having been taken.

Public Granaries and Wine Cellars

Information about the amount of grain and wine stored in the government's inventories is scarce. This is mainly because of the de-centralised nature of storage: stocks were usually kept by bailiffs, who also reported them in local units of measurement. It was not easy for contemporary actors to standardise and compile this information in tables. Christian Pfister, Anton Brandenberger and other scholars have discussed the effectiveness of public granaries in stabilising prices.⁴⁴⁷ The main concern of this sub-section is to discuss the implication that inventories had on Bernese state finance.

As a result of its territorial expansion, the Bernese state started collecting an increasing amount of revenue in kind since the late middle ages. The Grain Chamber (*Kornkammer, Getreide-Direction*) oversaw collection and storage of cereals. After 1692, it consisted of the 'Grain Senator' (*Kornherr*) and another Senator, three former bailiffs and three ordinary members of the Great Council.⁴⁴⁸ The *Kornherr* took over the management of granaries in the cities of Bern and Thun in 1760, soon

⁴⁴⁶ Inventory *reductions* bare no role on the amount of salt sold and are therefore ignored. For the years 1730-1737, profits from Roche were missing and had to be calculated in retrospect.

⁴⁴⁷ Pfister, C. (1975); Pfister, C. (1995); Brandenberger (2004).

⁴⁴⁸ RQBE, vol. 9.1: 140.

to be followed by others throughout the territory.⁴⁴⁹ This created a ‘dual system’ in which part of the inventory was administered directly by the Grain Chamber, while the remainder was run by bailiffs under the auspices of the *Vennerkammer*.⁴⁵⁰ The *Kornherr* was also entitled to purchase grain to reach the required target inventory. For selling grain, he depended on permission from the Great Council, which remained the ultimate authority. After 1769 the Grain Chamber was empowered to dispose of a limited amount of the stored grain at its own discretion.

Anton Brandenberger provides some figures about the overall amount of Bernese public granaries. He estimated that in most years, the target inventory was exceeded by 20-30% until the crisis of 1770, when actual figures fell 30% below target.⁴⁵¹ Overall, Bernese grain stores were growing throughout the second half of the century. In 1688, the target inventory had been the equivalent of 6,700 tonnes of wheat, which had fallen to 6,150 tonnes in 1737. By the mid-1760, Bernese granaries were equivalent to 10,000 tonnes of wheat.⁴⁵² This was relatively small compared to the granaries of Zurich, estimated at 4,500-5,100 tonnes of wheat for a considerably smaller territory and population. Based on his own population estimates, Brandenberger calculated that the Bernese states stored 20kg of wheat equivalents per capita in 1729, 19kg by the mid-1750s, 33kg after 1758 and 27kg by the 1790s. Including estimated *Restanzen* as a proxy for public granaries in the counties, his figures increase to 35kg per head in 1755, falling to 30kg in the 1770s, and ‘further falling’ (without figures provided) in the 1790s. When measured in nutritional value (calories) and compared to the need of the overall population, Brandenberger calculates the share of consumption covered by granaries to 10.2- 9.5% for the years 1729 to 1757, and 16.8-13.4% for the years 1758 to 1798. In combination with other foodstuffs, this would be sufficient for roughly 2.5 months in the early part of the century and 3-4 months after 1758.⁴⁵³ This is in line with Christian Pfister’s earlier assessment that Bernese public granaries were sufficient to cover single years of harvest failure, but could not overcome the problems of persistent shortfalls.⁴⁵⁴ The

⁴⁴⁹ In 1760, the *Kornherr* (KOR) account included inventories in Bern, Thun, Burdgorf, Payerne, Moudon, Lausanne, Vevey, St. Prex, Nyon and Yverdon. In 1772, Aarau was added; Brugg, Lenzburg, Morges and Aubonne followed in 1773: StABE B VI 261-285.

⁴⁵⁰ Brandenberger (2004): 369; see also his chapter 4.2 in general.

⁴⁵¹ Brandenberger (2004): 5.2 (in particular 381 and Diagramm 49). He seems to simply add grain by weight, regardless of its type. This makes his figures prone to large error margins.

⁴⁵² For 1688: Küng (1993): 480 (table 4), others from Brandenberger (2004): 378-379.

⁴⁵³ Brandenberger (2004): 379-382.

⁴⁵⁴ Pfister, C. (1984): vol. 2: 56; see also Pfister, C. (1975): 160-162.

Bernese granaries seem less well stocked than those of Lucerne, where up to 80% of one yearly harvest were stored in the 1780s.⁴⁵⁵

Information is not readily available about the first element of the two-tier granary system, the inventories administered by bailiffs in the counties. They consisted of a statutory target inventory and a floating amount of grain that was used to cover current grain expenses. Taken together, both formed a bailiff's *Restanz*, as explained earlier (see Section VII-5 in the appendix). Information about the relation between *Restanzen* and inventories is available for Vaud in the year 1782. In this year, arrears were between 40% (wheat), 75% (Mischelkorn), 109% (barley) and 230% (oats) in excess of inventories.⁴⁵⁶ In other words, only a fraction of the grain at the bailiff's disposal was stored in the granary.

The overall amount of grain *Restanzen* is difficult to establish. Because of practical constraints, I have only collected information for limited time periods from the *Deutsch-* and *Welsch-Standesrechnungen* (1730-35 and 1780-85).⁴⁵⁷ Figure III-31 shows the result by weight and value, based on price information from the structural analysis of the following chapter. In general, any capitalisation of public granaries has to be considered with the caveat of high grain price fluctuations, both regionally and seasonally. Other than the salt inventories, Bern did not have to purchase grain in normal years, but received it through revenue in kind. There was an opportunity cost of storing grain however, since it could have been sold and the produce invested financially.

⁴⁵⁵ Körner (1981): 348-356.

⁴⁵⁶ ACV Bp 4 and Bp 143.

⁴⁵⁷ *Restanzen* from the *Welsch-Standesrechnung* for 1782 only. I have used the overall sum of *Säck*, multiplied by the mean of all measures in Figure VII-10 in the appendix. For a long-term view, see Brandenberger (2004): 382.

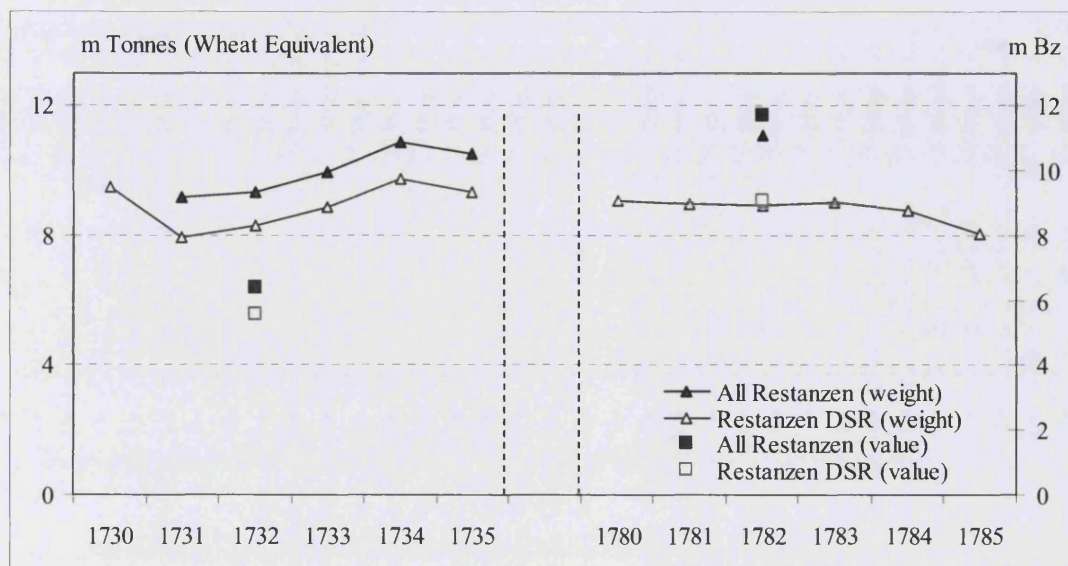


Figure III-31: Grain Restanzen in *Standesrechnungen* by Weight and Value, 1730-35 and 1780-85

Sources: *Deutsch-Standesrechnungen* (StABE B VII 612-617 and 662-667) and *Welsch-Standesrechnungen* (StABE B VII 790-795 and ACV Bp 4). Grain types have been converted to wheat equivalents following Pfister, C. (1975): table 24. Prices are from my database (discussed in the next chapter and Section VII-13 in the appendix).

Overall it appears that the *Restanzen* did not change significantly from the 1730s to the 1780s when measured by weight. However, they nearly doubled in value. This was the effect of grain inflation, which will be discussed in more detail below (Section IV-2 and Section VII-14 in the appendix). The value of *Restanzen* for two sample years should only be considered a proxy, since grain prices varied strongly by region and even more throughout the harvest year.

For the county of Aarberg, I have collected information on how *Restanzen* in grain changed over time throughout the century. One problem is that in the years with an office handover, *Restanzen* were normally reduced to minimise the cost of inventory for an incumbent bailiff (see Section VII-5 in the appendix). Handover years are therefore marked with vertical lines in Figure III-32.

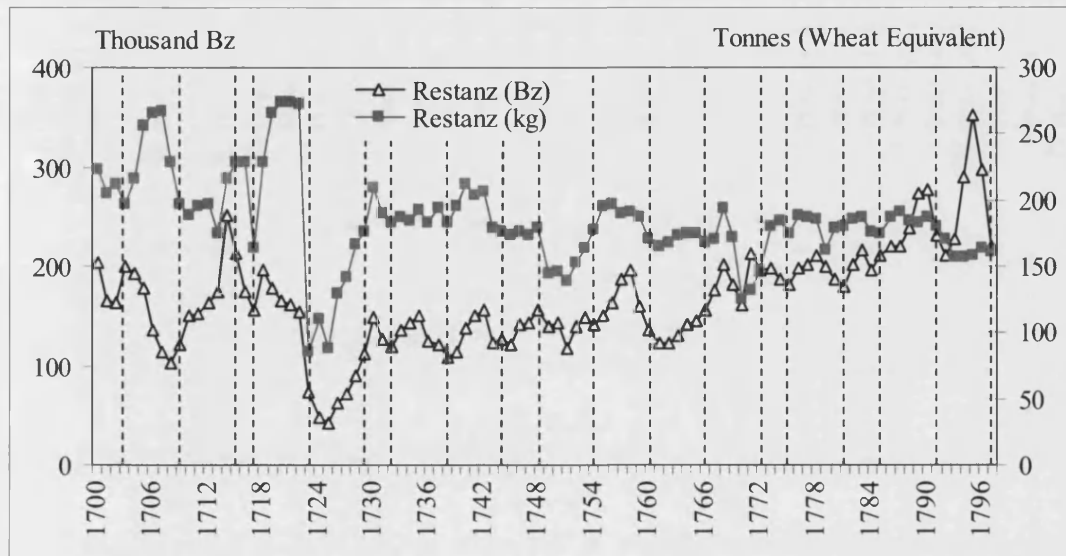


Figure III-32: Grain *Restanzen* in the County of Aarberg by Value and Weight, 1700-1797

Source: Aarberg bailiff accounts (StABE B VII 851-872). Grain types have been converted to wheat equivalents following Pfister, C. (1975): table 24. The conversion to Bz is based on price information from the accounts for each type of grain separately (as in Section VII-13 in the appendix). Vertical lines show handover years, for which both accounts were combined. A handover could affect the amount of *Restanzen* (see Section VII-5 in the appendix).

In the early part of the century, fluctuations were much larger; after 1730, the weight of *Restanzen* seemed to fluctuate around a value just below 200 tonnes of wheat. This was significantly larger than the target inventory for Aarberg, which was the equivalent of 122 tonnes of wheat, according to the *Venner-Reglement* of 1778.⁴⁵⁸ The actual granary was about 1.5 times that amount in the 1780s, falling to around 1.3 times for the 1790s. The reasons for the dramatic fall in 1723 are not clear, though it could be speculated that the bailiff was forced to dispose of the inventory quickly because of a storage problem, such as loss, theft or decay. A local harvest failure could be an alternative explanation, but seems unlikely.⁴⁵⁹ The 1770 crisis can be seen in Figure III-32 as a sharp fall in *Restanzen* by weight; the fall in value was much smaller because of price increases in that year.

For Vaud, a contemporary table (*Getreid Etat*) shows values for target and actual inventories by county for the years after 1771 (see Figure III-33).

⁴⁵⁸ StABE B VII 6. The target inventory was 1349 Mt of spelt, 55 Mt of rye and 250 Mt of oats.

⁴⁵⁹ According to the tithe series collected by Christian Pfister, there was no significant decline in the neighbouring county of Nidau in the early 1720s: Pfister, C. (1984): vol. 2, table 2/7.1.

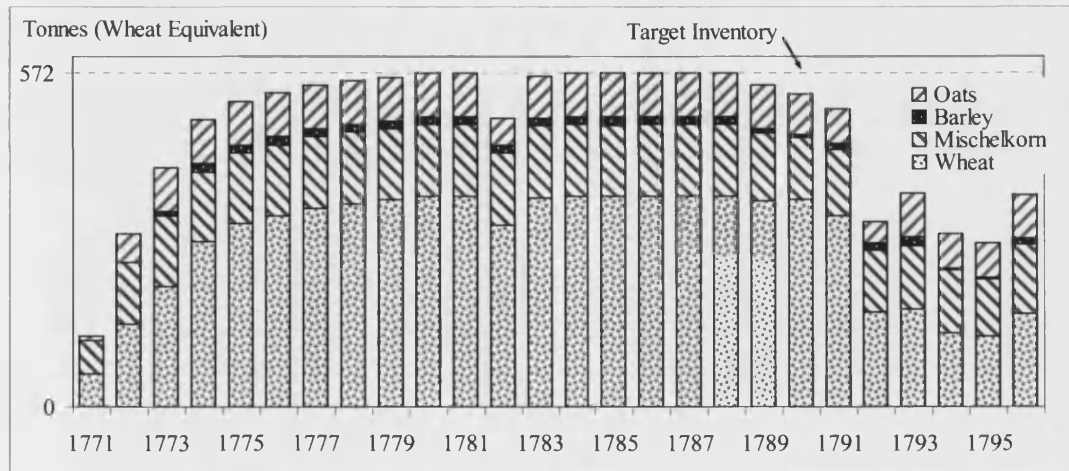


Figure III-33: Grain Inventory in Vaud by Weight, 1771-1796

Source: *Welsch Getreide-Etat* (ACV Bp 143); grain measures converted to wheat equivalents based on Pfister, C. (1975): table 24. I have used the litre equivalents for each county specified in Section VII-13 in the appendix.

After the 1770 crisis, Vaudois inventories were severely short of the target value, covering only 21% in 1771 and 52% in 1772. Once the stocks had been refilled by the late 1770s, they remained stable for over a decade, with the exception of a brief dip in 1782. After 1791, the Vaud public granaries were depleted once again, in spite of grain transfers from other parts of the canton. This was the effect of harvest failures, a French export ban in 1790 and the increased need to support Bernese troops.⁴⁶⁰ The value of Vaud granaries can be established with price information for each county from a contemporary spreadsheet based on bailiff accounts from 1772 and 1791.⁴⁶¹

⁴⁶⁰ For the French export ban: Brandenberger (2004): 395-397.

⁴⁶¹ StABE B VI 228.

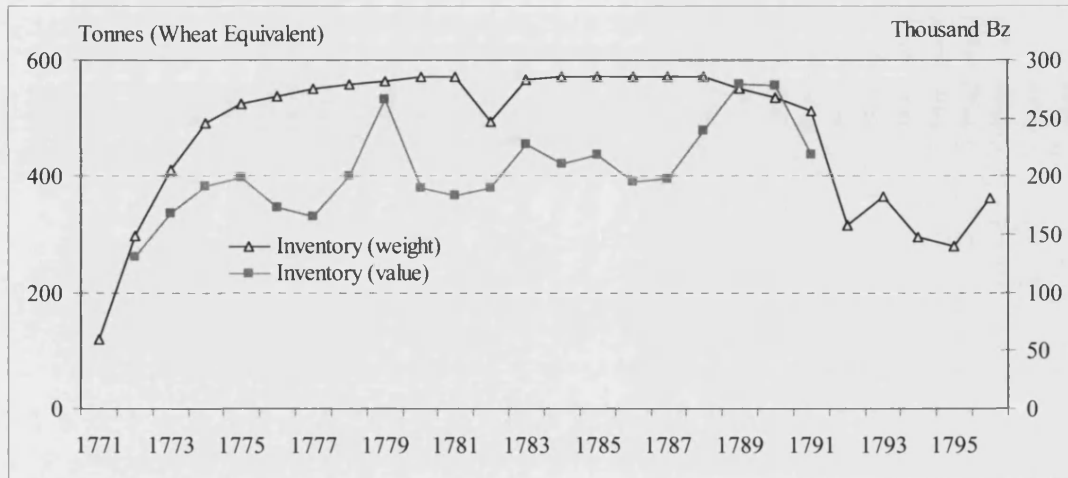


Figure III-34: Grain Inventory in Vaud by Weight and Value, 1771-1796

Source: *Welsch Getreide-Etat* (ACV Bp 143, see Figure III-33 for details) and *Auszüge Welschen Landts Getreid Preise* (StABE B VI 228). Values were calculated by county, missing prices were extrapolated by the mean price corrected for a relative weight factor per county, calculated as the relation between the mean price in this county and the overall mean.

The overall value of the bailiffs' grain store was usually around 200,000 Bz; it occasionally peaked in years of high prices. This sum was roughly a tenth of the estimated domestic loans in Vaud, which were just under 2m Bz in the 1770s (see above, p. 144). Christian Pfister has estimated that the Argovia granaries covered around 14% of a normal annual harvest in 1767 and Vaud granaries covered 19% in 1779.⁴⁶²

Inventories overseen by the Grain Chamber – the second tier of the dual granary system – offer more reliable information than granaries administered by bailiffs. The Grain Chamber stocks represented the disposable part of the overall inventory. From 1760 onwards, the *Kornherr* accounts provide yearly figures for their value, which are shown in Figure III-35 by type of grain.

⁴⁶² Pfister, C. (1975): 161, based on Bucher, E. (1944): 107 and Chevallaz (1949): 114.

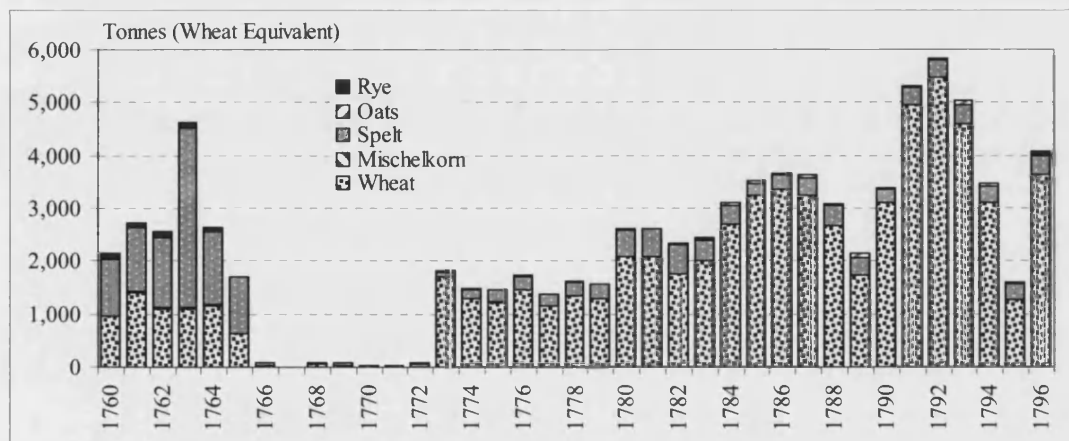


Figure III-35: Grain Inventory of Kornherr Account by Weight, 1760-1796

Sources: *Kornherr* accounts (StABE B VI 261-285). Grain types were converted into wheat equivalents based on Pfister, C. (1975): table 24. The category *Wheat* consists of *Weizen* and *Kernen*.

The disposable grain inventory had been reduced in the early 1760s from a high in 1763. At the time of the 1770 crisis, the *Kornherr* could not offer grain from his stores to a starving population. Instead cereals were purchased from abroad at high prices and local inventories were depleted to meet the demand. After this shock, the granaries were quickly refilled in the 1770s and 1780s. A peak of grain inventories administered by the Grain Chamber was reached in 1793. In terms of the grain used, spelt was important in the early years. After 1773, most stocks were kept in the form of wheat. A special oven was procured in 1758 which dried the wheat. Before purchasing the oven, the government calculated its potential savings from using when using this equipment and decided that it was a worthwhile investment to make storage both easier and cheaper by avoiding weight loss or decay.⁴⁶³

As all the values in Figure III-35 have been converted into wheat equivalents, they can be capitalised by using wheat prices. Ideally this would be done for each region with its own public granary. Since the relevant data is not available, I have used wheat prices from the city of Bern for all conversions.⁴⁶⁴

⁴⁶³ Brandenberger (2004): 386-388.

⁴⁶⁴ These are the market prices collected by Pfister, C. (1975): table 28.

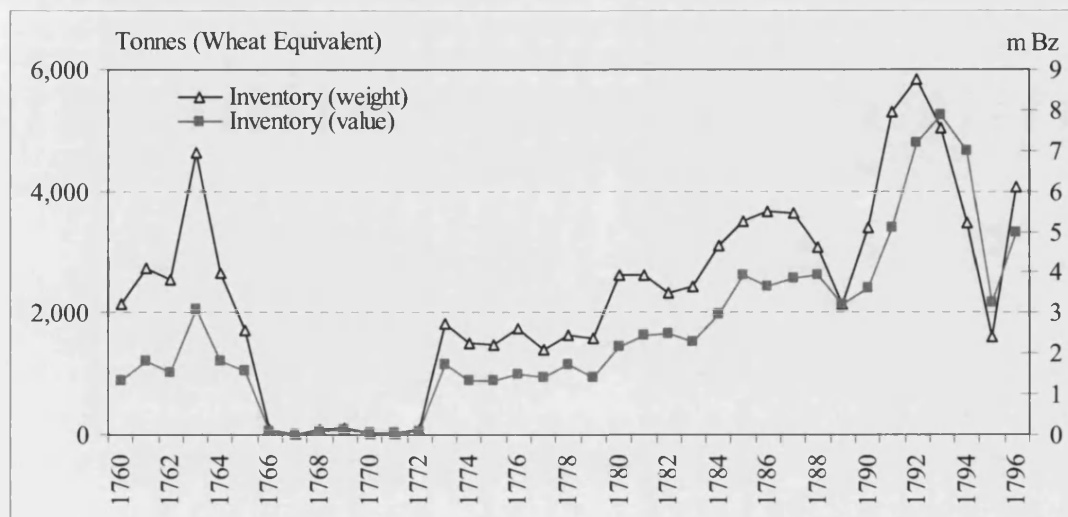


Figure III-36: Grain Inventory of Kornherr Account by Weight and Value, 1760-1796

Sources: *Kornherr* accounts (StABE B VI 261-285, see Figure III-35 for details); values were calculated with wheat prices for the city of Bern from Pfister, C. (1975): table 28.

Through most of the time, the two series appear remarkably parallel, indicating that prices were stable. This is quite surprising, given the high volatility of grain prices, but an essential point is that during the years with price shocks around 1770, the grain inventory did not change as it was virtually empty. The other price peak in 1793 shows quite clearly: in spite of a reduction in inventory by weight, the value of public granaries increased. However, the overall value of the *Kornherr* inventory was not very high. In most years it was in the same order of magnitude as the yearly revenue from foreign funds.

As noted above, the canton was self-reliant in its grain production in years of normal harvest. Only in exceptional circumstances was it necessary to purchase cereals from abroad to feed the Bernese population. This was the case in 1750, 1757, 1770 and 1789/90.⁴⁶⁵ During the catastrophic years 1770 and 1771, the government reportedly purchased 5,411 tonnes of wheat from as far away as Sicily and Africa. The cost of this was 16.0m Bz, which equals an average price of 32.25 Bz/ms. By the end of 1772 the Grain Chamber had sold 3,407 tonnes for 7.7m Bz. The average price of 24.83 Bz/ms signified an overall loss of 7.41 Bz per ms sold.⁴⁶⁶ The government

⁴⁶⁵ The cash reserve contributed the following sums for grain purchases (in Bz): 1.6m (1750); 1m (1757); 6.3m (1770); 3.7m (1789) and 4.4m (1790). See discussion of the cash reserve above.

⁴⁶⁶ B VI 253-258, see also Brandenberger (2004): 390-396. I have added deductions (*Abgang*) to the amount of grain sold. According to the Grain Chamber, by 1775 the overall loss on grain trade since 1770 had been 3.36m Bz, which would be the equivalent of 7 Bz/ms in price.

was willing to cover such losses as a measure of economic policy. For regular years, the Grain Chamber was expected to make a profit on its grain inventory that covered at least the cost of capital. Contemporary documents clearly point towards this understanding.⁴⁶⁷ The objective was to buy or store grain in abundant years at a low price and sell it when prices were high, normally in years with bad harvests. This seems to have worked quite well; overall the Grain Chamber did not rely on *assignments* by other accounts to fund its expenses. Only for major grain sales did it receive money from other sources within the state, as explained in the discussion of the *General Bilanzen* and the cash reserve above.

The Bernese republic stored not only grain, but also wine. Information about wine inventories and their price is even more difficult to find than for grain. The only available figures are that in 1782, the *Deutsch-Standesrechnung* recorded 0.94m litres of wine (5,644 Säum).⁴⁶⁸ Roughly the same amount was stored in Vaud, as the inventories of the *Welsch Weinschenk* confirms. These inventories were listed semi-annually from 1781 (see Figure III-37).

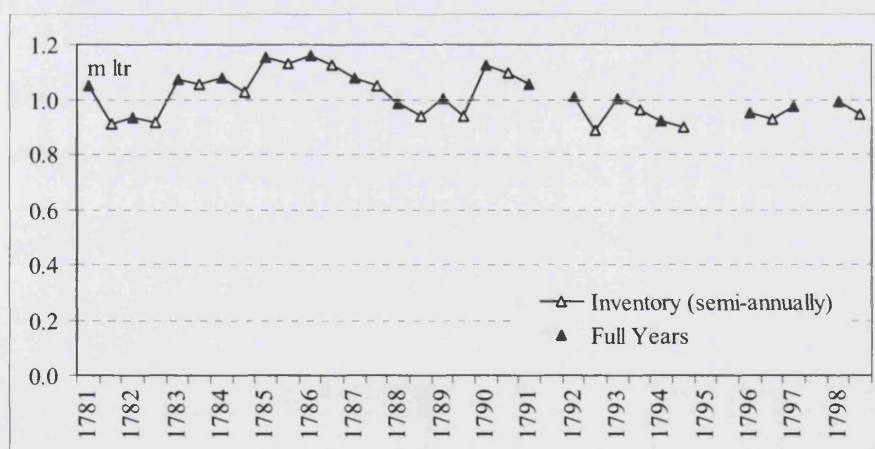


Figure III-37: Wine Inventory in Vaud, 1781-1798 (Semi-Annual Figures)

Source: *Etat Welscher Wein* (ACV Bp 146). Figures exclude wine stored in bottles and *Zufüllwein*. I have converted *Säum* in litres on the basis of the Bernese *Saum* (1.67 ltr).

The overall amount of wine in Bernese cellars was relatively stable throughout the 1780s and 1790s. Valuing this wine inventory is difficult because of a lack of

⁴⁶⁷ See documents quoted in Brandenberger (2004): 385-386.

⁴⁶⁸ StABE B VII 664 (DSR 1782). In the previous year, the value had been 5183 Sm (= 0.87m ltr): StABE B VII 663 (DSR 1781).

reliable data on prices. Using prices from the city of Bern, the overall value of the Vaud wine cellars was roughly 1m Bz, the overall inventory consequently worth about 2m Bz.⁴⁶⁹ However, these figures are crude estimates.

This section has considered the state's most important assets for which information is available. The value of the legendary Bernese cash reserve can be estimated back from its amount in 1798. From the scarce documentary evidence it follows that the 1710 loans depleted the treasure of about 40% of its value; four decades later, the reserve had been replenished to its level at the start of the century. Foreign capital investments were another major asset of the canton (see Chapter V for details); they surpassed domestic loans by far. Inventories of salt, grain and wine were comparatively less capital intensive.

III-6 Grain Sales by Bailiffs

Part of the state's revenue in grain was used directly for expenditure, ranging from salaries to subsidies for the poor or payments for services. As the state normally spent less grain than it received in tithes, a bailiff could sell an annual surplus. In June and January, he received instructions from the *Vennerkammer* about the exact amount to be sold on the market.⁴⁷⁰ Selling grain without permission was strictly forbidden. Considerable sums were at stake, but determining the best price for the state was not an easy task. A low price might make subjects happy, but it would cost the treasury dearly. Furthermore, if grain was sold cheaply, there was a chance that bailiffs might sell to their favourites, who could then make large profits on such government-subsidised grain. On the other hand, high prices were considered exploitative and could undermine the legitimacy of a government. They could also cause inflation and, finally, the bailiff might not be able to sell all public grain at a sufficiently high price. From 1731, bailiffs had to record their grain sales on behalf of the government. As remuneration, they received a share of the proceeds, usually one fifth, seventh or

⁴⁶⁹ Pfister, C. (1975): table 28/1, wine prices from January 1781 to July 1797 (with gaps). My price is the mean of all monthly prices available (overall 131 price quotes): 6.12 Xr/maas (=0.92 Bz/ltr). The Vaud inventory would be worth between 811,321 and 1,060,550 Bz (mean = 922,596 Bz).

⁴⁷⁰ Bucher, E. (1944): 107.

ninth, depending on the amount sold.⁴⁷¹ Bern thus adopted a system that was based on market prices and set an incentive for high prices for the bailiff.

There is too little data on Bernese grain markets to investigate the role of the government systematically (see Section VII-13 in the appendix). For the county of Nidau, a market register contains prices and volumes traded from December 1738 to December 1785, albeit with gaps in 1742/43 and 1744/45.⁴⁷² Based on this document, Erika Flückiger Strebel has calculated monthly market prices for wheat, taking the average between recorded maximum and minimum prices for each day, weighting them by the amount sold.⁴⁷³ Her data can be compared to the government grain sales, recorded in bailiff accounts.⁴⁷⁴ During the same period from December 1738 to December 1785, Nidau bailiffs recorded a total of 794 wheat sales on 625 different days (with several sales per day possible). To compare these with the market data, I have calculated 213 monthly aggregates, weighted by the amount of grain sold each month.⁴⁷⁵ For 194 cases, both a market price and a price recorded by the bailiff are available.⁴⁷⁶ In 153 of these observations (78.9%), the price charged by the bailiff was below the market price; in 41 (21.1%) it was higher. Although most of these instances where the bailiff sold grain more expensively than the market rate occurred in the early and mid-1760s, no clear trend emerges (see Figure III-38).

⁴⁷¹ This was called the *fifth (seventh, ninth) penny*. With a larger amount sold, the bailiff's share decreased, hence the tariff had a progressive structure. See Bucher, E. (1944): 107 and StABE B VII 25: §9b.

⁴⁷² There is no data for the following months: July 1742 to September 1743; July 1744 to September 1745; May 1746; May 1755 and October 1758.

⁴⁷³ Flückiger Strebel (2002): Table 45. Prices are for *Kernen*.

⁴⁷⁴ The bailiff's accounts for Nidau from 1738-1785: StABE B VII 1633-1640.

⁴⁷⁵ For the years 1749 and 1752, the amount of grain sold was not recorded by month (only prices were). I therefore had to assume an equal amount of grain sold in each month for which a price was recorded.

⁴⁷⁶ The rest of the bailiffs' transactions fall in periods where the market series has gaps.

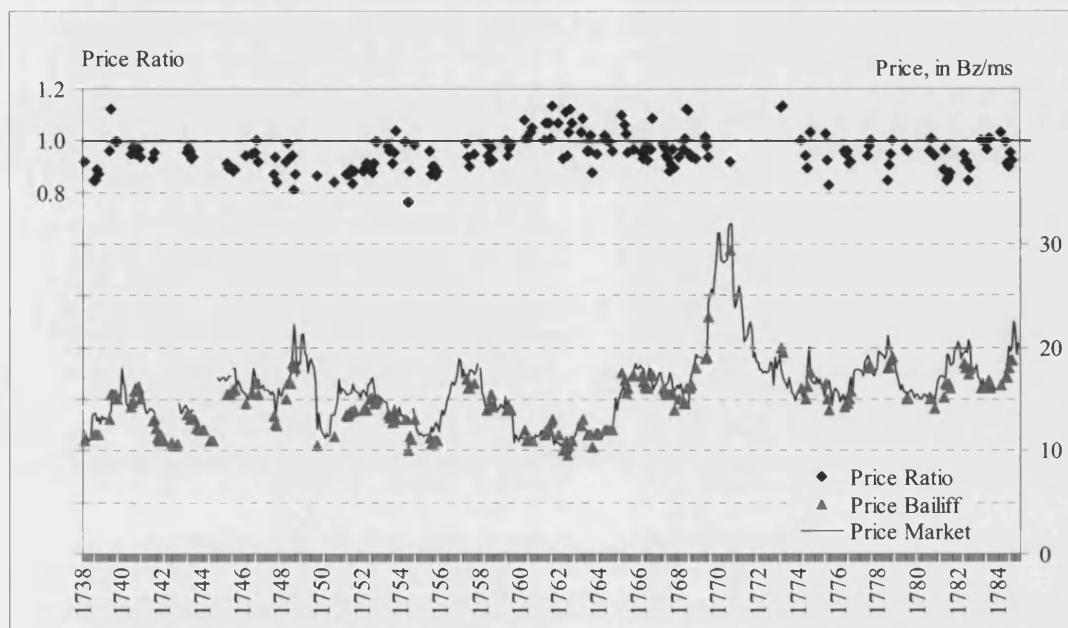


Figure III-38: Grain Prices in Nidau: Market and Bailiff, 1738-1786

Sources: Market prices from Flückiger Strebel (2002): table 45; Bailiff prices from StABE B VII 1633-1640 (Amtrrechnungen Nidau). All prices are weighted prices for *Kernen* (wheat). *Price Ratio* is the ratio between the bailiff's price and the market price.

One explanation for the generally lower prices charged by the bailiff might be that most sales were transacted with millers and not made on the open market. However, it might also describe the government policy of providing cheap grain as a matter of economic policy. It could further depict different trends in seasonality, or simply the inaccuracies of monthly aggregated data. Calculating a statistical measure of correlation between the two series is possible but would give a spurious result. The reason is that monthly fluctuations for grain prices followed a particular pattern over the harvest year.⁴⁷⁷ In theory, this could be eliminated using 12-month moving averages, but as the bailiff's series does not cover consecutive months, this is impossible. Nonetheless, because we know the amount of grain sold on the market and by the bailiff, we can compare selling patterns over the year, grouping the data by month (Figure III-38). It is best not to show this by calendar year, but by the harvest year, which starts in August and ends in July.

⁴⁷⁷ For seasonal price fluctuations: Pfister, C. (1975): 152-153.

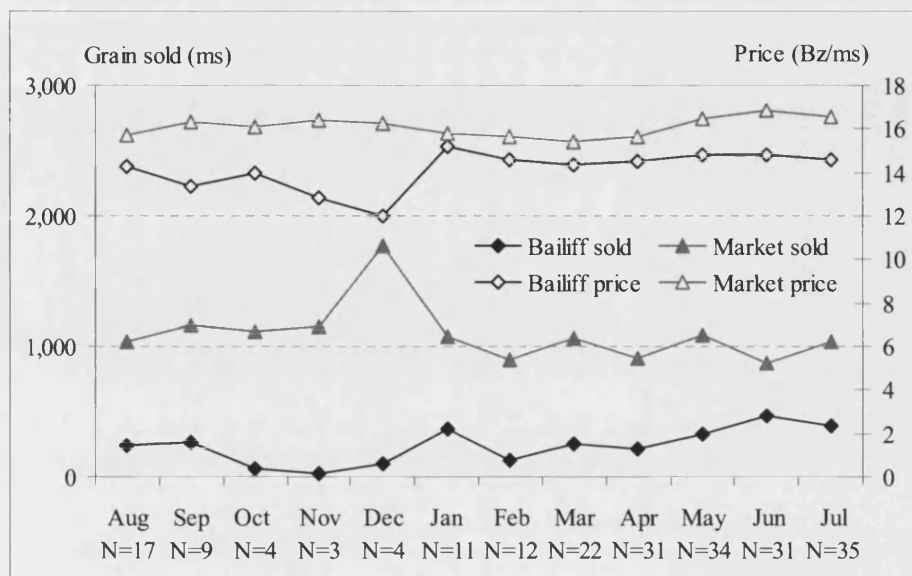


Figure III-39: Grain Sales by Month, Nidau 1738-1785 (Averages, Harvest Year)

Sources: as Figure III-38. All sums for the same month were added and divided by the number of months for which data is available; prices are weighted averages. *N* stands for the number of months with data from bailiff accounts.

The two series follow distinctly different patterns, both in terms of prices and the average amount of grain sold. The bailiff consistently sold grain at a cheaper price than the market except in January when he charged a market price. However, the January figure, as well as the below-market price for December, are both based on few observations. While December was the busiest month in the market, average grain sales by the bailiff peaked in January. However, the selling pattern of the government was less consistent than that of the market; using average figures can therefore be misleading. This is illustrated in Figure III-40.

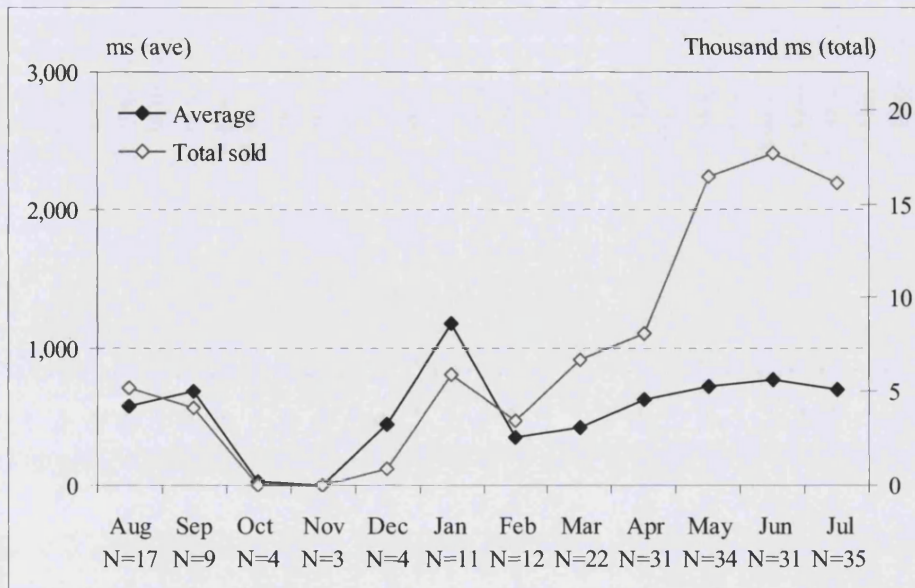


Figure III-40: Grain Sold by Bailiff, Nidau 1735-1785: Total and Average (Harvest Year)

See comments to Figure III-39. *Total sold* is the accumulated total over time for each month.

When comparing the accumulated total sold per month with the average, the picture that emerges is quite different. Overall sales of bailiffs peaked in June, shortly before the harvest, and not in January, as average numbers suggest. If we combine these observations, it can be said that at the rare occasions a bailiff sold grain in the winter months, the amounts were substantial.⁴⁷⁸ The differences between average and cumulative total are trivial for the market series (not shown here).

Combining the amount and price of the sales, we can also investigate the connection between these two variables. For example, did the government sell more grain when prices were higher? Figure III-41 shows a scatter plot of price and amount sold in all months for which market and bailiff data is available.

⁴⁷⁸ The years concerned (1753, 1766 and 1767) were not handover years for the office either.

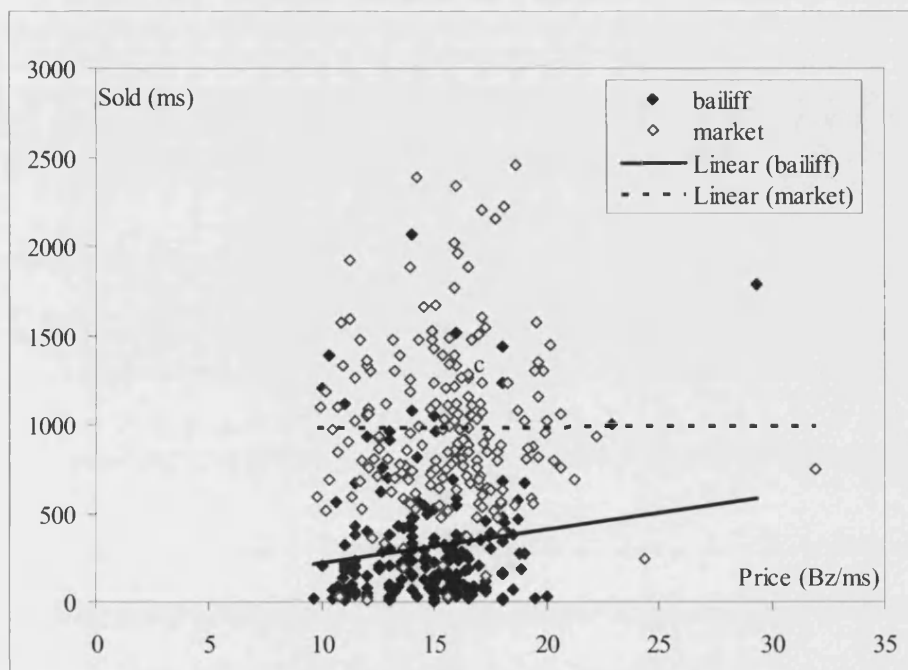


Figure III-41: Grain Sold per Price (Scatter Plot), Bailiff and Market, Nidau 1738-1785

Sources: see Figure III-38. Only data for months with both market and bailiff data (N=194). *Linear* stands for the linear trend line.

Figure III-41 shows all monthly sales and a trend line for both series. For the market series, the amount sold did not depend on price, whereas for the bailiff series, there seems to be a positive correlation, although the statistical significance is small.⁴⁷⁹ This means that more grain was sold if prices were higher. An interpretation of this result could be that the government tried to maximise revenue by selling grain when it was expensive. It can also be argued that the government sold grain when prices were high to stabilise prices as a measure of economic policy.

If we consider the bailiffs' grain sales by year, we can compare this number with Christian Pfister's data on tithe revenue, collected from 1755 onward (see Figure III-42).

⁴⁷⁹ Correlation between price and amount sold (Pearson's, significance level in brackets): for market series 0.003 (0.961, i.e. not significant); for bailiff series 0.147 (0.041).

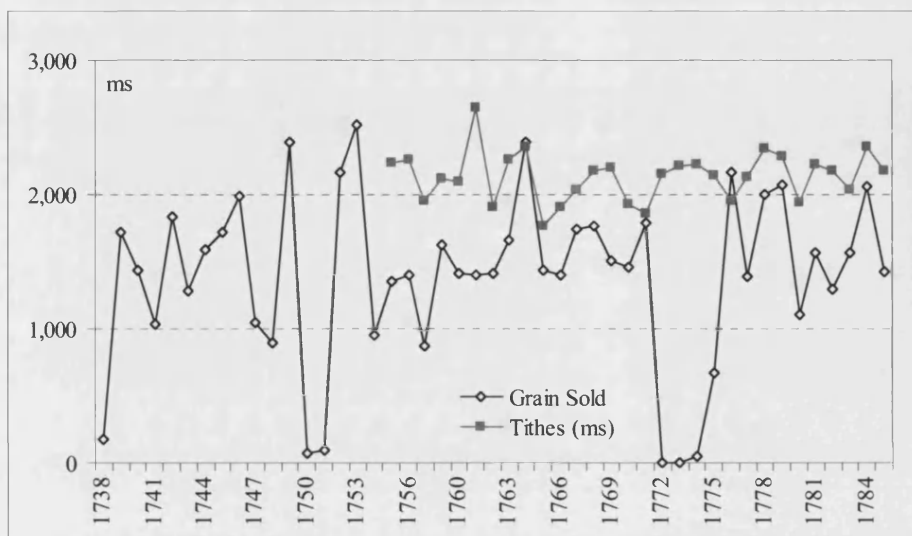


Figure III-42: Grain Sales and Tithes, Nidau 1738-85

Sources: For grain sales, see Figure III-38; tithes from Pfister, C. (1975): table 25/2 (value for Nidau). All figures are for wheat (*Kernen*).

Yearly fluctuations in the amount of grain sold are considerable, with a coefficient of variation of 46.98%.⁴⁸⁰ The series seems to roughly follow trends in tithe revenue, except for the years after 1770; however the correlation is not statistically significant.⁴⁸¹ In 1770, the government had used some of its public granaries for alleviating the severe agricultural crisis.⁴⁸² The resulting inventory reduction needed to be balanced in the following years, when grain surpluses were stored rather than sold. This is also apparent from Figure III-43, which shows data on public granaries in Nidau from 1759 to 1783.

⁴⁸⁰ The coefficient of variation is the standard deviation (SD = 648.214) divided by the mean (= 1379.74).

⁴⁸¹ Correlation coefficient (Pearson): 0.063 for whole series (significant at the 0.743 level). Even if the years 1771-1775 are excluded, the figures are little better, with a correlation coefficient of 0.350 (sign. 0.087).

⁴⁸² See Flückiger Strebel (2002): 144, 150-162 (and Table 22).

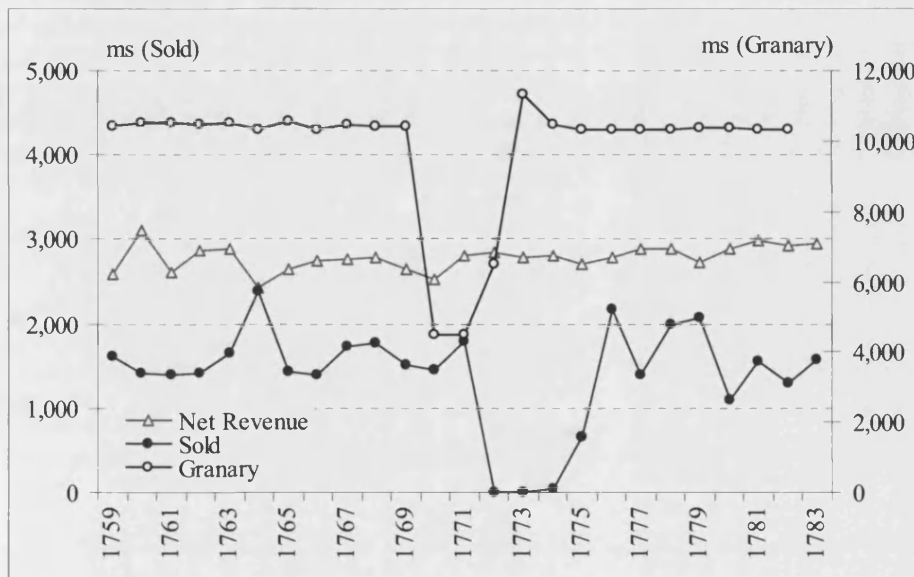


Figure III-43: Wheat Revenue, Granary and Bailiff Sales, Nidau 1759-1783

Sources: same as Figure III-38. *Net Revenue* are revenue of bailiff accounts, excluding previous year's arrears and reduction of public granaries. Granary content is shown in Bernese mäss (ms) on the secondary axis.

For the years following the 1770 crisis, grain sales came to a standstill until the public granary was filled once again. From 1759 to 1783, the bailiffs sold half of the net grain revenue, but this share could range from zero to almost 100%.⁴⁸³ If we compare this to a sample of counties for 1782, they sold 11% of the net wheat revenue, while Nidau sold 44%.⁴⁸⁴ It would be interesting to replicate the findings for Nidau to the actions of the *Kornherr* throughout the territory. Unfortunately, the information on grain markets is too scarce to cover more than the city of Bern itself, for which prices have been collected by Christian Pfister.⁴⁸⁵ From all grain sales by the Grain Chamber, I have isolated sales of wheat in the city and compared them to a median yearly market price (see Figure III-44).

⁴⁸³ If accumulated totals are used, bailiffs sold 50.0% of net revenue; the arithmetic average is 50.4%. It is impossible to calculate a mean with some values being 0. Please note that in 1764, when the bailiff sold almost 100% of net revenue, the public granary was reduced.

⁴⁸⁴ See Section VII-15 in the appendix and Chapter IV for details about the sample.

⁴⁸⁵ Pfister, C. (1975): table 28/1.

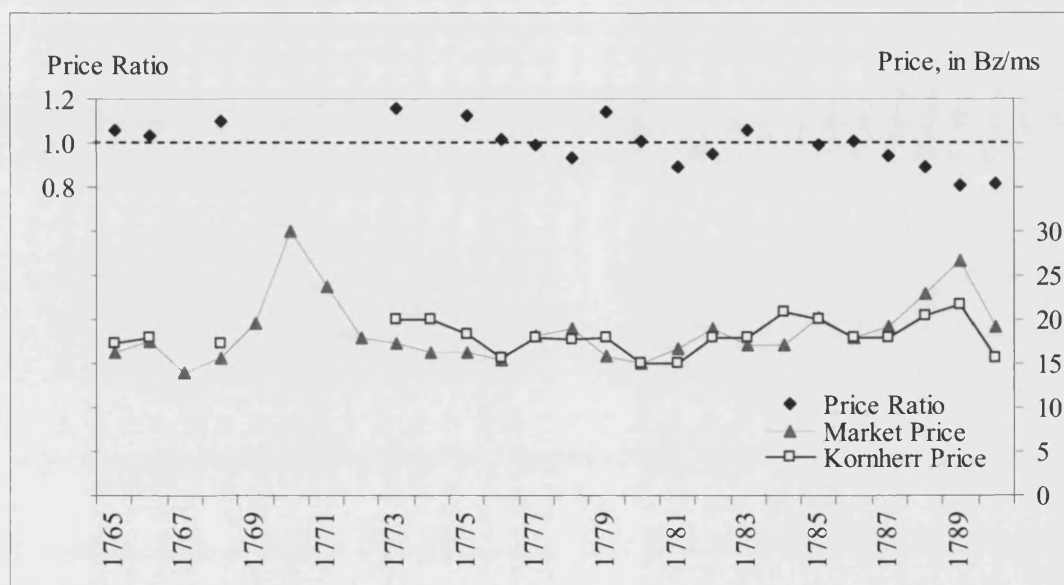


Figure III-44: Wheat Prices in Bern, Market and Kornherr, 1765-1790

Sources: *Kornherr* accounts (StABE B VI 261-285), Grain sales for Bern only, values for *Weizen* and *Kernen*; Market prices are from Pfister, C. (1975): table 28/1 (*Kernen*, yearly price calculated as mean of monthly prices). *Price Ratio* is the ratio between *Kornherr* and market price.

Prices are only available on a yearly basis and are missing for the years 1769-1772, when the *Kornherr* did not sell grain from his granaries, which were empty at the time.⁴⁸⁶ The number of observations is relatively small to make conclusive statements. In 12 of the 21 years with data, the government sold at a higher price than the market, but there seems to be no clear trend. If we relate the amount of grain sold to its price, the result is shown in Figure III-45.

⁴⁸⁶ During that time, the *Kornherr* sold grain purchased abroad (discussed above).

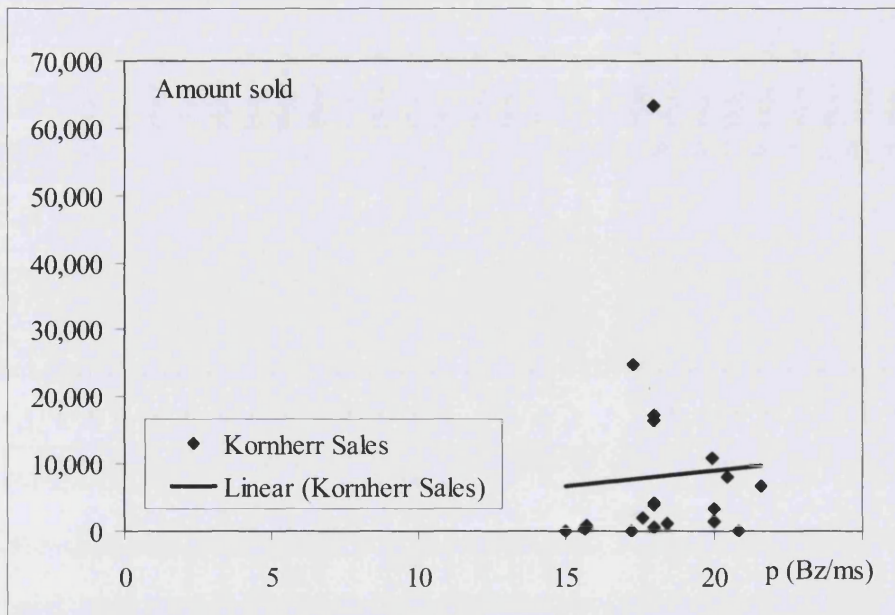


Figure III-45: Wheat Sold per Price (Scatter Plot), Kornherr 1765-1790

Sources: *Kornherr* accounts (StABE B VI 261-285), Grain sales for Bern only, values for Weizen and Kernen. The number of cases (N) is 21. The outlier (63,372 ms sold) is the value for 1779.

As for the discussion of grain sales in Nidau, I have included a linear trend line. Unfortunately there is no data for the amount of wheat sold on the Bernese market, but judging from the Nidau series, the amount of grain sold on the market was independent of its price. For wheat sales by the Grain Chamber, there seems to be a positive correlation, although the result is not statistically significant.⁴⁸⁷

This section has considered grain sales by the government through its agents. Based on the case of Nidau, it seems as if bailiffs sold on average half of their grain revenue, but this share varied substantially. The government sold grain slightly below the market price, usually when prices were high and especially in the months before the harvest in July. Selling grain from public granaries thus had a stabilising effect on prices while generating a good return on storage investment. Sales by the Grain Chamber seem similar, although the information is less reliable than for Nidau.

⁴⁸⁷ The correlation coefficient (Pearson) of 0.059 is only significant at the 0.799 level (i.e. not statistically significant).

III-7 Conclusion: Bern as a Surplus State

The empirical analysis of long-term financial developments of the Bernese state illustrates how Bern functioned as a surplus state. Underlying all the trends I have discussed was the government's willingness to limit expenditure to the means available from traditional sources of revenue and entrepreneurial activity. On one hand, the Bernese followed the traditional pattern of a patrimonial state in building up reserves for contingency. On the other, this was the only way for the government to avoid sliding into a tax-and-spend cycle in which increasing expenditure would force the opening of new revenue sources. In the context of the Bernese republic, additional tax revenue could hardly be obtained without any consent from subjects. Building a state that generated revenue independent of such consent was therefore the cornerstone of patrician financial policy.

The Bernese state ran consistent budget surpluses throughout the century. Revenue was larger than expenditure in 78 years between 1700 and 1796. In particular, profits (defined as the difference between *current* revenue and expenditure) could be invested. Investments, in turn, generated future revenue, though they were highly volatile. They could be several times the amount of ordinary expenditure, as the loans that were granted to the Dutch and English in 1710 illustrate. In other years, investments could be negative, when assets were liquidated, as was the case in the 1790s. Entrepreneurial returns were increasing throughout the century. The two main contributors to government finance were profits from the salt monopoly and interest payments on foreign capital investments; they were the 'cash cows' that fed Bernese administration. For extraordinary needs, the cash reserve provided a backup. When the government purchased grain overseas to avoid starvation during the 1770/71 harvest crisis, this venture was largely financed by a withdrawal from the cash reserve. Public granaries, which were normally used to cover harvest failures, had been emptied previously. As far as information is available, Bernese public granaries seemed relatively small compared to the annual harvest, and also compared to the sums that the canton had invested financially.

Granaries were mainly fed by another main contributor to Bernese revenue, tithes. Because they were not monetised, it is very difficult to determine their exact value. This is why most contemporary attempts to generate an overview of the canton's finances ignore revenue in kind entirely. An additional reason for this

neglect is that they were collected – and spent – locally by bailiffs, since transporting grain to the central government would have been cumbersome and costly. For a long-run observation, tithe returns fluctuated with the size of harvests, which made them prone to climatic shocks. The seminal trend in tithe revenue was stable if they are measured by weight; when expressed in monetary units, tithe revenue increased because of grain inflation. The next chapter will discuss this in more detail, along with transactions that occurred throughout the canton in its counties. The sale of grain surpluses by bailiffs was analysed for the county of Nidau, where market prices are available for comparison. Bailiffs usually sold grain when prices were high, which can be interpreted as an anti-cyclical economic policy of stabilising prices, as well as an attempt to achieve a high return on grain storage investment.

If these findings are discussed in the context of the model of a surplus state outlined in the introduction, all the elements are present. The state ran budget surpluses and invested in various ways to generate returns; defence expenditure was relatively small, taxes were low compared to entrepreneurial returns; and there was no trace of national debt. The state had important assets in the form of cash, financial investments and granaries, the former two contributing considerably to the overall budget. The situation in the 1790s illustrates how much the Bernese equilibrium had been based on low levels of defence expenditure. To cover the additional costs of defending its borders with France, Bern had to liquidate some of its overseas financial assets. But ultimately the cash reserve could not prevent the downfall of the republic in 1798. Ironically, it might even have attracted undue attention by French army commanders.

IV Fiscal Redistribution (Structural Analysis)

IV-1 Introduction and Chapter Contents

This chapter offers an in-depth analysis of the structure of Bernese state finance for two sample years and complements the overview of long-term trends discussed in the previous chapter (III). The remainder of this section defines the term *fiscal redistribution* and outlines the analytical framework used, as far as it differs from the one featured in the previous chapter. I will subsequently explain the data, selection criteria and conversion of transactions in kind into monetary values (Section IV-2). The body of the chapter represents an empirical analysis of fiscal redistribution by nature of transaction (Section IV-3), as well as by state function, economic sector and region (Section IV-4). The fiscal burden, including extraction through the militia system, will be covered in a separate Section (IV-5). A conclusion will consolidate the most important findings.

I will begin with a definition of fiscal redistribution to avoid misunderstandings about the scope of my analysis. In modern-day economics, fiscal redistribution is normally understood as the amount of money that is taxed from the rich and used for social transfer payments to the poor by comparing a pre-tax income distribution with the post-tax situation. For my analysis of eighteenth-century Bernese state finance, I understand fiscal redistribution in a broader sense as the way in which a state extracts revenue and spends it as expenditure. The pattern which ensues determines how resources that would have been used for different purposes in the absence of a fiscal end up being redirected by the state. Other than many studies of fiscal history that focus on revenue and taxation in particular, my definition explicitly includes expenditure as well. In short, I define fiscal redistribution as the effect of accumulated revenue and expenditure by the government.

An Analytical Framework for Fiscal Redistribution

This section will explain the framework I have used for analysing the structural breakdown of Bernese accounts for the sample years 1732 and 1782. As far as the approach is identical to that of Chapter III, it will not be discussed in detail (see Section III-1 above). My analysis of fiscal redistribution is based on four dimensions:

factual, functional, sectoral and regional. While they will all be considered in detail later, the aim here is to provide an overview about how these dimensions were interrelated. A special case of quasi-fiscal redistribution⁴⁸⁸ was the militia army, which extracted resources in the form of forced labour and spent it as days served for the army. This will be discussed in a separate section (IV-5).

The basic principle of my approach is simple. All transactions of the state can be categorised according to an analytical framework that allows for a ‘mapping’ of fiscal redistribution along several axes. To this end, every transaction was labelled with different attributes, such as the time and place it occurred, the currency used, its factual nature, the function it fulfilled or the economic sector that was involved. I call these the dimensions of state finance, along which fiscal redistribution can be measured by collecting, aggregating and comparing data.

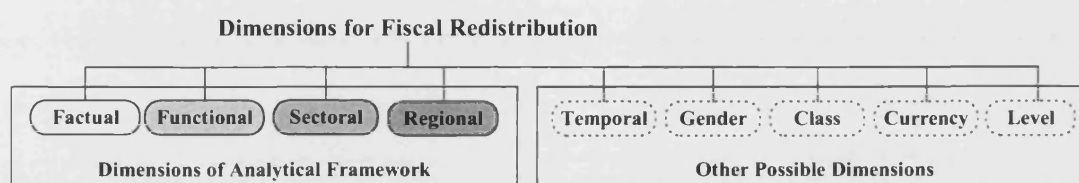


Figure IV-1: Dimensions for Fiscal Redistribution through Government Transactions

Factual stands for redistribution by nature of transaction; *Level* for the administrative or hierarchical level of government (such as central vs regional or local government).

In theory, defining fiscal redistribution is possible for each attribute listed in Figure IV-1. For instance, it would be interesting to consider the gender dimension of Bernese state finance. However, eighteenth-century accounting data provides little information in this respect and makes such an analysis impossible. Except for some parameters defined by the sample that I only consider briefly – such as currencies – the main focus will be on factual, functional, sectoral and regional redistribution. Figure IV-2 shows a more detailed breakdown for each of these dimensions. It is important to note that *each* transaction of the state has to be categorised along *each* dimension. Comparing the sums of inflows (revenue) with the outflows (expenditure) determines fiscal redistribution for each parameter. The categories for the factual dimension are identical to what was discussed in the previous chapter (see Section III-2).

⁴⁸⁸ I use the term ‘quasi’ because these transactions were not recorded in the state’s accounts. See Section IV-5 below for details.

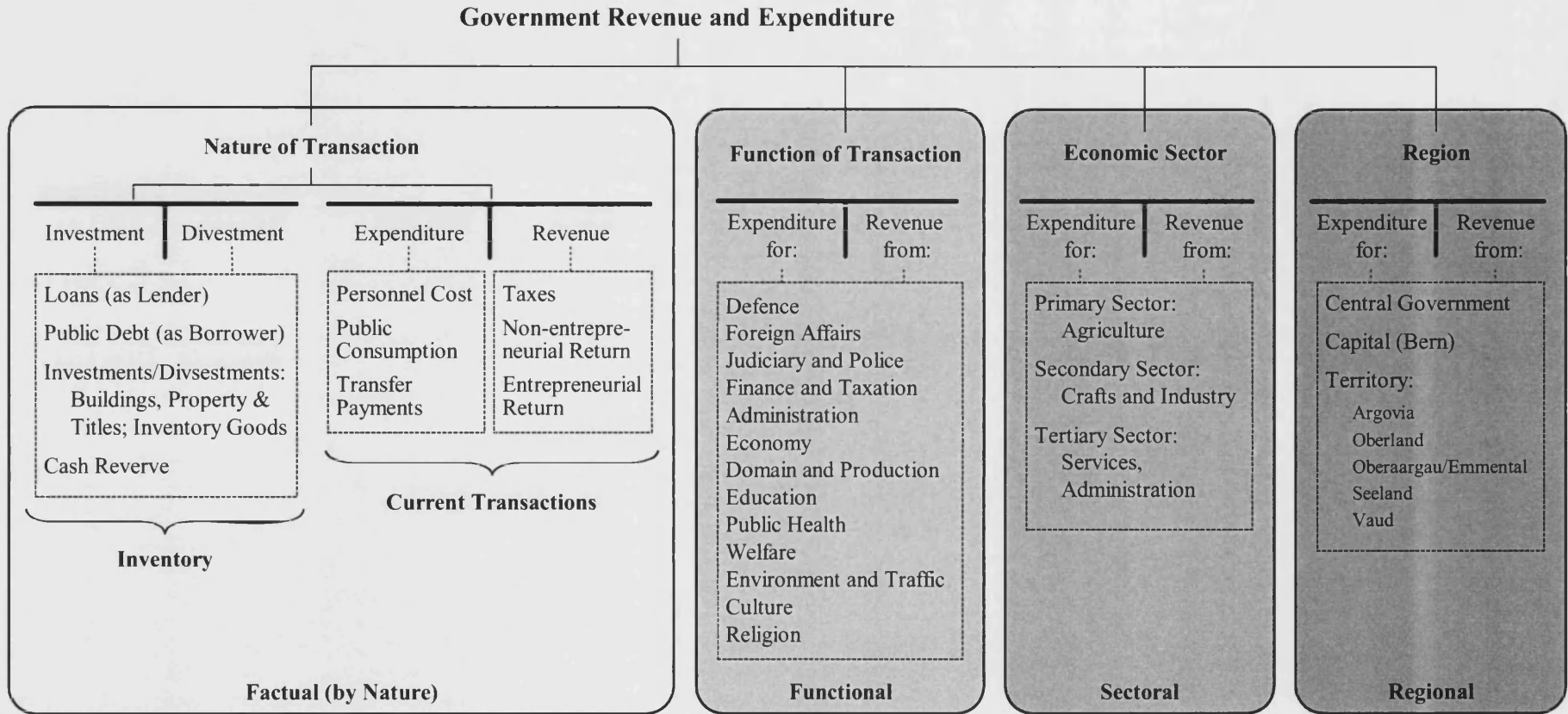


Figure IV-2: Analytical Framework for Fiscal Redistribution

For a more detailed version see Section VII-12 in the appendix and Hagnauer (1995): 22-23 (for the dimension factual, functional and sectoral only). *Region* includes the administrative unit in which transactions were recorded. For *factual redistribution*, see also Figure III-1 above.

To illustrate how the distinctions of Figure IV-2 work in practice, I will use the example of the government purchasing a new desk for its treasurer. When determining the nature of a transaction for the *factual* dimension, the distinction between current and inventory transactions has already been discussed in the previous chapter, along with their main sub-categories (see Section III-2 above). If the state is buying a desk, this would be categorised as the purchase of an item of inventory goods. The *functional* dimension investigates which of the state's activities was affected by a transaction. Using the example of the state purchasing a desk for the treasurer again, this involves the state function *Finance and Taxation*. For *sectoral* redistribution, the economy consists of three sectors: agriculture (primary sector), crafts and industry (secondary sector), as well as services and administration (tertiary sector). In order to determine sectoral redistribution, every single transaction must be allocated to one sector. Buying a desk for the treasurer is an expenditure that flows to the second sector, more specifically to carpentry or wood work. Once all transactions are categorised and compiled, the difference between revenue and expenditure in each sector determines sectoral redistribution through the state. Finally, I have proxied *regional* redistribution by the account in which transactions were recorded. This allows for a distinction between transactions carried out by central government and those of its representatives in the city or the territory. The territory itself is separated in its main regions (see Section II-3). The example of the treasurer's new desk would presumably be recorded in the *Deutsch-Standesrechnung* and therefore count as central government expenditure.

If all information on inflows and outflows for each dimension is considered, this provides an encompassing view about how the Bernese government redistributed resources. In addition to the direction of fiscal redistribution, it is also crucial to consider how much of an economy was affected by the government budget. In modern economies, this is expressed with the *state quota*, defined as the share of the gross domestic product (GDP) controlled by the state. Because reliable GDP estimates for early modern Bern are missing, I can only use a proxy figures for this in my section about the fiscal burden (IV-5). Other key figures, such as *budget surplus*,

profitability of accounts or *net investments* have been discussed in the previous chapter (Section III-1, in particular Figure III-2).

IV-2 Data Selection and Conversions

The aim of this section is to provide the necessary background for understanding what data is underlying my empirical analysis. As a general rule, I have tried to place all non-essential points to the appendix. I will start by explaining the sampling techniques for constructing a database for fiscal redistribution in the two sample years 1732 and 1782. This will be followed by a discussion of how all transactions were converted into monetary values. Finally, the overall amount of Bernese revenue will be compared to other states and the problem of measuring inflation between the two sample years addressed.

Sampling, Account Types and Error Quotas

To analyse redistribution by the Bernese state, it would be ideal to consider all accounts throughout the eighteenth century, or indeed throughout the whole early modern period. The abundance of primary sources renders this task quasi impossible. I have therefore focused my structural analysis on a cross-section of accounts for two sample years, 1732 and 1782. They were chosen randomly by the research project *BeFin*.⁴⁸⁹ Both sample years were reasonably close to the overall average in terms of climatic conditions, grain prices and political events to qualify as ‘normal’ financial years.⁴⁹⁰ The most extraordinary events with a large budgetary impact were the purchase of Castelen county in 1732 and a small military expedition to Geneva in 1782 (see also Chapter III above). Exact population figures for the sample years are not available and have to be extrapolated from the 1764 and 1798 population censuses, as well as from Christian Pfister’s estimates for the canton in its modern shape. If we assume a stable population distribution and linear growth, the Bernese state had about 317,000 inhabitants in 1732 and 388,000 in 1782.⁴⁹¹ Incidentally, the

⁴⁸⁹ The research project collected data for 1581-85, 1631-35, 1681-85, 1732 and 1782 (primary data for the eighteenth century was too abundant to carry out a 5-year analysis). This will allow for a long-run analysis with data every 50 years once all the primary material has been categorised.

⁴⁹⁰ For the climatic conditions, see Pfister, C. (1984), vol. 2.

⁴⁹¹ *Berhist* Database [Pfister, C. (1995), for the canton in its 1980 borders only]; Schluchter (1988) and HLS (2002), article *Bern*: 267. I have used the actual ratio for modern to *Ancien Régime* Bern from the

contemporary observer Gerhard Philipp Heinrich Norrmann had estimated the canton's population for 1783 at 384,000.⁴⁹²

For both 1732 and 1782, I have collected summary financial information for all known Bernese ledgers and analysed a sample of accounts in more detail in a separate database. For this purpose, records were transcribed as full-text documents and then re-categorised using customised software for historical accounting.⁴⁹³ The methodology for categorisation was explained in Section IV-1. For simplicity, I will refer to the sample analysed in detail as *database*, while all accounts of the Bernese state for 1732 and 1782 are referred to as *extended database*. The term *summary accounts* is used for accounts which are not included in the detailed database (see Figure IV-3).

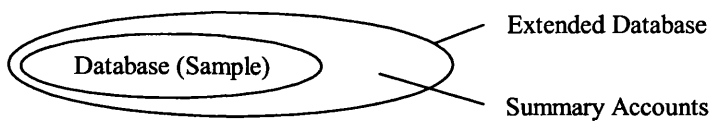


Figure IV-3: Database, Summary Accounts and Extended Database

Figure IV-4 illustrates how different types of accounts were included in the database, referring to the distinction made in Section III-3. While the most important accounts of the Bernese state (Type A and B accounts) were fully included, a selection was made for D-Type accounts.

1764 census and Pfister's estimate for 1700, assuming linear growth. For the 1782 figure, I have used the actual growth rate for the whole canton between 1764 and 1798, assuming linear growth. These are only crude estimates.

⁴⁹² Norrmann (1795): 425. He admitted having doubts about the reliability of this estimate. Norrmann referred to *Meiners Br. B IV, S. 39*.

⁴⁹³ This software, *Schupper-Logic*, works as Micro-Commands for MS Word 2000. It has been programmed by Stephan Hagnauer and adapted by myself. See Hagnauer (1994) and Hagnauer (1995) for details.

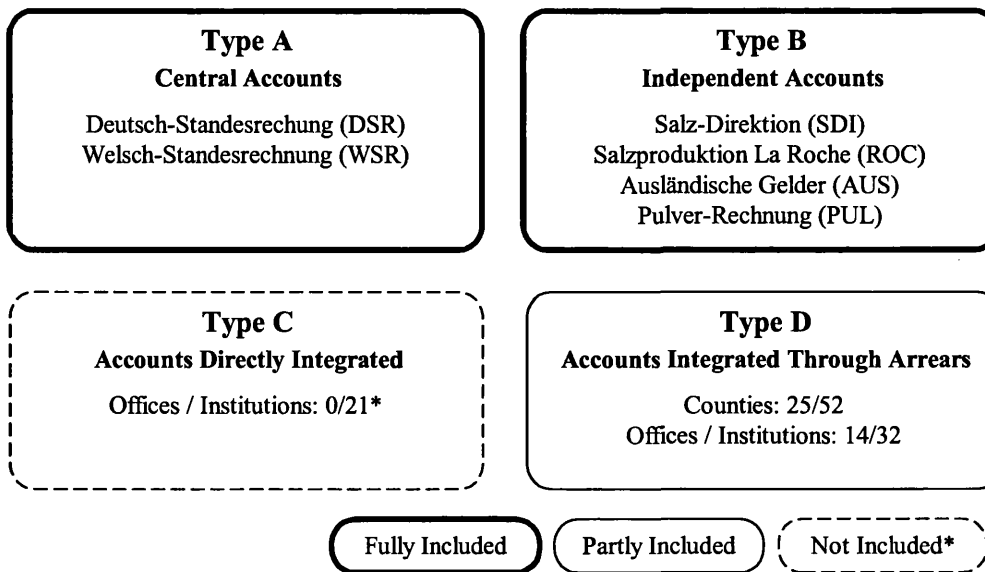


Figure IV-4: Accounts Included in Database (by Type)

*) The overall sums of Type C accounts are per definition included in Type A accounts (transfers to and from these accounts were classified as net transactions, see below). See Section VII-9 in the appendix for details, and Figure III-5 above for A-B-C-D-Type accounts.

The sample for D-Type accounts was designed to represent all main regions of the canton and a number of institutions within the city itself. To avoid a sample bias, I have weighted the included accounts by the total figure for revenue and expenditure for each region, which is known from the extended database. This is explained in more detail in section VII-9 in the appendix. Together with the two A-Type and four B-Type accounts, the database covers material from 46 different sources. The total of accounts in the database is not identical with the number of offices included, because some recorded more than one ledger when there was a handover in the sample period; others did not exist in both sample years. The database covers 49 ledgers for 1732 and 55 for 1782. With every single transaction categorised, it contains 31,493 records.⁴⁹⁴

Once all transactions that were only made for accounting purposes are excluded, slightly less than 25,000 records in the database cover *net* transactions by the government (see Table IV-1). By defining *net* transactions as revenue and expenditure that affected the financial position of the state, the main exclusions concern arrears, grain sales, as well as transfers, both between and within accounts.

⁴⁹⁴ Repetitive transactions with the same characteristics, such as lists of interest payments or sales of the same type of grain, were sometimes entered as one record, in order not to inflate the number of records.

This is explained in detail in Section VII-9 in the appendix. Unless otherwise stated, all my numbers for the structural analysis refer to such *net* transactions.

	1732	1782	Total
Total Records	16,756	14,737	31,493
Transfers, Arrears	532	619	1,151
Grain Sales	550	241	791
Sums	2,476	2,318	4,794
Net Transactions	13,198	11,559	24,757
Net Revenue	3,745	2,846	6,591
Net Expenditure	9,453	8,713	18,166

Table IV-1: Number of Records in the Database

Source: Database. See Section VII-9 in the appendix for excluded transactions (transfers, arrears, grain sales, sums).

I have used the excluded transactions to calculate overall error quotas of the database, based on a methodology explained in Section VII-11 in the appendix. With values of -0.03% (1732) and 0.08% (1782), these are remarkably low. For the extended database, they are slightly higher (0.37% and 0.40%), which is still low by overall standards for early modern data. Overall, it can therefore be assumed that the data is reliable. One major caveat is the assumption that records provide a complete and accurate depiction of facts. Any ‘under the table’ transactions that were not recorded in official accounts cannot be considered for my study. There is no evidence that such transactions took place in eighteenth-century Bern, but of course this is subject to a strong tradition bias, as such dealings would normally not leave traces in public archives. A special case of non-recorded transactions are the militia duties, which are discussed in a separate section (IV-5).

Currencies, Revenue per Capita and Inflation

The plethora of currencies in which transactions were recorded in Bernese accounts ranges from several monetary units to different measurements for transactions in kind. For my empirical analysis of fiscal redistribution, I have converted all transactions into Bernese Batzen (Bz). This sub-section will briefly explain the conversion prices used. I will also discuss the effect of varying inflation rates on comparing figures that are half a century apart. While the conversion of monetary values is simple, the calculation of transactions in kind is more complex

because Bernese officials did not systematically record prices. Whenever available, I used a weighted annual price for each of the goods calculated from transactions in the same ledger. If this information was not available, I have used weighted regional prices, calculated from other accounts. The results are discussed in detail in the appendix (Section VII-13). What matters is that my prices for 1732 and 1782 are consistent with other information on Bernese prices. Also, it seems that both sample years were not outliers, although price volatility was generally very high for foodstuffs in the eighteenth century. As discussed in Section III-6, government prices for grain could differ from market prices. For an analysis of state finance this matters little, since prices recorded in the accounts represent the value that the government could expect for its goods. For the same reason, issues of seasonality, which are particularly important for grain prices, do not matter at this level, as it can be argued that the overall weighted price represents the government's timing preference.⁴⁹⁵

With the conversions from Section VII-13 in the appendix, the net revenue and expenditure of the Bernese government are shown in Table IV-2 in absolute terms and as a per capita estimate. These figures will be qualified later; for now, they provide a first overview and allow for a comparison with other states through the *European State Finance Database*.⁴⁹⁶

	1732		1782	
	Revenue	Expenditure	Revenue	Expenditure
Total (Bz)	24,939,454	22,791,477	32,220,535	30,633,382
Fine Silver (tonnes)	18.40	16.81	23.32	22.17
Bz per capita	78.67	71.90	83.04	78.95
silver (g) per cap.	58.03	53.04	60.10	57.14

Table IV-2: Total Net Revenue and Expenditure in Bz and Silver

Source: Extended database. For conversion to silver, see appendix (Section VII-13); population estimates as discussed earlier in this section.

Between 1732 and 1782, government revenue increased by 29.2%, expenditure by 34.1%. This is equivalent to linear annual growth rates of 0.51% and 0.59% respectively. The budget surplus (the difference between revenue and expenditure, as a percentage of revenue) was 9.42% in 1732 and 5.18% in 1782. On a per capita

⁴⁹⁵ It can be argued that in practical terms, the government might not be able to dispose of its inventory according to its own timing preference.

⁴⁹⁶ ESFDB; Bonney (1995b); Bonney (1999b).

basis, the increase in revenue was small, about 5.6% over 50 years. When expressed in grams of fine silver, the increase was even smaller because of a relative loss in silver value of the Batzen (+3.6%).

With an expenditure of 17-22 tonnes of fine silver, the Bernese budget was considerably larger than all other eighteenth-century city states with the exception of Venice (118 tonnes in 1783).⁴⁹⁷ Their expenditure ranged from one tonne (Überlingen, Hanover, Lucerne) to several tonnes of silver (e.g. Basel 5.3 tonnes, Zurich 8 tonnes, Milan falling from 7 to 4 tonnes and Nuremberg from 11.3 to 5.7 tonnes). The figure for Bern was roughly on par with smaller territorial states like Sicily and Genoa (27 tonnes each), but significantly smaller than that of Piedmont (45 tonnes), Bavaria (41-73 tonnes) or Lombardy (49-66 tonnes around 1720). The expenditure of the large European monarchies such as Denmark (from 86 tonnes to 360 tonnes in 1801) or Prussia (from 112 tonnes to 485 tonnes) were larger by several orders of magnitude, as were the United Provinces' (439 tonnes in 1795). France (3,000 tonnes in the 1790s) and Britain (8,500 tonnes) were playing in a completely different league.⁴⁹⁸ Derived from these figures, I have proxied expenditure per capita as far as population estimates allow for, to compare them with the Bernese figure of about 55g of fine silver per capita. The detailed sources for this are discussed in Section VII-19 in the appendix.⁴⁹⁹ It is important to note that the figures are very rough estimates with large error margins. The European league table in expenditure per capita shows a clear lead by large monarchies, with Britain spending a whopping 810g of fine silver per capita, followed by Denmark (from 111g to 389g) and France (115g). Prussia tails the rear of major powers with 84-78g. The United Provinces were also amongst the big spenders with 214 gram of silver per capita. Republics seem generally more in line with Bern's expenditure: Venice spent 42g, Milan between 56g and 30g. While the territorial states of Lombardy (42-56g), Bavaria (28-58g) and Genoa (44g) are similar to Bern, Sicily spent clearly less, with only 19g of silver per capita (see Section VII-19 in the appendix for details).

⁴⁹⁷ The use of expenditure (rather than revenue) is purely motivated by the better availability of comparative data. It should not matter much in the long-run, since all expenditure had to be covered by revenue.

⁴⁹⁸ Körner (1995a): 401. The figure he provides for Bern (14 tonnes of silver) understates expenditure considerably, because it is based on *General-Bilanzen* (see Section III-4 above). Accordingly, his estimate for the Swiss Confederation (40 tonnes of silver) also has to be increased by 10 tonnes.

⁴⁹⁹ Population estimates are from Beloch (1937-1961), vol. 3: 353, 365; Bairoch/Batou/Chèvre (1988): 6-9, 45; Lee (1975): 316; Helleiner (1967): 46; Behre (1905): 197-198 and Mitchell (2003): 6, 8 (see Section VII-19 in the appendix for details).

Returning to the situation in Bern, we can first consider the distribution of total revenue and expenditure by the currency they were recorded in. Figure IV-5 shows this for the extended database, which includes summary accounts.⁵⁰⁰

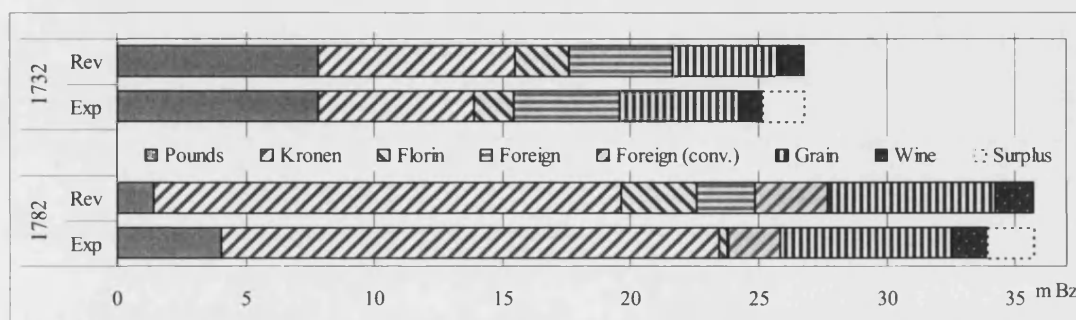


Figure IV-5: Revenue and Expenditure by Currency, 1732 and 1782

Source: Extended Database (including grain sales). *Foreign (conv.)* are transactions in foreign currency that have been transferred into Crowns by the government itself. *Rev* is for revenue, *Exp* for expenditure.

In both sample years, monetary revenue constituted the largest part of revenue (1732: 80.9%, 1782: 77.8%) and expenditure (77.5% and 76.2%), with a clear shift from transactions in Pounds to Kronen. Revenue and expenditure in wine and grain increased over time, both in absolute and relative terms. When considering different types of grain, it is sufficient to look at revenue alone, since there was no significant redistribution between grain types. Grain revenue expressed in Batzen grew by 59.2% from 1732 to 1782. All major types rose over the period, the most remarkable being wheat (+100.3%) and rye (+77.5%).⁵⁰¹ When expressed by weight and not in monetary units, the growth looks less impressive. This is illustrated in Figure IV-6.

⁵⁰⁰ These figures differ slightly from the weighted sample in the database. They include grain sales, which are relevant in this context.

⁵⁰¹ See also Table VII-21 for details.

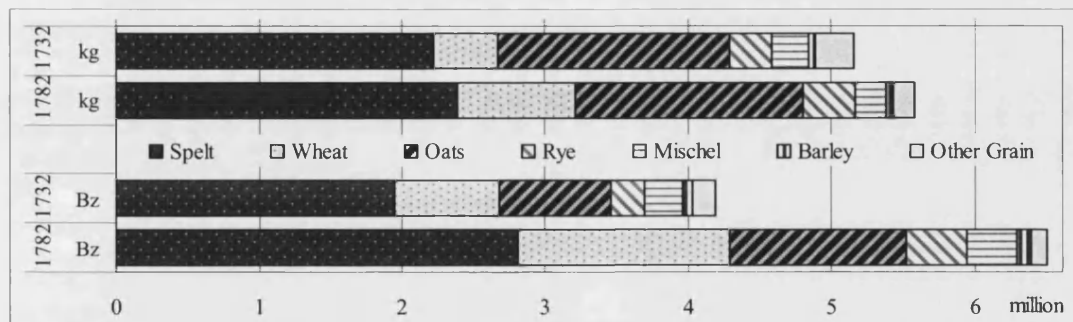


Figure IV-6: Grain Revenue 1732 and 1782, in kg and Bz

Source: Database (including grain sales). *Other Grain* includes Corn, *Wiki*, *Paschi*, Mill, Peas, *Reiter*, Millet and Lentils. See also Section VII-13 and Table VII-21 in the appendix.

To analyse how much of this increase was due to grain price inflation, we can consider grain transactions by weight. Simply adding grain across different cereals can produce spurious results. If the relative composition changed towards more expensive cereals over time, this would alter net revenue for the state, but not show up as an increase in weight. I have therefore corrected for relative price differences by using *price-adjusted weights*, calculated on the basis of an arithmetic mean of the 1732 and 1782 overall price for each grain type (see Table VII-13 in the appendix).⁵⁰² With this measure, the total increase in grain revenue by weight was 12.9%. This is higher than the non-adjusted weight increase, which was 8.3%.⁵⁰³ In other words, the composition of the canton's grain revenue had indeed changed towards more expensive cereals.⁵⁰⁴ Nevertheless, the growth in grain measured by weight was significantly smaller than in Batzen, which was 55.6%. This means that grain price inflation existed, which poses the question about how stable the Bernese Batzen really was. To discuss this, we have to look at different ways of measuring early modern inflation rates and discuss their impact on state finance.

To consider the effects of grain price inflation on government revenue, one option is to calculate grain inflation adjusted revenue for both sample years. I have used a mean inflation rate for all cereals, which was 60.9% over the whole period, equivalent to an annual inflation rate of 0.96% (see Table VII-21 in the appendix). Such a 'grain deflator' should only be used for monetary revenue, since revenue collected in kind was – per definition – not affected by grain inflation. If we correct for this, government revenue did not increase from 1732 to 1782, but fell by 10.1%;

⁵⁰² This is shown in the row *stable* of Table VII-13.

⁵⁰³ Un-weighted means that kg of grain are simply added across all grain types.

⁵⁰⁴ The relative increase for each grain type is – per definition – equal to the increase in weight.

expenditure fell by 5.8%. In other words, the government could buy less grain with its 1782 revenue than half a century before. Of course this result needs to be interpreted with care, since grain prices were very volatile and comparing two single years can provide misleading results.

Deflating all values by grain prices would not represent the reality of an early modern economy either, since its very essence was to combine different currencies in order to cope with relative price changes. Compared to other items, grain appreciated most in value in the eighteenth century, with the possible exception of livestock and dairy products.⁵⁰⁵ This is illustrated in Table IV-3, which shows changes in revenue and expenditure based on several inflation rates for the Bernese Batzen. The calculation is explained in more detail in Section VII-14 in the appendix.

Index	Inflation	p.a.	Δ Rev	Δ Exp	Source
Bz	n/a	n/a	30.46%	35.39%	
Bullion	-1.23%	-0.02%	32.08%	37.07%	Körner/Furrer/Bartlome (2001)
Wages	22.90%	0.41%	6.15%	10.16%	Ebener (1999)
Tiles	16.30%	0.30%	12.17%	16.41%	Ebener (1999)
Grain*	} 60.89%	0.96%	-10.10%	-5.83%	Database
Grain (all)			-18.92%	-15.85%	Database

*) only monetary transactions indexed

Table IV-3: Changes in Revenue and Expenditure with Different Inflation Rates

See Section VII-14 in the appendix for details. *Inflation* stands for the price difference between 1732 and 1782; *p.a.* for the (linear) annual inflation rate; Δ *Rev* (Δ *Exp*) for the increase in revenue (expenditure) if the 1782 figure is discounted by the inflation rate. For *Grain** only monetary transactions were indexed as explained in the text, *Grain (all)* is when grain inflation rates are used for all transactions.

While stable in bullion content, the Bernese Batzen lost 22.9% of its value when compared to builders' wages or 16.3% when measured in tiles as a relatively inflation-free item.⁵⁰⁶ Annual inflation rates were small by today's standards. Even for grain, they were below 1%. Depending on the way inflation is measured, the value of government revenue and expenditure can change quite dramatically. Using bullion inflation (deflation) rates, the growth of state finance seems slightly larger than in Batzen and shows an increase by 32.1% for revenue and 37.1% for expenditure. Based on construction workers' wages, the increase in state revenue from 1732 to

⁵⁰⁵ Pfister, C. (1975): 158. My figures for grain inflation are similar to his.

⁵⁰⁶ For the use of tiles: Furrer (1995).

1782 was 6.1%; expenditure rose by 10.2% over the time same period. When measured in tiles, the state's revenue increased by 12.2%, expenditure by 16.4%.

To sum up the findings of this section, according to most calculations Bernese government finance increased slightly from 1732 to 1782. This is in spite of the inherent problems which might arise when comparing two random sample years, which the long-term analysis in Chapter III mitigates to some extent. However, the absolute increase in revenue and expenditure dwindles when measured on a per capita basis. The divergence of figures for state revenue depending on the type of inflation rate applied illustrates the caveats of converting transactions into a single unit. Comparing numbers across time is a complicated process and is vulnerable to large error margins, regardless of the unit used.

IV-3 Redistribution by Nature of Transaction

This chapter will discuss fiscal redistribution by comparing revenue and expenditure made by the Bernese state in terms of their nature. This follows the analytical scheme outlined in Section IV-1. I will begin with a general overview of factual redistribution (by nature of transaction) before discussing the sub-categories in turn, starting with current revenue and expenditure and closing with inventory transactions.⁵⁰⁷

Overview

The factual categories for revenue and expenditure have already been described in the previous chapter (see Section III-1 in particular) but are refined for the structural analysis. Figure IV-7 provides a first overview.

⁵⁰⁷ In a strict sense, using the term redistribution for this section can be misleading, since it is rather a structural analysis of the structure of Bernese state finance.

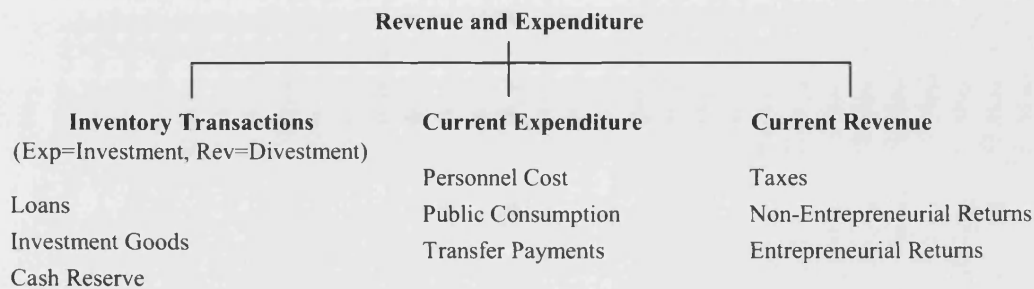


Figure IV-7: Categories for Factual Redistribution

As noted above, the main distinction is between current and inventory transactions, which have their own sub-categories. Figure IV-8 shows factual redistribution by the Bernese state for the sample years 1732 and 1782.

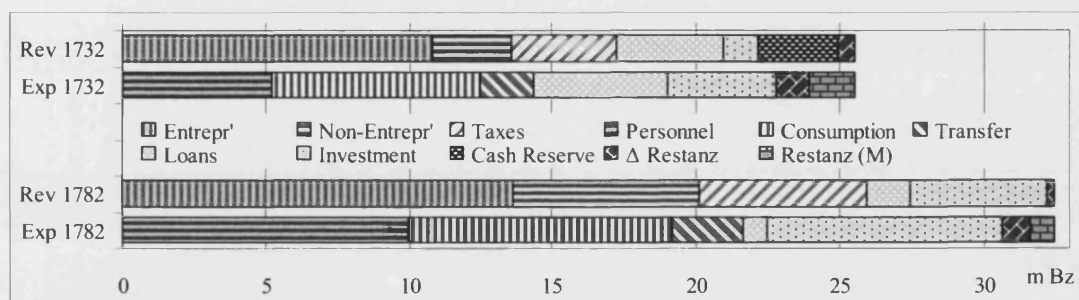


Figure IV-8: Redistribution by Nature of Transaction (Simplified), 1732 and 1782

Source: Database, net transactions. All striped fields are for current transactions. Δ Restanz is the change in arrears in kind (grain and wine), Restanz (M) is the net arrear of bailiffs in monetary units, which represents an increase in retained earnings.

If current and inventory transactions are separated, the former were in surplus, with *profits* of 20.0% (1732) and 19.9% (1782), the latter in deficit with *net investments* of 8.55% (1732) and 30.2% (1782). In other words, in both sample years the government received more funds than it spent for its current affairs and could invest. The remaining *budget surplus* was 9.42% in 1732 and 5.18% in 1782.⁵⁰⁸ This figure represents an increase in the government's retained earnings in the form of claims towards its own officials, the so-called *Restanzen* (arrears). 36.6% of these claims were in kind (grain and wine) in 1732, 88.7% in 1782; this was equivalent to

⁵⁰⁸ If figures for summary accounts are fully included (and not based on the weighted database sample), the profit rate is 7.92% (1732) and 5.77% (1782). The difference can be explained by the inclusion of grain sales (which could not be excluded for summary accounts), the use of regional prices for grain conversion, and the mixing of profitable with less profitable counties in the sample.

2.3% and of net revenue in both years.⁵⁰⁹ The residual was an increase in monetary *Restanzen* of government officials.⁵¹⁰ The discussion of long-run development has illustrated how strong inventory transactions fluctuated throughout the century (see Chapter III). Most of my structural analysis will therefore focus on current revenue and expenditure.

Current Revenue

The three main categories for current revenue are taxes, entrepreneurial and non-entrepreneurial returns. For my analysis, I have broken them down further as shown in Figure IV-9.

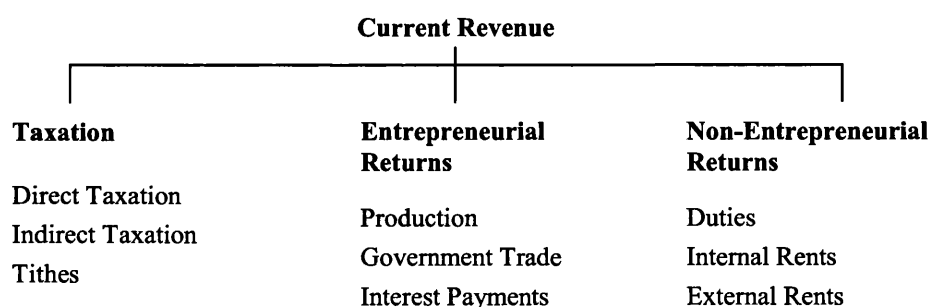


Figure IV-9: Categories for Current Revenue

See also Hagnauer (1995): 22-23 for a slightly different breakdown.

Among the numerous ways by which to categorise *taxation*, I have opted for a distinction between direct and indirect taxes, categorising tithes separately.⁵¹¹ This separation is based on a combination of analytical criteria and practical concerns. Direct taxation is a forced payment to the government on wealth or income, indirect taxation is a surcharge on circulating goods, which includes customs duties in particular. As a distinctive form of tax, the tithe was levied on agricultural revenue

⁵⁰⁹ Negative changes are shown as revenue for Δ *Restanz*. Percentages in the text are based on the net figure (positive minus negative values of Δ *Restanz*).

⁵¹⁰ See Section III-1 for a discussion of these key figures. See also Section VII-5 in the appendix on arrears. The change in grain *Restanzen* has been calculated as the difference between the previous year's and current grain *Restanz*; net Monetary *Restanzen* were calculated as a residual (their figure in reality was slightly different because of transfer transactions).

⁵¹¹ For possible categorisations of taxation (or, taxation taxonomies): Bonney (1995c); Körner (1994).

and thus has the characteristics of an income tax.⁵¹² However, it was not levied on personal income, but on specific lands. Tithes were also perceived differently in terms of their legitimacy, being a historically important tax that derived its credence from mention in the Bible. Tithes also had an important impact on the physiocratic self-understanding of the Bernese patriciate. I have further classified the monopoly profit from salt trade as an indirect tax, since this had the same effect as a specific salt tax (see Section VII-16 in the appendix for details).

Entrepreneurial returns resulted from the government's commercial activities. As discussed in the previous chapter, this includes the state domain, as well as state-run manufactures or monopolies. The most important monopolies that the government ran itself were gunpowder production, salt mines and salt trade.⁵¹³ The final sub-category for entrepreneurial returns consists of interest payments. These are the result of loans or financial investments at home or abroad (see Chapter V).

Non-entrepreneurial revenue include income from the state's rights and titles as a sovereign. These were mainly duties and feudal rents (*Recognitionen*). Duties are payments for government services or privileges; rents are payments due to the state because of a political subordination and did not entail any direct service. They had originated as feudal payments for state protection, regardless of how effective this protection was. By the eighteenth century, rents had become fees payable for the exploitation of resources; they did not necessarily bear any connection with the value of that resource.⁵¹⁴ If paid for by other states they were classified as external rents, all rents paid by the state's own subjects are internal rents. As an overview, Figure IV-10 shows the empirical result for this breakdown of current revenue.

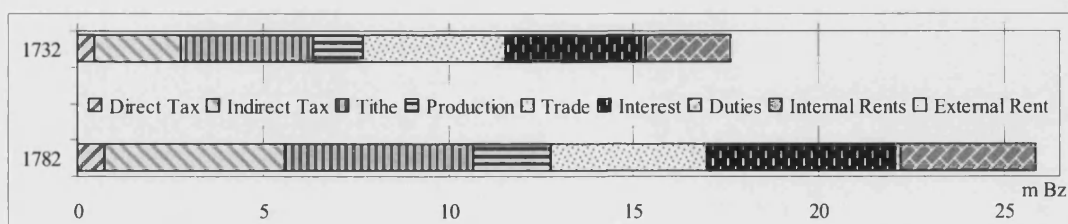


Figure IV-10: Current Revenue (Breakdown by Main Category)

⁵¹² Monbaron (1998a), HLS (2002), article *Feudallasten*.

⁵¹³ I have only included current revenue from salt sales as trading income (see Section VII-16 in the appendix for details).

⁵¹⁴ For a detailed discussion, see HLS (2002), article *Feudallasten*.

Source: Database, current revenue. See also Table IV-4 for details.

While direct taxation was negligible, indirect taxes grew considerably over time. Tithes were also an important contributor to state revenue, as were interest payments and internal rents. All other types of revenue were of minor importance. On a per capita basis, current revenue was 55.7 Bz in 1732 and 63.5 Bz in 1782, which will be discussed in more detail in the context of the fiscal burden (Section IV-5). The largest growth rates over time are for indirect taxes and duties, which more than doubled over the fifty year time period. A further disaggregation of the data by category can illustrate where the underlying changes were most important. I will only highlight a few key aspects of Table IV-4 in my discussion.

	1732 (in Bz)	in %	1782 (in Bz)	in %	Δ (%)
TAXES					
Direct Taxes	443,823	2.5%	742,762	2.9%	67.4%
Handover Tax	424,401		732,315		72.6%
Other Direct Taxes	19,422		10,447		-46.2%
Indirect Taxes	2,329,565	13.2%	4,840,736	18.7%	107.8%
Alcohol Tax	249,500		501,920		101.2%
Salt Monopoly	1,825,324		2,010,475		10.1%
Export Duties	27,850		76,094		173.2%
Transit Duties	185,683		1,481,905		698.1%
Other Customs Duties	41,208		770,342		1769.4%
Tithes	3,576,349	20.3%	5,102,183	19.7%	42.7%
Grain Tithe	2,994,049		4,821,573		61.0%
Wine Tithe	491,682		171,627		-65.1%
Other Tithe	90,618		108,983		20.3%
ENTREPRENEURIAL RETURNS					
Production	1,321,370	7.5%	2,068,023	8.0%	56.5%
Trade: Salt (Current)	3,878,538	22.0%	4,242,768	16.4%	
Interests	3,678,725	20.9%	5,076,078	19.6%	38.0%
Domestic Interests	1,062,558		512,925		-51.7%
Foreign Interests	2,588,565		4,435,698		71.4%
Other Financial Returns	27,602		127,455		361.8%
NON-ENTREPRENEURIAL RETURNS					
Duties	93,688	0.5%	128,796	0.5%	37.5%
Internal Rents	2,307,378	13.1%	3,652,338	14.1%	58.3%
Fixed Land Rents	109,294		93,837		-14.1%
Other Land Rents	1,529,825		2,786,587		82.2%
Fiefs	192,350		26,166		-86.4%
Privileges (Economic)	368,906		553,433		50.0%
Marechausée	0		92,169		n/a
Other Rents	107,003		100,146		-6.4%
External Rents	13,193	0.1%	3,767	0.0%	-71.4%
TOTAL Current Revenue	17,642,629	100%	25,857,451	100%	47%

Table IV-4: Detailed Breakdown of Current Revenue, in Bz and %

Source: Database, current revenue. Δ (%) stands for a relative change between 1732 and 1782.

The *handover tax* was levied on specific land sales and was almost exclusively concentrated on French-speaking counties. Bern had taken over these so-called *Lods* from Savoy when conquering Vaud.⁵¹⁵ Other direct taxes were levied on moving property abroad and in certain areas upon inheritance; both were not important in quantitative terms. *Alcohol taxes* were mostly levied in the city of Bern and not the territory.⁵¹⁶ *Customs duties* in all forms multiplied more than nine-fold between 1732 and 1782. Particularly important were transit duties, whose increase was related to improvements in the Bernese road network attracting additional traffic, and the more efficient organisation of customs administration.⁵¹⁷

Tithes also increased overall (+42.7%), with the tithes levied on grain revenue as the most important contributor by far. The growth rates in Table IV-4 can be misleading in two ways. First, when calculated in price-adjusted weight, grain tithes only increased by 13.99%, and not the 61.1% when measured in Batzen.⁵¹⁸ Wine tithes, which declined by 65.1% in value, only fell by 51.05% when calculated in litres. Second, tithes were prone to high yearly fluctuations, as discussed above (see Section III-4).⁵¹⁹

The main components for revenue from *production* were wine harvests in the state domain and salt production. The figure for *salt sales* is limited to current revenue and only shows part of the government's income from selling salt; the rest is categorised as monopoly profit and inventory change (see Section VII-16 in the appendix). *Duties*, defined as payments made for state services, were minimal in their impact for Bernese finances.⁵²⁰ The same is true for *External Rents*. The state only obtained nominal sums from its involvement in administrating Condominiums of the Swiss Confederation (*Gemeine Herrschaften*).⁵²¹ The most important *Internal Rents* were irredeemable land rents paid in cash. Since their monetary value was usually

⁵¹⁵ 99.8% (1732) and 98.6% (1782) of the tax came from Vaud as *Lods*. The distinction to certain types of fiefs is not always clear, and the increase might have been slightly smaller. See also Monbaron (1998a).

⁵¹⁶ 93.79% (1732) and 87.25% (1782) was taxed in the city, the rest in Argovia and Vaud.

⁵¹⁷ Pfister, C. (1995): 246-250; Feller (1955): 551-559.

⁵¹⁸ For price-adjusted weights, see above, Section IV-2.

⁵¹⁹ See also the discussion in Pfister, C. (1975) and Gmür (1954).

⁵²⁰ Customs duties are taxes which can also be classified as duties.

⁵²¹ The counties that Bern administrated together with Fribourg – Schwarzenburg, Orbe/Echallens, Grandson and Murten - were probably more profitable. However they had to be excluded from my analysis because they did not make regular contributions to Bernese government finance, and their contributions were not recorded in the *Standesrechnungen*. It would be reasonable to assume that these territories would on average contribute the equivalent of a small county.

fixed, the rent-payer would profit from inflation.⁵²² *Fixed land rents (ablösige Bodenzinsen)* were redeemable, which means that the payment could be stopped by paying off a fixed sum of capital to the government.⁵²³ The relative cost of redemption declined with inflation, which is why most such rents had been redeemed by the eighteenth-century and only played a minor financial role by then. For earlier centuries, such fixed and redeemable loans had been more important source of government revenue.

For Table IV-4, I have also classified payments for economic privileges (*Ehafte*) as internal rents, because they can be considered feudal contributions to the government as a sovereign. By far the most costly privilege was the franchise fee for postal services paid by the von Fischer family.⁵²⁴ Finally, there were a number of special duties owed to the state for specific services. They usually varied between counties and included fiefs that the government had inherited when acquiring territory, or the newly introduced *Marechausée* payment to cover local policing expenditure.

Current Expenditure

For current expenditure, the rough distinction between personnel cost, public consumption and transfer payments from Figure IV-2 can be refined by using more detailed categories (see Figure IV-11).

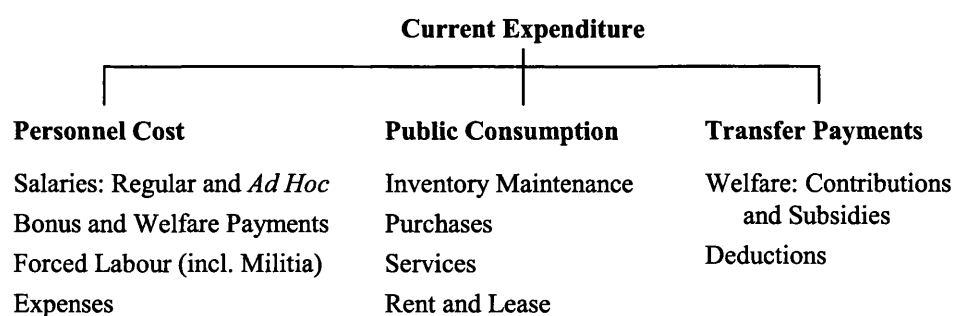


Figure IV-11: Categories for Current Expenditure

⁵²² It is not clear how large a proportion of land rents had a fixed amount, but this was probably the majority.

⁵²³ HLS (2002), article *Feudallasten*.

⁵²⁴ See the discussion in Section II-3 and in Klöti (1990). The postal lease was 225,000 Bz in 1732 and 450,000 Bz in 1782 (Database).

See Hagnauer (1995): 22-23, who classifies expenses as a category of public consumption. Those welfare payments listed under *Personnel Cost* are only for government personnel.

Personnel Cost consists of four sub-categories: salaries; bonus and welfare payments to officials; the (monetary) cost of forced labour; and expenses. *Public Consumption* is whatever the government spent on goods and services to upkeep the running of the state without increasing the public inventory. This includes maintenance, the purchase of goods for immediate consumption and services, as well as payments for rent and lease. *Transfer Payments* were welfare expenses for and inventory value adjustments (deductions).

The distinction between the sub-categories for *personnel cost* is not always clearly specified in the accounts, and has therefore to be considered with a pinch of salt.⁵²⁵ Salaries could be regular and fixed payments, or occur *ad hoc* whenever a specific service was needed. *Ad hoc* salaries include variable components of officeholder remuneration, such as the bailiffs' share in grain sales (see Section III-6 above). Bonus payments for government employees were also a variable part of salaries; they were paid without specific statutory requirement, depending on the *Venner's* goodwill. Bonuses were often granted to recognise specific services or personal hardship. Given the paternalistic nature of the government towards its employees, a distinction between bonuses and welfare payments for its personnel was not always possible; I have therefore combined these two categories. The Bernese accounts also included some expenses for forced labour and – as a special form of this – the militia army. This only covered monetary payments and not the number of days spent, which will be discussed separately in Section IV-5.

Public consumption combines expenses for goods and services that only had a short-term impact and therefore did not affect the public inventory. Most importantly, this category excludes all purchases of salt, grain and wine that were categorised as inventory transactions (see next sub-section). On the other hand, the cost of maintaining public buildings and granaries counts towards public consumption. Purchases of goods such as office supplies or food for immediate consumption were

⁵²⁵ Hagnauer (1995) classifies expenses as state consumption, not as personnel cost.

also classified under this heading. When the government paid for services, this counts as public consumption as well, alongside costs for rent and lease.⁵²⁶

Finally, *transfer payments* were welfare expenses of the state and deductions for any loss in inventory value. Welfare payments took the form of contributions towards other political institutions – states or communes for instance – or subsidies, which were payments towards individual families. Hence the meaning of ‘subsidy’ is slightly different from the current understanding as a monetary assistance to support specific firms or industries. In an economy where the family was not clearly distinguished from its economic activities, subsidies were only geared towards a specific industry in exceptional circumstances; they were more an issue of welfare policy.

Figure IV-12 gives an overview of the empirical incidence of these categories.

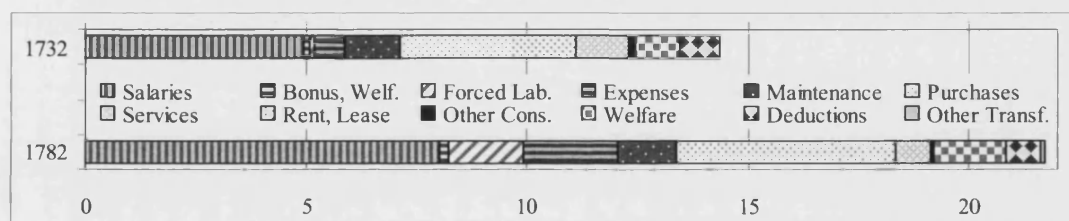


Figure IV-12: Current Expenditure by Category

Source: Database, current expenditure. See also Table IV-5 for a more detailed breakdown.

The greatest amount of expenditure was related to personnel costs, and within that overwhelmingly to regular salaries. Expenditure for the *militia* increased dramatically from 1732 to 1782. This is related to the dispatch of troops to Geneva, for which the militia was compensated.⁵²⁷ If all transactions that explicitly refer to this event are excluded, expenses for the militia increased by less, but they still more than doubled (+105.1%). Current purchases by the government were also relatively large, while welfare payments were not important. The Bernese state spent about as much for the upkeep of its buildings as it did on poverty relief. I will only comment on a few sub-categories from the detailed breakdown of current expenditure shown in Table IV-5.

⁵²⁶ These rents – defined as the cost for using property – are different from feudal rents, such as the land rents discussed under current revenue.

⁵²⁷ Feller (1955): 416-426 and Wälchli (1981): 147-148; see also Section III-4 above.

	1732 (in Bz)	in %	1782 (in Bz)	in %	Δ (%)
PERSONNEL COST					
Salaries	4,958,392	34.6%	8,022,221	37.0%	61.8%
Regular Salaries	3,729,968		5,752,363		54.2%
Ad Hoc Salaries	886,638		1,524,715		72.0%
Bonuses	341,786		745,143		118.0%
Bonuses and Welfare	133,426	0.9%	225,331	1.0%	68.9%
Welfare*	121,317		78,455		-35.3%
Other Salaries (unspec.)	12,109		146,876		1112.9%
Forced Labour	93,961	0.7%	1,683,366	7.8%	1691.6%
Corvee Labour	58,143		53,022		-8.8%
Militia	35,818		1,630,344		4451.7%
Expenses	698,782	4.9%	2,154,104	9.9%	208.3%
PUBLIC CONSUMPTION:					
Maintenance	1,243,476	8.7%	1,289,514	5.9%	3.7%
Building Maintenance	851,285		926,412		8.8%
Road Maintenance	281,138		47,309		-83.2%
Grain Maintenance	41,044		54,849		33.6%
Other Maintenance (Movables)	70,009		260,944		272.7%
Purchases	3,986,083	27.8%	4,972,866	22.9%	24.8%
Construction Goods	174,101		62,514		-64.1%
Energy (Heating, Light)	292,739		154,704		-47.2%
Foodstuffs	614,137		1,415,680		130.5%
Armament	160,712		86,786		-46.0%
Salt	2,516,817		2,911,015		15.7%
Other Purchases	227,577		342,167		50.4%
Services	1,188,542	8.3%	776,102	3.6%	-34.7%
Transport	607,177		313,193		-48.4%
Commercial Services	235,163		26,707		-88.6%
Other Services	346,202		436,202		26.0%
Rent and Lease	30,269	0.2%	55,507	0.3%	83.4%
Other Consumption	127,538	0.9%	14,844	0.1%	-88.4%
TRANSFER PAYMENTS					
Welfare	982,083	6.8%	1,613,676	7.4%	64.3%
Contributions	422,454		711,027		68.3%
Subsidies	559,629		902,649		61.3%
Deductions	901,064	6.3%	817,744	3.8%	-9.2%
Grain and Wine Deductions	628,322		680,025		8.2%
Shared Revenues	155,064		122,447		-21.0%
Discounts (Rebate)	86,297		10,883		-87.4%
Loss on Bills of Exchange	31,381		4,389		-86.0%
Other Transfer Payments	4,564	0.0%	85,494	0.4%	1773.2%
TOTAL Current Expendit.	14,348,180	100%	21,710,769	100%	51.3%

*) Welfare Payments for Government Officials only

Table IV-5: Detailed Breakdown of Current Expenditure, in Bz and %

Source: Database, current expenditure. Δ % stands for a relative change between 1732 and 1782.

Overall, the Bernese state spent 53.3% more on *regular salaries* in 1732 than in 1782. This figure can be qualified in several respects. As explained above (Section II-7), the government paid its employees in both money and kind to balance out price fluctuations for foodstuffs. In 1732, 54.3% of all regular salaries were paid in

monetary units, the rest in grain (35.5%) and wine (10.4%). The 1782 figures are 66.8% (money), 28.0% (grain) and 6.9% (wine). Determining how much of this increase in salary payments is due to a loss in purchasing power of the Batzen is difficult. If we isolate their grain component, salaries increased by 21.7% (measured in Batzen). When measured in price-adjusted weight, the figure actually fell by 6.2%. The salary component paid in wine also increased by 1.9% when measured in Batzen and declined by 18.2% when measured in litres. The monetary component of salaries increased by 88.6% over the period. This is more than the inflation rate for grain or increases in construction worker salaries (see Section IV-2).⁵²⁸ If we divide total salary expenditure by the mean daily wage of a construction worker, the state-employed earned the equivalent of 489,789 daily wages in 1732, and 611,156 in 1782. In other words, there was an overall increase in salary payments by the Bernese state. This can be explained by above-average growth of officeholders' salaries or a larger number of people working for the state. The latter seems more plausible, but for a lack of full government employee lists, this cannot be quantified any further. A functional breakdown of these salaries will be discussed in the next section.

Maintenance costs went mostly towards the upkeep of government buildings (68% in 1732, 72% in 1782). One problem is that maintenance was not clearly distinguished from new building activity. Even the research of Hans-Anton Ebener on building by the Bernese state does not provide a reliable breakdown of how important the two were in relative terms.⁵²⁹ From Table IV-5, it looks as if road maintenance declined, although this might be because this category was not always specified as such. Road maintenance and -building were largely delegated to communes, which covered it in the form of cash and forced labour (*Tagwerk*). Hence, the maintenance cost is likely to be under-represented in government accounts.⁵³⁰ The maintenance of movables was relatively less expensive.⁵³¹

For *contributions*, it would be interesting to distinguish between different recipients of Bernese contributions, but a detailed breakdown is not available. Most important were probably those to communes within the canton, but other Swiss cities

⁵²⁸ The respective inflation rates are 60.9 % (grain) and 22.9% (construction worker salaries). See above, Section IV-2

⁵²⁹ Ebener (1999). While he distinguished between new building and maintenance, he does not provide conclusive figures comparing the two.

⁵³⁰ See Holenstein (2005).

⁵³¹ These costs were mainly for grain maintenance. Grain had to be sieved and aired regularly when stored over long periods of time.

and states received donations as well, as did places overseas. As far as information is available, subsidies were payments in support of victims of fires (17% in 1732 / 4% in 1782), invalids (11% / 14%), students (13% / 14%) and widows (4% / 2%).⁵³² This result does not allow testing for Erika Flückiger Sterebel's hypothesis that families with many children emerged as a new category of support-worthy poverty. These cannot be separated from others in my classification.⁵³³

The main *deductions* were for weight loss of the public granary discussed above (Section II-7 above). For wine, a similar allowance was made. Further deductions included third-party shares in revenue, which ranged from fixed quotas for informants in criminal proceedings (*Verleider*) to the division of land rents with communes, noblemen or other states. The Bernese government also allowed rebates on outstanding taxes, duties or rents in case of financial hardship. These were recorded in the accounts as deductions. Finally, losses on bills of exchange were classified in this category as well. They were not very important quantitatively, however.

Inventory Transactions and Comparison to Other States

This section only provides a rough overview of relative changes in the inventory in 1732 and 1782. For these transactions, a long-term view is more accurate (see previous chapter). It is possible to discuss revenue in tandem with expenditure because they both followed similar categories (see Figure IV-13).

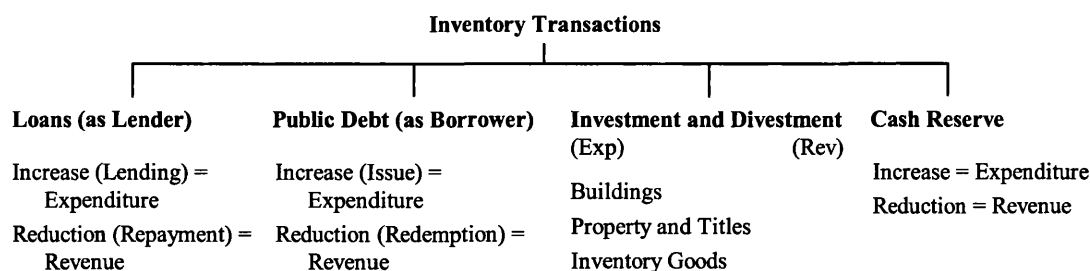


Figure IV-13: Categories for Inventory Transactions

⁵³² 55% (1732) and 65.5% (1782) of subsidies could not be classified.

⁵³³ See Flückiger Sterebel (2002): 69-76 and Tab. 26. Her results are based on the number of observations, not the amount of the subsidy.

Loans and *Public Debt* mirror each other as increase and decrease of the state's financial position and could therefore be combined. On a conceptual level, however, the distinction between the state acting as lender or borrower is significant. As in the previous chapter, a deposit to the cash reserve (increase) should be classified as expenditure, a withdrawal (reduction) as revenue. The empirical results for the years 1732 and 1782 are shown in Figure IV-14.

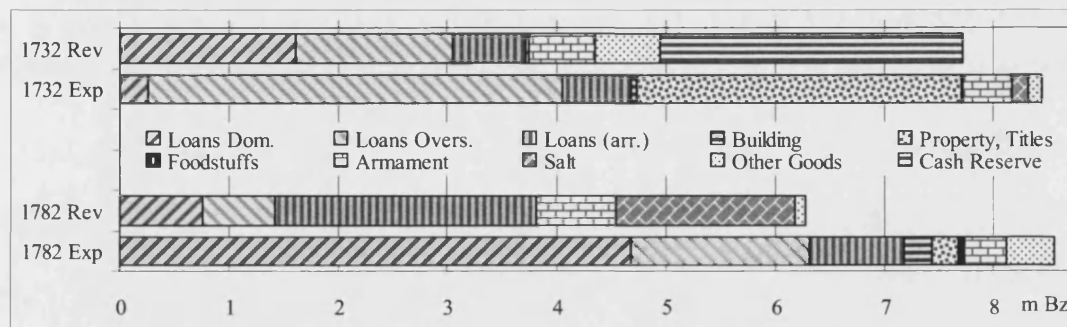


Figure IV-14: Inventory Transactions by Category

Source: Database, inventory transactions. See also Table IV-6. *Public Debt* was not included (value = 0). A monopoly rent has been deducted from the proceeds of salt sales. Grain and wine sales were excluded because they were not *net* transactions (see Section IV-2).

The most important inventory transaction in 1732 was the sale of the county of Castelen in Argovia from Barons Döringenberg and Riedesel, for which Bern paid 90,000 Thaler (2.7m Bz).⁵³⁴ This purchase was funded by taking 22,000 gold coins (*Dublonen*) from the cash reserve. In the same year, the government invested heavily in bonds issued by the Vienna City Bank (see Chapter V). Inventory transactions in 1782 were marked by a reduction in the government's salt inventory. At the same time, the state offered domestic loans on a large scale, of which over half were recorded in the *Welsch-Standesrechnung*.⁵³⁵ This was part of the increase in domestic loans discussed above (Section III-5). A detailed breakdown of inventory transactions is shown in Table IV-6.

⁵³⁴ Feller (1955): 475.

⁵³⁵ It is possible that these loans were in connection with the deployment of troops in the region, which were on their way to Geneva.

	Revenue		Expenditure		ΔR (%)
	1732 (in Bz)	in %	1732 (in Bz)	in %	
LOANS (as Lender)	3,711,945	48.1%	4,677,711	55.4%	2.5%
Domestic Loans	1,607,923		258,306		-53.0%
Overseas Loans	1,445,400		3,793,478		-54.1%
Officials (arrears)	658,622		625,927		261.9%
INVESTMENT	1,237,026	16.0%	3,765,586	44.6%	99.4%
Building	244		48,953		87.7%
Property and Titles	26,487		2,987,436		-72.9%
Grain, Wine, Cattle	98		4,463		-100.0%
Armaments	612,894		452,944		18.2%
Salt	0		150,838		
Other Goods	597,303		120,952		-84.1%
PUBLIC DEBT (Borr.)	0	0.0%	0	0.0%	
CASH RESERVE	2,772,188	35.9%	0	0.0%	-100.0%
TOTAL Inventory Trans.	7,721,159	100%	8,443,297	100%	-19%

	Revenue		Expenditure		ΔE (%)
	1782 (in Bz)	in %	1782 (in Bz)	in %	
LOANS (as Lender)	3,804,096	60.7%	7,184,851	84.0%	53.6%
Domestic Loans	756,383		4,674,883		1709.8%
Overseas Loans	663,978		1,634,422		-56.9%
Officials (arrears)	2,383,735		875,546		39.9%
INVESTMENT	2,467,165	39.3%	1,368,741	16.0%	-63.7%
Building	458		258,607		428.3%
Property and Titles	7,170		240,184		-92.0%
Grain, Wine, Cattle	0		52,465		1075.6%
Armaments	724,683		386,456		-14.7%
Salt	1,640,080		0		-100.0%
Other Goods	94,774		431,029		256.4%
PUBLIC DEBT (Borr.)	0	0.0%	0	0.0%	
CASH RESERVE	0	0.0%	0	0.0%	
TOTAL Inventory Trans.	6,271,261	81%	8,553,592	101%	1%

Table IV-6: Detailed Breakdown of Inventory Transactions

Source: Database (see Figure IV-8). See also Figure IV-14. ΔR (ΔE) stands for a relative change in revenue (expenditure) from 1732 to 1782.

Overall, the Bernese state had made net investments of 0.7m Bz (1732) and 2.3m Bz (1782). The most remarkable fact is that none of this was financed through borrowing.

Combining all the information on factual redistribution, we can compare the financial structure of the canton of Bern with that of other states, for which data is available from the *European State Finance Database*.⁵³⁶ I will only focus on a small number of comparative cases here; additional figures are provided in the appendix (Section VII-19). For Figure IV-15, Bern's expenditure were re-classified to be comparable.

⁵³⁶ ESFDB and Bonney (1995c); Körner (1995a).

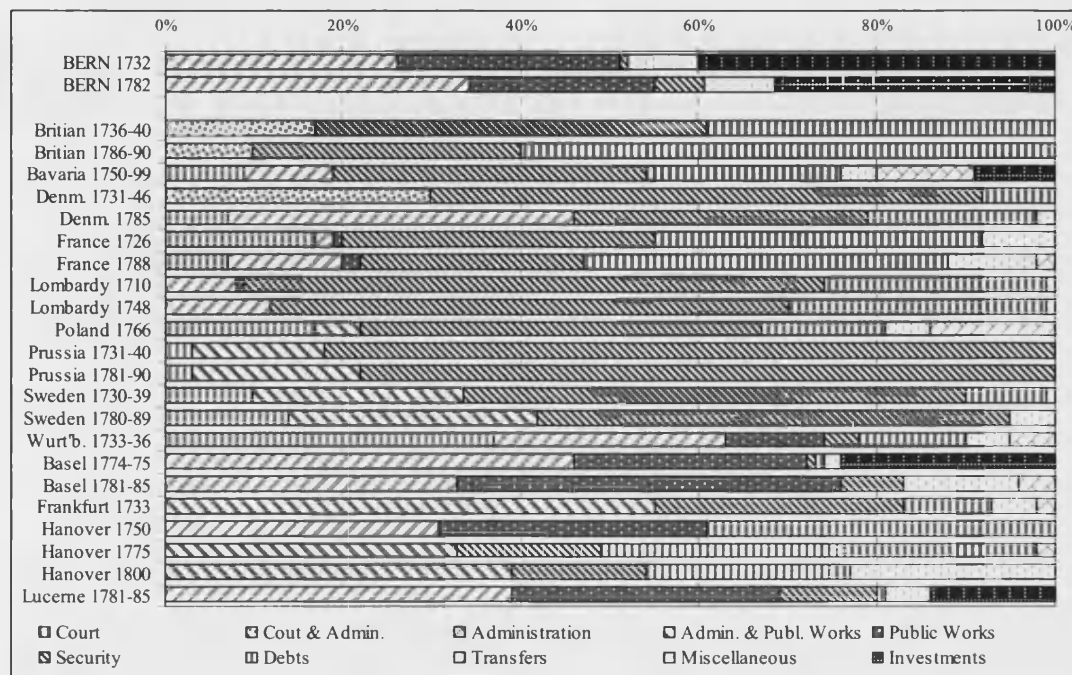


Figure IV-15: Bernese Expenditure Compared to Other European States

Sources: Database (for *Bern* figures); ESFDB and Körner (1995a). The full list of Körner's data is represented in Figure VII-15 in the appendix.⁵³⁷

As expected, the Bernese structure of expenditure is most similar to the other two Swiss cantons in the sample group, Basel and Lucerne. Both the latter states were also territorial city republics, albeit on a smaller scale than Bern. When compared to other European states, Bern has by far the largest share of investments in its budget, and its proportion of public works was also high. The most noticeable difference is the small proportion of security expenditure, as well as the absence of any debt servicing costs. These features are similarly shared with the other two Swiss states.

This comparison to European states also sums up the most important findings of my analysis of factual redistribution. The canton was not burdened by heavy military expenditure or a large national debt. Instead, it leveraged on its assets which generated healthy profits, enabling the state to keep its income from taxation relatively low. Bern made a profit on its current transactions, which it then invested in financial claims and property. Current revenue came mainly from salt trade, interests

⁵³⁷ In his text, Körner also includes figures from Bern, which are based on the *General-Bilanzen* (see Section III-4 above).

and tithes, plus increasingly from indirect taxes. Roughly a third of current expenditure was used for salaries, another quarter for salt purchases; the rest was divided amongst a multitude of expenses. For an in-depth analysis of the state's investments, the long-term view that was presented in Chapter III is more suitable.

IV-4 Functional, Sectoral and Regional Redistribution

Results of the factual analysis of the Bernese financial structure can be qualified by considering the other dimensions of fiscal redistribution outlined in Section IV-1. In this section, I will first distinguish transactions of the Bernese government by state functions, then analyse the economic sectors involved, and end with the regional dimension based on where revenue and expenditure was recorded.

Functional Redistribution

In addition to the factual consideration about *how* the state spent its funds, it is worth investigating *why* they were spent. In modern states, administrative units (ministries) normally have a specialised portfolio and are therefore a reliable indication of state functions. For early modern Bern, this would be difficult since the main administrative units were bailiffs, who carried out a multitude of functions.⁵³⁸ To analyse the purpose of revenue and expenditure, transactions were therefore categorised according to the major functions that the Bernese state fulfilled.

Such *state functions* are the outcome of a polity's main duties as a provider of public goods. Fernand Braudel saw three main obligations of the state: firstly, to implement a Weberian monopoly of legitimate violence; secondly to control, regulate and facilitate economic activities; and thirdly, to play a part in cultural and spiritual life.⁵³⁹ Following Braudel, one could speak of political, economic and spiritual dimensions of the state, though measuring the achievements of any government along those dimensions should not solely rely on accounting ledgers, but include an analysis of normative sources. The amount of money allocated and expended on each task gives some indication of whether a government actually implemented its stated plans.

⁵³⁸ A breakdown by accounts is therefore more appropriate for regional redistribution, as discussed below. For the multi-tasking of bailiffs, see also Bucher, E. (1944).

⁵³⁹ Braudel (1979-1986) vol. 2: 515; also quoted in Körner (1995a): 393.

To measure how the Bernese state redistributed resources among the different functions it fulfilled, I have chosen a classification which mirrors Braudel's list, although the distinctions are not always clear. Similar to the factual analysis, my categories are based on modern-day public finance, following Stephan Hagnauer.⁵⁴⁰ Redistribution is defined as the difference between inflows (revenue) and outflows (expenditure) to any of the state functions from Figure IV-16 (see also Figure IV-2).

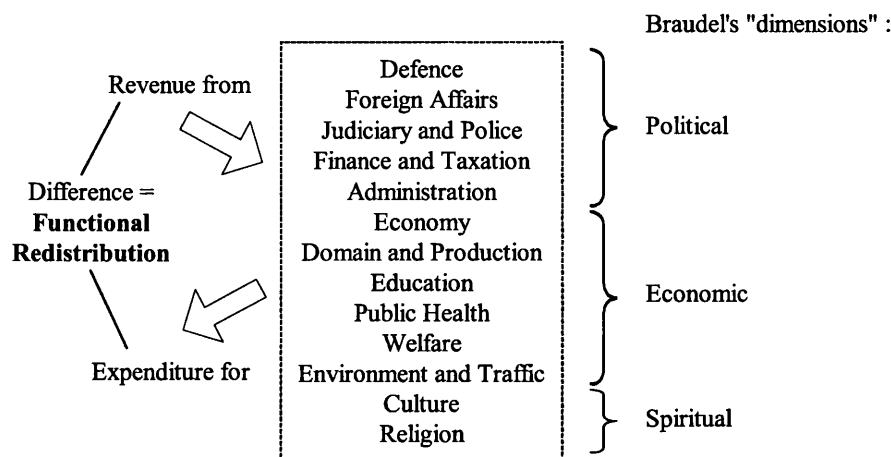


Figure IV-16: Functional Redistribution: Categories and Definitions

The most problematic category is *General Administration*, which comprises all transactions that could not be categorised more specifically. For example, a bailiff's salary was classified this way because of the numerous functions the officeholder fulfilled. In case of *ad hoc* salary payments, the task was usually specified and the payment could be classified properly. Figure IV-17 shows the functional redistribution for all net transactions of the Bernese state.

⁵⁴⁰ My categories follow Hagnauer (1995), who in turn relies on the *Neues Rechnungsmodell* (see note 368 above). The changes are minimal. In the NRM, *Justice and Police* are combined with *Defence* ("Military") to form *Public Security*; *Environment and Traffic* are separate categories. Additions to the NRM are: *Foreign Affairs*, *Religion*, as well as *Domain and Production*.

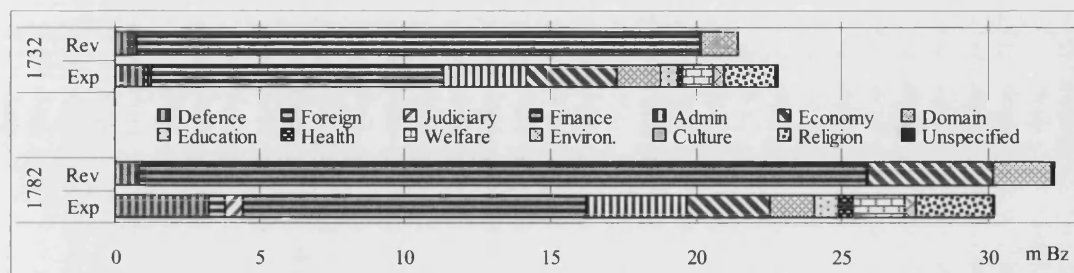


Figure IV-17: Functional Redistribution, All Transactions

Source: Database, net transactions. See Table VII-23 in the appendix for details.

At a first glance, for both sample years revenue was less fragmented than expenditure. As expected, most revenue derived from the state function *Finance and Taxation*. Considerable expenditure also arose from the same function. It largely consisted of inventory transactions, as a comparison with current transaction illustrates (Figure IV-18).⁵⁴¹

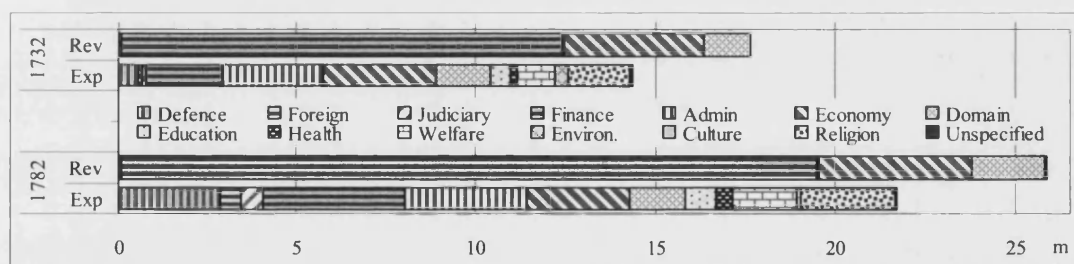


Figure IV-18: Functional Redistribution, Current Transactions only

Source: Database, current transactions. See Table VII-23 in the appendix for details. Please note the different scale from Figure IV-17.

Revenue from the state function *Finance and Taxation* comprised 29.5% (1732) and 25.5% (1782) of interest payments. The only transaction classified as revenue from *Economy* were salt sales. Interestingly, the state function *Domain and Production* was only profitable in 1782 and made a slight loss in 1732. This was caused by large expenditure for salt production in Roche. This should not be overstated, as the state domain almost certainly produced more than what was recorded in the accounts. For example, if wood was directly used for heating, this

⁵⁴¹ The share of inventory transactions for finance and taxation is 92.6% (1732) and 88.6% (1782) for revenue, 94.0% (1732) and 92.5% (1782) of expenditure. The remaining inventory transactions were for defence (purchases and sales of military equipment).

would not always appear in a bailiff ledger. Overall, the state's entrepreneurial activities (functions *Economy* and *Domain*) represented 29.2% (1732) and 23.2% (1782) of current revenue. If we add the interest revenue their share accounts for 49.9% (1732) and 42.6% (1782). The Bernese state therefore received between four-fifths and half of its current revenue from entrepreneurial activities.

For expenditure, the sharp increase in defence spending is remarkable. This was only partly a structural development and was largely driven by the cost of sending auxiliary troops to Geneva in 1782. If costs with an explicit reference to this event are excluded, defence expenditure still more than doubled (+134%). This figure might include some costs that were in connection with the Geneva expedition without explicit mention. The overall share of defence expenditure (3.8% in 1732, 6.0% in 1782)⁵⁴² is remarkably low when compared to the figures of other European states, where this was often by far the most important post in the budget (see Figure IV-15 and Figure VII-15).⁵⁴³ As will be discussed later on, the Bernese figures understate forced labour that went to the militia army (see Section IV-5).

In addition to analysing functional *re*-distribution, a breakdown by state function for specific categories of transactions – in other words, functional distribution – can provide further insights in the nature of the Bernese state. Sometimes such a breakdown is of little use, as in the case of tithe payments, which are by definition classified as *Finance and Taxation*. The following analysis focuses therefore on transactions that covered a broader range of state functions, such as personnel cost (see Figure IV-19).

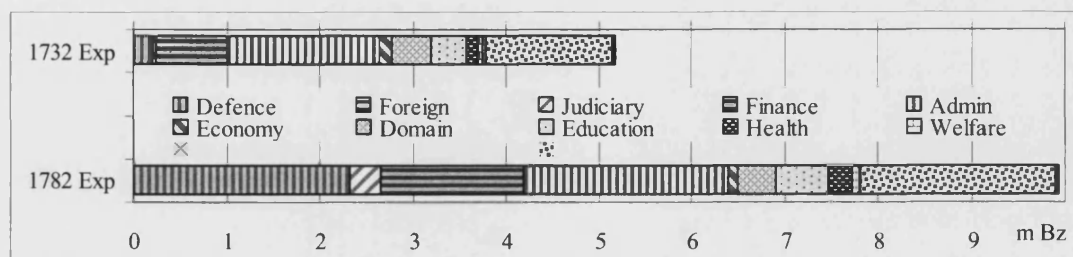


Figure IV-19: Functional Distribution of Personnel Cost

⁵⁴² The 1782 figure excludes defence expenditure for the Geneva expedition. If they are included, the figure is 13.2%, which is still very low.

⁵⁴³ For example, eighteenth-century Prussia spent 70-80% of its budget on defence; the situation in Britain is not very different, once interest payments for the national debt – which in itself was the result of warfare – are included: For Prussia: Körner (1995a): Fig. 62 (425). For Britain: Mann (1988); O'Brien/Hunt (1999). See also the comparative numbers in Mann (1986-1993), Vol. 2, Tab. 4.4 (373).

Source: Database, Personnel cost.

As for the previous graph, the value for 1782 is skewed towards defence. For the other personnel cost, it went mostly to administration (which includes the salaries of government officials) and the state-employed clergy. The increase in judicial salaries can be explained by the establishment of the *Marechausée*, a forerunner of a professional police force. For a further breakdown of these personnel costs into regular, bonus and *ad hoc* payments, the results are shown as percentages because of the large differences in absolute numbers (see Figure IV-20).

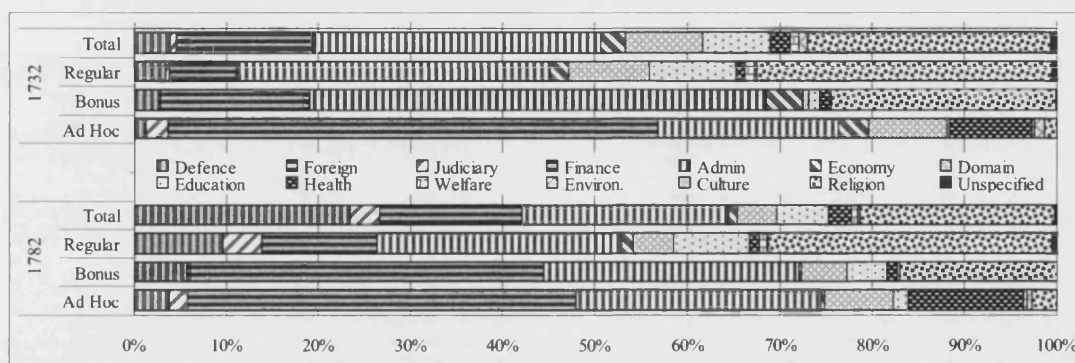


Figure IV-20: Functional Distribution of Personnel Cost, Further Breakdown

Source: Database, Personnel cost. Bonuses were much smaller than regular salaries in absolute value; see Table IV-5.

While the categories I have proposed should be applied with some reservations because of limitations that were mentioned earlier, some insights can be obtained. The administration's share in bonuses was larger than for regular salaries, while the clergy obtained relatively less. The large proportion of *ad hoc* salaries spent for finance consisted mostly of payments towards officials for their share in grain sales and other government revenue. Judiciary and police work had changed from an activity remunerated on an *ad hoc* basis to a regular, salaried profession.

The functional breakdown of property maintenance can be used as a proxy for the cost of infrastructure. My figures are comparable to those of Hans-Anton Ebener, who investigated the state's building activities with a sample of bailiff accounts.⁵⁴⁴

⁵⁴⁴ Ebener (1999): ch. 8 (esp. table 4.11). His exclusion of institutions results in a difference in the share of expenditure for the function *Domain*. Ebener's figures are (in %, 1730s/1780s): Education

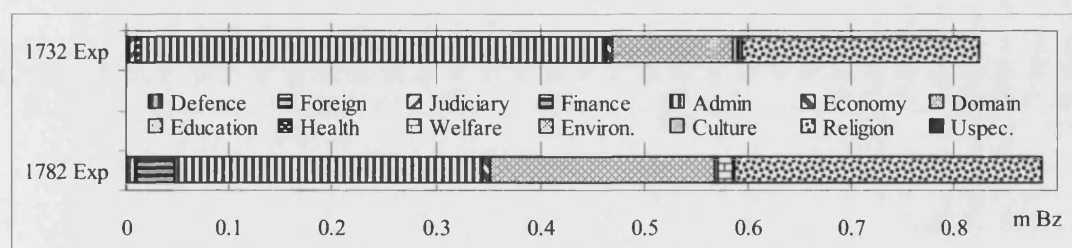


Figure IV-21: Functional Breakdown of Property Maintenance Cost

Source: Database, Expenditure for Property Maintenance (excluding movables).

In 1782, the state spent less on maintaining its general-purpose buildings than fifty years earlier, whereas the cost of production facilities and the state domain increased. The latter was mainly due to expenses for the salt mines in Roche. Government expenditure on maintaining religious property was mostly for vicarage buildings, for which the state was responsible. The upkeep of churches was left to parishes; the state occasionally contributed towards major expenses. The increasing maintenance cost of buildings with a financial function was a result of the multiplication of public granaries in the second half of the century. This might be partly overstated by the fact that previously, granaries had been considered part of general public administration; with their increase, they were recorded as separate entities.

Sectoral Redistribution

The structural composition of an economy is both a function and a determinant of its growth. Analysing this structure can provide clues about the stages of development of an economy and its potential to grow. There is no statistical information on how important the three main sectors agriculture, industry and services were in terms of output and employment in eighteenth-century Bern. Such data would enable a comparison between the distribution of incomes before and after taxation. As it stands, an analysis of fiscal redistribution is limited to considering how sectors contributed to government finance and benefited from it.

0.2/3.2; Domain 0.7/5.9; Finance 4.5/8.9; Judiciary 0.6/2.2; Defence 0.6/0.5; Religion 45.8/39.5; Welfare 0.0/0.2; Environment 3.3/1.6; Admin 42.6/37.6, unspecified 1.7/0.1.

Ideally, a breakdown of economic sectors would follow the four-digit Standard Industrial Classification (SIC) used in contemporary statistics. In reality, applying this system to early modern times on a one-to-one basis is both impossible and misleading. It is impossible because primary documents often did not record economic activities accurately. It is misleading because most economic actors were engaged in more than one category and could have seasonally changing occupations. Also, the economy as a whole was less specialised. Data problems are a further obstacle to the use of more sophisticated classifications, such as the dual-economy model by Arthur Lewis, which distinguishes between a dynamic market-oriented and a subsistence sector.⁵⁴⁵

For my empirical analysis of sectoral redistribution, I have adapted a simplified sector model that takes into consideration the distinct characteristics of early modern, pre-industrial economies. It broadly follows modern classification, based on the breakdown by the Swiss Federal Office of Statistics.⁵⁴⁶ For the adaptation to the situation of an eighteenth-century economy, I have relied on Stephan Hagnauer's work.⁵⁴⁷ The resulting breakdown of categories is shown in Figure IV-22. Sectoral redistribution is defined as the difference between revenue from a sector and expenditure for it. The categories are most detailed for industry, where different crafts and industries were quite clearly distinguished in the records. A further breakdown of agriculture by activity into cattle farming, grain production or wine growing was not possible with the quality of information from accounting sources. A regional breakdown by agricultural zones can be used as proxy for agricultural specialisation; this will be discussed in the following sub-section.

⁵⁴⁵ Lewis (1954); Lewis (1955). For Switzerland, see Bernegger (1990).

⁵⁴⁶ Bundesamt für Statistik (1985),

⁵⁴⁷ Hagnauer (1995), ch. 6.

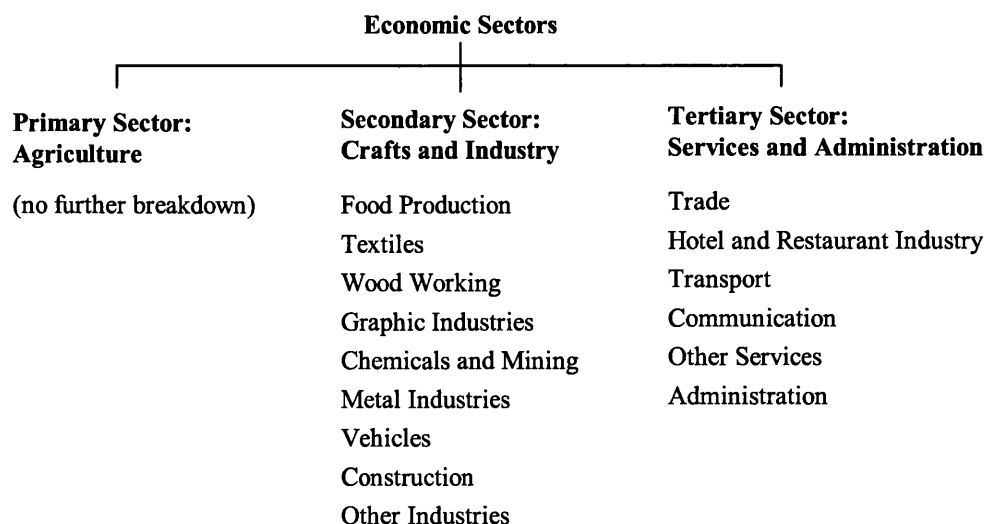


Figure IV-22: Categories for Sectoral Redistribution

Sources: Based on Bundesamt für Statistik (1985) and Hagnauer (1995).

The largest segment of the population was engaged in primary production. The secondary sector consisted of craftsmen and those working in proto-industry. The former could – but did not have to – be organised in guilds and enjoy local privileges.⁵⁴⁸ The number of artisans and tradesmen (*Professionisten*) working as blacksmiths, butchers or bakers in the countryside was considerable. With 103 craftsmen per 1,000 inhabitants towards the end of the century, their density in the rural areas was significantly higher than in all German territories for which comparable numbers are known.⁵⁴⁹ The canton's proto-industry was limited to textile production in Upper and Lower Argovia. The tertiary sector consisted of a small number of administrators and tradesmen, whose numbers are not known. They ranged from city-based wine merchants and bankers to itinerant hawkers.⁵⁵⁰ The only attempt to quantify sectoral distribution is from Christian Pfister, who has analysed occupational information from the 1798 government census for a sample of 12 counties. The data has important limitations, as far as it only considers full-time employment of males who took an oath on the new constitution. According to this

⁵⁴⁸ City guilds had little economic power, in spite of their role in politics discussed in Chapter II; their members were not representatives of specific crafts.

⁵⁴⁹ Pfister, C. (1995): 289 – compare the compilation in Meier (1986): 40.

⁵⁵⁰ Radeff (1994); Radeff (1996). She does not provide any figures about their number.

estimate, 54% were active in the primary, 37% in the secondary and 9% in the tertiary sector.⁵⁵¹

It is impossible to categorise all revenue and expenditure of the Bernese state because the identification of the economic sector in which a transaction took place was not a major concern of early modern governments. If any information on this was recorded, it was by accident rather than intentionally. It was possible to determine the economic sector for 83.3% of all transactions in my database for 1732 and 89.6% for 1782. However, they only cover 69.5% (1732) and 73.8% (1782) of values. This is because state activities for which the economic sector was either not recorded or did not matter involved large sums. For loan transactions (including interest payments) and salt sales in particular, the payer or recipient was not recorded systematically. When occupations appear in the accounts, they are frequently intended as homage ('baker master John Smith') or to describe a person ('John Smith, the baker'). In order to avoid a sample bias towards those professions for which the sector was recorded in such manner, I have classified them as non-specified. Among the non-specific categories are subsidies, duties, customs duties (except for transit duties)⁵⁵², alcohol taxes and direct taxes on property.⁵⁵³ If all records that are non-specific by default are excluded, the share of transactions without sectoral information falls to 2.6% (1732) and 3.0% (1782), covering 16.9% and 11.8% of total transaction value.

The large number of unspecified transactions causes problems, since it is conceivable that they altered redistribution by the state substantially. As a result, the values in Figure IV-23 are only true under the assumption that government revenue from non-specific transactions (salt purchases and financial loans in particular) were not biased in terms of economic sector. Overall, these results for sectoral redistribution confirm the image of Bern as a physiocratic state, based on agricultural production.

⁵⁵¹ Pfister, C. (1995): 239. His figure for the primary sector includes those without specific job title (13%).

⁵⁵² The sector which ultimately bears customs duties can only be established for transit goods, which by definition were only paid for by traders; individuals would not transit goods in the eighteenth century.

⁵⁵³ Grain sales have been excluded from net transactions, as explained in Section IV-2. Loan transactions include interest payments.

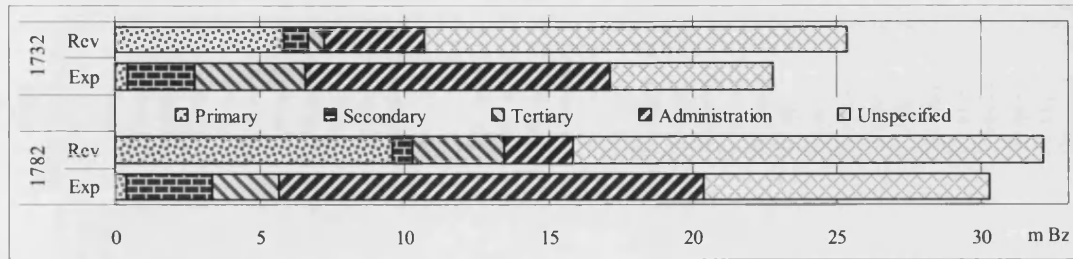


Figure IV-23: Sectoral Redistribution

Source: Database, net transactions.

I have classified administration as a separate category in Figure IV-23 because of its importance, both quantitatively and in the context of state-building. The primary sector was clearly the main contributor to Bernese state finance, but received little funds in return. Even with the allowance for a large share in unspecified expenditure there was a large net outflow from the primary sector. On the other hand, the main benefactors of the state’s transactions were government members and the state administration. This is hardly surprising as a result. Industry also seems to get a larger share of expenditure than its revenue contribution. The results for the service sector are more complex, showing it as a clear beneficiary in 1732 and a net contributor in 1782. When using current transactions alone, the share of unspecified transactions for expenditure declines, and revenue from administration virtually disappear (see Figure IV-24).⁵⁵⁴

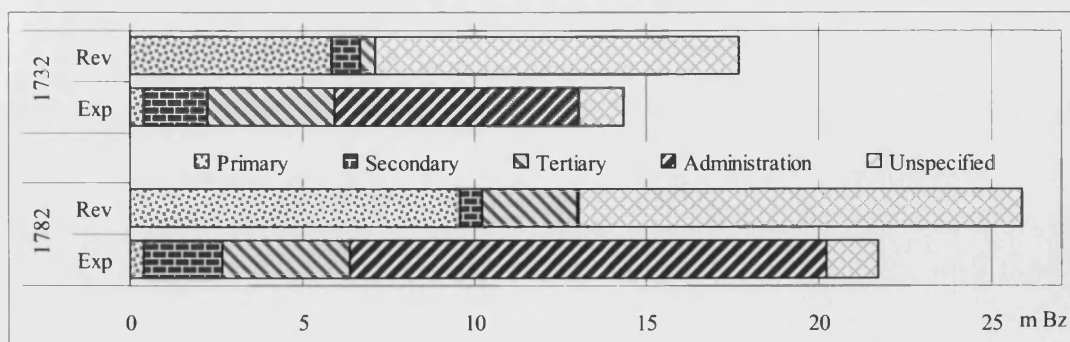


Figure IV-24: Sectoral Redistribution for Current Transactions

Source: Database, current transactions.

⁵⁵⁴ The revenue from administration was mainly repaid loans (*arrears*) of previous office holders.

Transactions for the primary sector cannot be specified into further categories, but in combination with the factual categories discussed above, some specifications are possible.⁵⁵⁵ Revenue from the primary sector was mostly derived from tithes (49% for 1732, 50% for 1782), land rents (26% and 29%) and production (10% and 15%). By far the most important post for expenditure towards the primary sector was the purchase of movables (65% and 59%). The main product bought by the state was wood, which was used as a building material and for heating. These purchases do not represent the whole wood consumption of the state, since an unknown amount was consumed directly from the state domain forest.

If we use Christian Pfister's estimate of the number of *Professionisten* (10% of the total population) as an indicator of the industrial sector's size, its contributions towards state revenue were small. On the other hand, they obtained slightly more than their share from the state's expenditure (12.8% in 1732, 10.5% in 1782, including unspecified transactions). Using the 37% estimate from the 1798 census, industry's share in both revenue and expenditure was below its economic importance.

For the industrial and service sectors, the figures can be specified in more detail (see Table IV-7).

	1732 Revenue	1732 Expenditure	1782 Revenue	1782 Expenditure	ΔR (%)	ΔE (%)
PRIMARY SECTOR	5,830,982	398,141	9,534,182	387,008	63.5%	-2.8%
SECONDARY SECT.	825,868	1,839,436	665,672	2,284,748	-19.4%	24.2%
Food	124,726	171,793	74,584	848,880	-27.4%	394.1%
Textiles		85,091		4,263		-95.0%
Wood Work		233,632		202,865		-13.2%
Graphic Industries		31,302		24,086		-23.1%
Chemicals and Mining	684,904	163,288	584,141	73,254	319.4%	-55.1%
Metal Industries		243,203		140,538		-42.2%
Vehicles		3,374		7,524		123.0%
Construction		620,697		725,931		17.0%
Other Industries	16,238	287,056	6,947	257,407	-94.3%	-10.3%
TERTIARY SECT.	458,451	10,780,762	2,802,821	17,525,625	511.4%	62.6%
Trade	441,548	2,777,715	2,765,121	2,960,589	-84.1%	6.6%
Hotel and Restaurant Ind.	650	36	21,478		1705.6%	-100.0%
Transport		653,580		365,249		-44.1%
Communication		8,271		29,582		257.7%
Other Service		245,831		314,767		28.0%
Administration	16,253	7,095,329	16,222	13,855,438	-99.8%	95.3%
UNSPECIFIED	10,527,328	1,329,841	12,854,776	1,513,388	22.1%	13.8%
TOTAL	17,642,629	14,348,180	25,857,451	21,710,769	46.6%	51.3%

Table IV-7: Sectoral Redistribution by Category for Current Transactions

Source: Database, current transactions. ΔR (ΔE) stands for a relative change in revenue (expenditure) from 1732 to 1782,

⁵⁵⁵ This was done via crosstab queries in the database. The detailed results are not shown.

There was redistribution even within the secondary sector. Chemicals and mining were the most important contributors to the government's revenue. Production from the salt mines of Roche was responsible for 83% (1732) and 86% (1782) of industrial revenue, the rest came from payments for privileges.⁵⁵⁶ The lion's share of government funds towards industry went to construction and related industries, such as wood work and metal. This is confirmed by the fact that a large portion of the outflows to the industrial sector (55% in 1732 and 41% in 1782) went to construction and maintenance. Other industrial expenditure was for armaments (26% and 18%) and products of the food industry (7% and 28%). These were purchases made by the state's hospitals and charitable institutions.⁵⁵⁷

Virtually all revenue from the service sector came from trade. In 1732, most trade revenue were payments for privileges (41%), followed by transit duties (34%) and loans (20%). By 1782, the share of transit duties (47%) surpassed that of privilege payments (14%) and loans (13%) by far. This sharp increase reflects the introduction of new transit duties discussed above. Even the raising income from the hotel and restaurant industry is related to this, since it was mainly caused by a privilege payment from an inn connected to the customs office in Aarwangen.⁵⁵⁸ In terms of payments towards the service sector, the share of trade was also high (76% in 1732 and 69% in 1782). The most important single expenditure consisted of salt sales (68% and 79% of all trade expenditure). It can be assumed that a large proportion of expenditure towards the transportation sector (16% and 8%) was caused by salt trading as well.

With these results in mind, the explanation for the change of the service sector from being a net recipient (1732) to a net contributor (1782) of fiscal redistribution becomes clearer. It was a combination of higher revenue from transit duties and increased expenditure for salt purchases which brought about this situation. One important factor of sectoral redistribution can only be considered indirectly. Bern's proto-industry (discussed in Section II-3 above) is conspicuously absent from this section's results. This is not the result of inaccurate data categorisation, but because the sector was hardly taxed at all. Even in the accounts of areas with specialisation in textile production, there were no specific fiscal incomes from this proto-industry.

⁵⁵⁶ The industries that paid most of these privileges were in the food sector (mills). Some service providers (inns, taverns, post) also paid for their privileges.

⁵⁵⁷ Early modern hospitals were less medical institutions than asylums or homes for the elderly.

⁵⁵⁸ StABE B III 176.

Regional Redistribution

Information on the regional patterns of revenue and expenditure have not been categorised systematically for each transaction, but they can be classified reliably by the account recorded in. In a strict sense, my analysis of regional redistribution is therefore one of redistribution by account. This has the advantage that it also covers financial flows between the government itself (the Treasury) and its agents in the counties (mostly bailiffs). As a downside, transactions that had an effect beyond where they were recorded are not categorised properly. For example, all transactions in the *Standesrechnungen* count towards central revenue and expenditure, even if they were collected or spent in the territory. The amount of mis-specified transactions is likely to be small, however, since in most cases locally handled payments were recorded by bailiffs to whom the centre would transfer funds via *assignation*.⁵⁵⁹ Another problem is that the database uses a sample of counties which might not represent their region properly (see Section IV-2).

For an analysis of transactions by account we can return to the distinction between A-, B- and D-Types discussed previously (Section III-3 above). C-Type accounts were not included in the database because they did not contribute to the government's net revenue.⁵⁶⁰ For D-Type accounts, I have separated bailiff accounts in the counties (D₁-Types) from institutions within the city of Bern (D₂-Types).

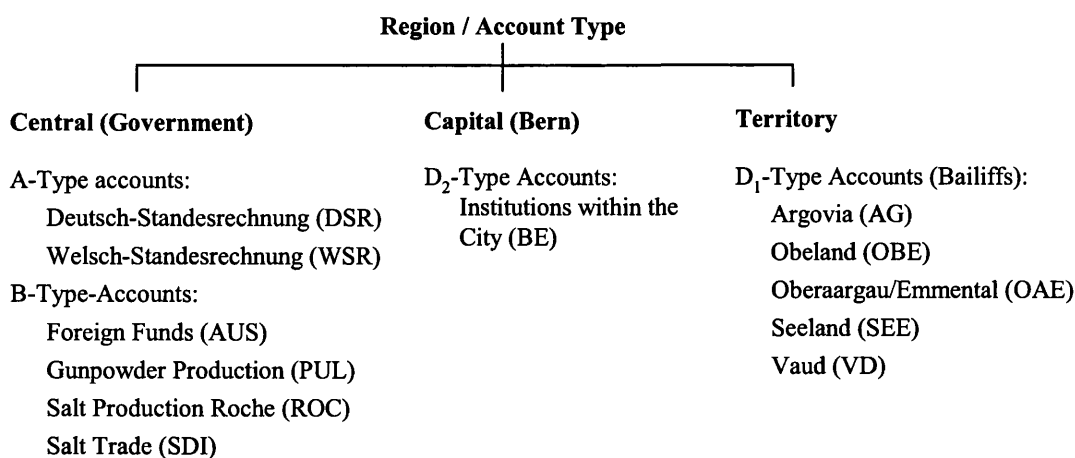


Figure IV-25: Categories for Regional Redistribution

⁵⁵⁹ *Assignations* have been excluded from *net* transactions by definition. See above, Section IV-2.

⁵⁶⁰ Transfer payments to and from C-Type accounts were classified as revenue.

See Section III-3 above and Section VII-9 in the appendix for details.

Only the territorial accounts can be located geographically. For transactions recorded by the central government or institutions within the city itself, the geographical scope is not clear.⁵⁶¹ I have distinguished the main agricultural regions following the work by Christian Pfister.⁵⁶² Figure IV-26 shows revenue and expenditure by account with A- and B-Types listed individually, D₁-Types aggregated by region and D₂-Types as a category of their own.

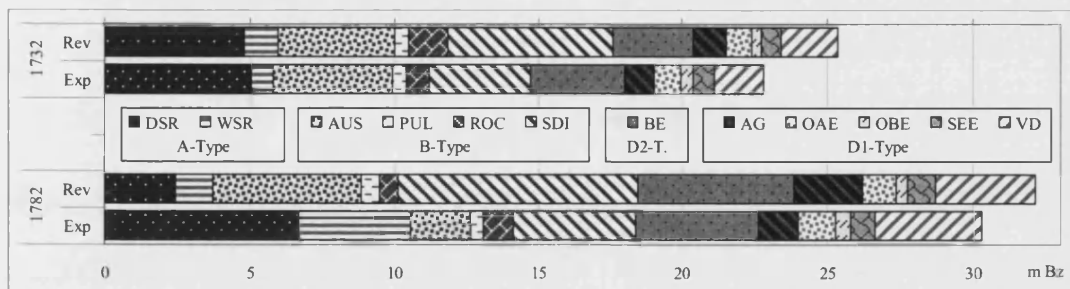


Figure IV-26: Total Net Revenue by Account Type and Region

Source: Database, net transactions. For abbreviations, see Figure IV-25.

Only a small part of net transactions were recorded in the *Standesrechnungen*.⁵⁶³ The most important sources of revenue were accounts covering the state's entrepreneurial activities, notably salt trade (SDI) and foreign capital investment (AUS). The geographical distribution of bailiff's accounts shows that Argovia and Vaud were large contributors, alongside institutions of the city itself (D₂). The other regions were less important financially.

This result does not necessarily show the flow of funds between different types of accounts, it only represents in which ledger the transactions were recorded. This might be more representative of political power – where decisions were taken and recorded – than of financial redistribution. The results in Figure IV-26 support the hypothesis that the degree of centralisation in Bern was not very high. This argument can be refined by separating current and inventory transactions. Figure IV-27 shows

⁵⁶¹ It is not clear how far into the territory activities of city institutions reached (they held important title rights outside the city); I have therefore excluded them from the regional analysis, rather than considering them as representative for financial activities within the city itself.

⁵⁶² In particular: Pfister, C. (1995): 16-17 and 28-30.

⁵⁶³ Of course the gross amount of both accounts was much larger, since many of the transactions recorded in the DSR and WSR were transfers which are not included in the net transactions.

the relative distribution by type of account in which transactions were recorded (revenue on the right, expenditure on the left).

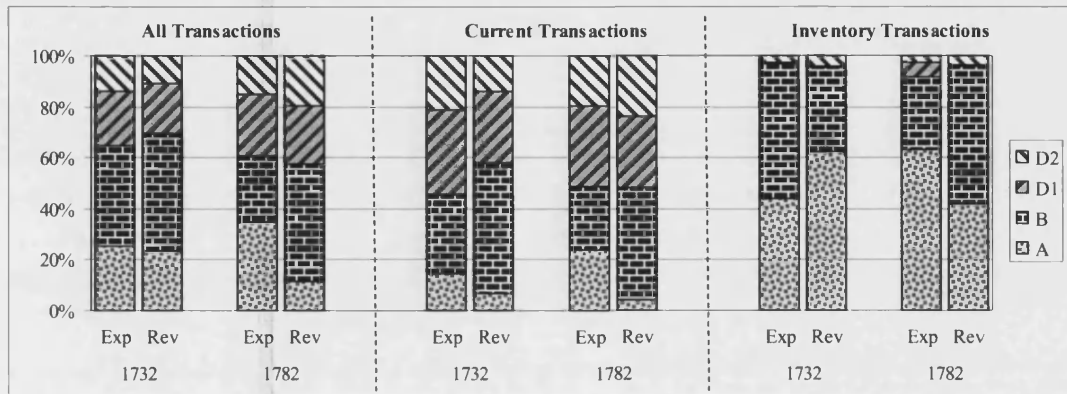


Figure IV-27: Relative Share of All, Current and Inventory Transactions by Account Type

Source: Database, current transactions. D_1 are counties, D_2 institutions. For the total (absolute) figures of each type of transaction, see Section IV-3.

The data does not allow reliable testing of the hypothesis that money was redistributed from the territory to the city. Regional patterns can only be compared between D_1 -Type accounts, since these alone formed a homogeneous group from an accounting point of view.⁵⁶⁴ For current transactions, the share of D_1 -Type accounts (bailiff accounts) was up to 40%; on the other hand, nearly all inventory transactions were recorded in either A- or B-Type accounts.⁵⁶⁵ This is a predictable result, since important investment decisions can be reasonably expected to have been taken and recorded directly by the central government, rather than by its representatives in the counties. The result points towards some ‘skimming off’ of current profits made in the territory, which were then invested by central government.

Profitability rates varied enormously between different accounts (see Table VII-18 in the appendix).⁵⁶⁶ For A- and B-Type accounts with their large and fluctuating inventory transactions, profitability was already discussed in a long-run perspective (see Chapter III). Unsurprisingly, they were also amongst the most profitable accounts of the Bernese state in 1732 and 1782. Considering only the

⁵⁶⁴ D_1 -Type accounts are only homogeneous in accounting terms, not in what they recorded. This makes a comparison possible.

⁵⁶⁵ The only significant inventory revenue in Type D_1 accounts were loan repayments.

⁵⁶⁶ Summary statistics (1732 / 1782) are: Min -176.48% / 1.20%; Max 75.54% / 334.85%; Standard Deviation: 0.58 / 0.76; Average: -8.86% / -9.86; a mean cannot be calculated with positive and negative values.

current revenue and expenditure, the accounts for foreign funds had profit rates of 86.3% (1732) and 90.2% (1782), salt trade 42.2% and 32.15% respectively. Profit rates from D-Type accounts can more readily be compared with each other, which is done by region in Figure IV-28.

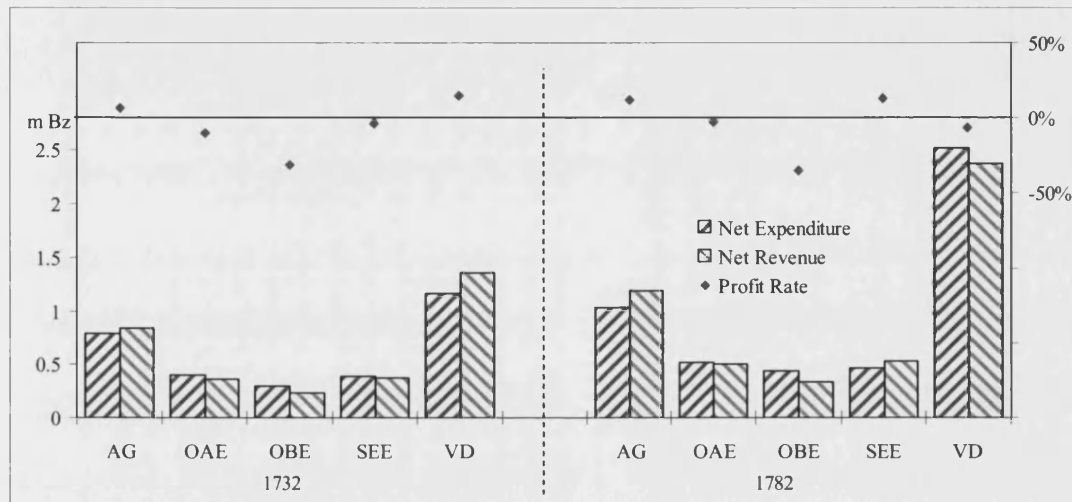


Figure IV-28: Current Revenue, Expenditure and Profit Rate by Region (D-Type Accounts Only)

Source: Database, current transactions (unweighted) and profit rates. See appendix (Table VII-18) for details.

The emerging regional pattern is inconsistent. Argovia accounts were profitable in both sample years, Vaud only in 1732, Seeland in 1782. The Oberland was spending more than its current revenue in both sample years. These results might not be representative for their regions because all figures are based on a sample of five ledgers per county. For the further analysis of regional differences, I will only consider current transactions. The distribution for inventory transactions (not shown) is virtually identical, with the sole difference that in 1782 Vaud's share in all transactions was slightly higher; in other words, Vaud profited from higher investments in this year. This was related to an increase in the domestic loan portfolio (see Section III-5 above).

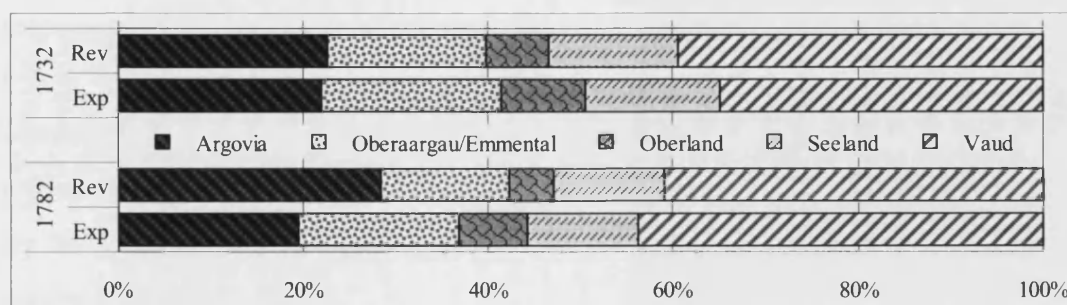


Figure IV-29: Relative Regional Distribution of D_1 -Type Accounts (Current Transactions only)

Source: Database, net current transactions.

Transactions in Vaud made up for roughly two-fifths of the total and in Argovia about one-fifth. I have also weighted these figures by the relative share of the total population living in each region, based on the 1764 and 1798 censuses. This relies on the – admittedly slightly unrealistic – assumption that relative population distribution did not change between 1732 and 1764.⁵⁶⁷ The figures should therefore be considered rough estimates only. Since transactions in kind were relatively important in D_2 -Type accounts, Table IV-8 shows values in Bz and stable grain prices (row 1782*⁵⁶⁸).

	Argovia	OberAG/E.	Oberland	Seeland	Vaud
1732	18.38	19.95	13.77	14.92	17.72
1782	33.11	17.21	8.88	23.46	25.98
1782*	27.14	11.47	5.47	15.26	20.94

Table IV-8: Estimated Revenue per Capita Recorded in D_1 -Type Accounts by Region (in Bz)

Source: Database, current revenue for D_1 -Type accounts. Population distribution calculated from Bernhist Database/Pfister, C. (1995); HLS (2002), article *Bern*: 267; and Schluchter (1988). For the values in row 1782* I have discounted all grain revenue by the overall mean grain inflation rate.

Not only is there a marked regional difference in the level of revenue per head, the developments also vary substantially. For 1732, differences were relatively small. But while locally recorded revenue per capita more than doubled in Argovia and grew considerably in Seeland and Vaud, it stagnated in Oberraargau/Emmental and declined sharply in Oberland. The relative order of regions changed as well, with

⁵⁶⁷ Raw data from Bernhist [Pfister, C. (1995)]; HLS (2002), article *Bern*: 267; and Schluchter (1988). I have applied the 1764 distribution for the 1732 figures, and a medium distribution (calculated as the mean of the 1764 and 1798 distributions) for the 1782 figures.

⁵⁶⁸ I have discounted all transactions recorded in grain by the overall grain inflation rate. This is less precise than discounting for each grain type separately.

Oberaargau/Emmental falling from the highest revenue per capita in 1732 to a value below that for all other regions except Oberland in 1782. With grain inflation corrected for, the value for Seeland is stable, Argovia and Vaud increase, Oberaargau/Emmental and Oberland fall. These divergences can partly be explained by the fact that a lot of state revenue was not directly dependent on the number of subjects and was instead levied on objects. If population is kept stable at the 1798 level, then there are still noticeable differences in level, but less in relative change.⁵⁶⁹ It would be incorrect to understand the figures in Table IV-8 as total revenue per capita for each county; they only show what was recorded locally. Contributions of locals towards revenue recorded in central accounts are not included. I will discuss the fiscal burden per capita in the next section (IV-5).

We can also consider regional differences in terms of the nature of transactions. For this, I have focused on the most important categories for revenue from above, which are shown in Figure IV-30. They are tithes (grain and others); taxes (excluding tithes); interests; land rents; other rents; and all the remaining current revenue.

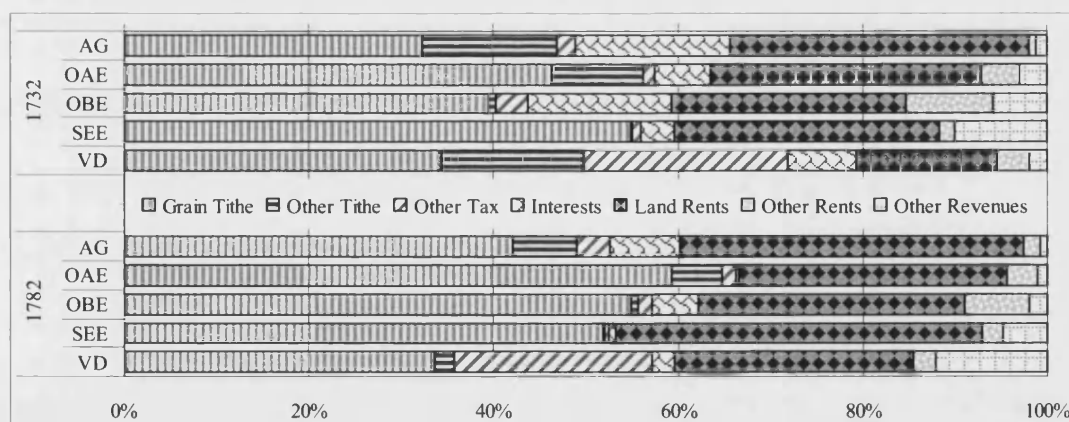


Figure IV-30: Relative Share of Current Revenue in D₁-Type Accounts by Region

Source: Database, current revenue of D₁-Type accounts.

For all regions, *Grain Tithes* were the most important single category, usually followed by *Land Rents*. The situation in Vaud was notably different, with *Other Taxes* playing an important role. These were handover taxes levied on property transactions (*Lods*). The 1782 *Other Revenue* consisted almost exclusively of an

⁵⁶⁹ With 1764 population figures applied to both years, the results are for 1732 / 1782: AG 17.98 / 37.99; OAE 18.51 / 26.32; OBE 13.47 / 15.99; SEE 14.60 / 20.79; VD 17.34 / 20.23 (all in Bz).

increase in wine production in the counties of Nyon and Romainmôtier. This might not have been a real increase, but the result of a different accounting technique in which wine production was recorded more accurately and not in combination with wine tithes (note the sharp decrease in wine tithes).

Expenditure also differed regionally in both sample years, as illustrated in Figure IV-31.



Figure IV-31: Relative Share of Current Expenditure in D₁-Type Accounts by Region

Source: Database, current revenue of D₁-Type accounts. *Other Pers.* is for personnel cost other than regular salaries; *Other (Consumption)* includes all remaining current expenditure, mainly government consumption.

Personnel costs were usually about two-fifths of all current expenditure except in Vaud, where their share was almost two-thirds in both sample years. The high amount of *ad hoc* payments in Vaud in 1782 might be related to the military expedition to Geneva. This category also included the bailiff's share in revenue, *Lods* and grain sales in particular. Unfortunately, the data does not allow us to differentiate between the portion of personnel costs which were paid to locals and what went towards Bernese patricians. Therefore, any statements about the redistribution of resources towards patricians is purely speculative.

This section has analysed fiscal redistribution in Bern in terms of state function, economic sectors and regions. The results confirm and qualify what was said about factual redistribution earlier. Regarding state functions, unsurprisingly most of the canton's revenue was generated by finance and taxation, but there was an important

entrepreneurial component as well. Expenditure covered a broad array of functions, which is particularly noticeable in comparison to other European states spending most on defence. In sectoral terms, redistribution occurred from the primary to the tertiary sector, in particular to administration. With a lack of reliable data on the relative size of sectors in the economy, it is difficult to explore which parts of the economy contributed more than their 'fair share' to government revenue. The regional analysis has confirmed that most investment transactions were recorded by central government accounts discussed in the previous chapter. For locally recorded revenue, there were important regional differences in both level and development. Argovia, Vaud and Seeland had higher per capita revenue which grew over time, while Oberaargau/Emmental revenue stagnated; the already low Oberland revenue fell. Evidence on differences in profitability by region is inconclusive.

IV-5 The Fiscal Burden and Militia Transactions

This section is dedicated to two issues that are directly related to the analysis of fiscal redistribution in the previous sections. First, I will discuss the fiscal burden on the Bernese population in more detail, relying on the classifications made above. In the second part of the section, I will include estimates for the militia as a 'hidden tax' that should be added to the fiscal burden.

The Fiscal Burden

With all categories fully explained, I will now analyse the fiscal burden of Bernese taxpayers in more detail. As a cautionary note on such calculations, Juan Gelabert has rightly pointed out how inaccurate the idea of an *average taxpayer* is for early modern times.⁵⁷⁰ Even today it is difficult to define what 'average' stands for. The situation was worse in early modern economies because taxes were deliberately discriminating by legal status. For example, inhabitants of the city who were not citizens paid special fees for residency. Alcohol taxes, on the other hand, were only levied in the city and not throughout the territory. There were no personal exemptions, but wine was taxed when consumed by the jar and not when it was traded in barrels. The situation in early modern states is further complicated by the

⁵⁷⁰ Gelabert (1995): 539 and 558.

fact that many taxes were not personal in character, but levied on objects or transactions. The most important of them all, the tithe, fell on agricultural returns on certain plots, but only when specific types of grain were cultivated regardless by whom. As the ‘average taxpayer’ is an abstract and artificial concept, so too is the ‘average tithe-payer’ an even greater abstraction from reality. When analysing the fiscal burden of Bern’s population, it is crucial to keep in mind how limited such an approach is. The incidence of taxation could differ significantly between groups of population. Calculating average figures can only be used as a proxy for reality, but it is the only way of making meaningful comparisons between states and across time.

I define the fiscal burden as all current government revenue that was not directly from commercial activities. This notably excludes proceeds from salt sales, except for the percentage classified as monopoly profit, which counts as indirect tax. It also excludes revenue from interest payments. Overall, the fiscal burden was 27.4% of total revenue in 1732, 38.8% in 1782. This is equivalent to 39.8% (1732) and 48.1% (1782) of net revenue. For Table IV-9, I have calculated the tax burden (only direct and indirect taxes) and as well as the fiscal burden.⁵⁷¹ The results are in Batzen, metric units of silver and a percentage of total revenue.

	Total				per Capita				Share of Total Revenue	
	Million Bz		Silver (tons)		Bz		Silver (grams)		1732	1782
	1732	1782	1732	1782	1732	1782	1732	1782		
Fiscal Burden	6.94	12.46	5.12	9.02	21.89	32.11	16.15	23.24	27.4%	38.8%
of which: Taxes	4.52	8.68	3.34	6.28	14.27	22.36	10.53	16.18	17.8%	27.0%
of which: Tithes	3.58	5.10	2.64	3.69	11.28	13.15	8.32	9.52	14.1%	15.9%

Table IV-9: Fiscal Burden in Bz and Silver

Source: Extended Database, Fiscal Revenue only. Silver prices and population from Section IV-2.

As already discussed above, the ratio of fiscal to total revenue was relatively small, compared to the state’s entrepreneurial activities. Additionally taxes on property were quasi-inexistent in Bern. The fiscal burden per capita increased by 46.7% between 1732 and 1782. The figure for 1732 is the equivalent of 3.6 daily wages of a construction worker, the value for 1782 of 4.4 daily wages. By this measure, the fiscal burden per head increased 19.4%. Using Paul Bairoch’s proxy formula for calculating GDP based on an estimated 200 days of work per year, the

⁵⁷¹ The difference between fiscal revenue and taxation are mostly rents. See Table IV-4 for details.

fiscal quota (government revenue as a share of GDP) in Bern was low, between 1.8% and 2.2%.⁵⁷²

These figures are in line with what Stephan Hagnauer found for a sample of Bernese counties in the 1630s and 1680s, when on average, current revenue per capita was equivalent to 2-3 days' wages.⁵⁷³ They are also similar to Martin Körner's results for Lucerne, where overall state expenditure per capita were 17.3g of fine silver in the 1780s, which is the equivalent of a state quota of 1.6%.⁵⁷⁴ Comparing the fiscal burden between countries is challenging because of insurmountable difficulties in measurement. Therefore, such comparisons should not be taken at face value; they can only give a rough indication about how heavily the population was taxed. In France, tax revenue per capita in 1730 was the equivalent of 46g of fine silver; by 1770, the value had risen to 69g. French subjects paid twice the amount of the Bernese fiscal burden for taxes alone. When measured in grain, the proportions are similar: the Bernese fiscal burden was equivalent to 30.0 litres of wheat in 1732 and 26.8 litres in 1782, while the average Frenchman paid taxes worth 92.2 litres in 1730 and 84.6 litres in 1770.⁵⁷⁵ Other comparative figures are from Charles Ingrao, who estimated that in Hesse-Cassel during the reign of Landgrave Frederick II (1760-1785), the per capita fiscal burden fell from an equivalent of 78 Bz to 57 Bz. This was lower than in other German states: 107 Bz in Prussia, 99 Bz in Bavaria, 109 Bz in Baden, 138 Bz in Cologne, and a staggering 162 Bz in Zweibrücken.⁵⁷⁶ The Bernese values were only a fraction of this.

To calculate the overall fiscal burden, communal levies should be added to state revenue. As discussed in Section II-2 above, the Bernese republic had delegated specific tasks, most importantly poverty relief, to its communes. To fund their expenses, communes levied a variety of taxes, corvée labour and payments in kind, such as the forced housing of destitute community members. A systematic comparison of the fiscal situation across communes is not possible because financial information was not consistently recorded. The Bernese state did not interfere directly

⁵⁷² For this method, see Bairoch (1977) and Körner (1981): 374-378, as well as the critique by Braudel (1979-1986): vol. 3: 255-258.

⁵⁷³ Hagnauer (1995): table 42. His figure only represents locally collected revenue, not the contribution of the counties to central revenue.

⁵⁷⁴ Körner (1981): Table 64. He estimated GDP figures with the Bairoch method (see note 572 above).

⁵⁷⁵ Figures from ESFDB and Gelabert (1995): 563. Conversions of French taxes are based on figures collected in the ESFDB as well, assuming a bushel of wheat holding 36 litres. For Bernese values, I have used the overall price for wheat from Table VII-12 and Table VII-13.

⁵⁷⁶ Ingrao (1987): 127. I have proxied his Taler figures with the parity rate of the Reichstaler at 26 Bz (see Section V-1 below).

with communal finance, nor did it collect systematic data about this matter. For specific communes, information on the fiscal burden per capita was collected in Table IV-10.⁵⁷⁷ The provenance of the data is discussed in detail in Section VII-20 in the appendix.

Commune	Tax (Bz/cap)	Year(s)	Population	Type	Comments
Aarberg	5.00	1772		Small City	1 daily wage of unskilled labourer
Worb (Viertelgemeinde)	6.02	1745-1760	768	Village	Net revenue only (11 accounts)
	7.78	1761-1773	772	Village	Net revenue only (12 accounts)
	6.26	1776-1794	1,221	Village	Net revenue only (16 accounts)
Langnau	6.21	1763	2,894	Village	Poverty relief revenue only
Menziken	6.40	1773/74	1,098	Village	Without poverty relief (?)

Table IV-10: Communal Tax Burden in Bz per Capita (Yearly Figures)

Sources: Bartlome (1999); Holenstein (2005); Bietenhard (1988); Steiner (1956). The data is discussed in detail in see Section VII-20 in the appendix.

Compared to levies by the state, the communal tax burden was light. It varied both across communes and within the population of the same polity. Usually, cities were better off than their hinterland, and residents without citizenship were taxed heavily. The disaggregated data for the village of Langnau illustrates how much the tax burden changed according to political status, which is another case in point for the inaccuracies of the idea that there existed an ‘average’ taxpayer.⁵⁷⁸ In Langnau, landowners’ property was taxed at a rate of 0.05% (for each 7,500 Bz), mobile property at 0.08%. Citizens without landed property paid 0.22%, which should compensate for the fact that they did not provide any poverty relief in kind. Residents (i.e. non-citizens) were taxed at 0.24% and paid an additional flat fee of 75 Bz per year. Of the 530 households in Langnau, only 315 paid taxes.⁵⁷⁹ For those, the yearly average was 38.825 Bz, with averages in the different districts ranging from 33.375 to 47.8 Bz. If non-taxpayers are included, the average household paid 23.075 Bz, with a range per district from 19.475 Bz to 27.65 Bz. The commune’s total revenue was 17,985 Bz; citizens contributed 67.8%, the rest came from residents.⁵⁸⁰ It is not clear how representative the differences in Langnau are for the rest of the territory. Overall,

⁵⁷⁷ For early modern communal finance in the Empire, see Thomes (1994); Thomes (1995); Fouquet (1988).

⁵⁷⁸ See Bietenhard (1988) for details. His figures include only revenue for poverty relief. For a critique on the concept of the ‘average taxpayer’, see footnote 570 above.

⁵⁷⁹ If Bietenhard’s error margin is included, the figure rises to a maximum of 340 households.

⁵⁸⁰ Bietenhard (1988): 254.

the information on communal finance is too scarce and unreliable to include it in the detailed discussion of the fiscal burden.

The figures on the fiscal burden levied by the Bernese state (excluding communes) from Table IV-9 can be further qualified in several ways. To start, we can correct for the share of the inactive population. If children and the aged are excluded, the result is the actual fiscal burden on the economically active. Based on the 1764 census analysed by Christian Pfister, 30% of the population was younger than 16 and 7% older than 60.⁵⁸¹ If we exclude these and assume that part of the 16-60 year old were not active due to illness, wedlock or other reason, we can proxy their share at half of the total population.⁵⁸² In other words, the fiscal burden on the active population would be twice as high as the above figure, nearing 7-9 daily wages per year, or 3.5 to 4.5% of their annual income – which still seems very low.

This figure also puts severe restrictions on the scope for redistribution through the government, at least when the focus is on overall per-capita figures. The impact of fiscal redistribution on the overall economy was relatively small. In certain cases – for example for farmers which paid the tithe on their grain harvest – taxation could be substantial. The importance of fiscal redistribution was therefore less in its quantity than its incidence. The other importance of taxation was that implementing levies in cash could force monetisation of the economy. Peasants were made to sell crops to pay for such taxes, which ultimately favoured labour division and hence ‘Smithian’ growth. This development towards a monetisation and specialisation of the economy was undermined if taxes could be paid in kind. For Bern, the number of taxes that were paid in kind was declining. In 1732, 63% of the fiscal burden accrued in grain, 31% in monetary units, and 6% in wine. By 1782, monetary fiscal revenue (48%) was larger than in grain (44%), while wine slightly increased its share (7%). In absolute terms, monetary fiscal revenue grew by 158%, grain revenue by 38% when measured in Batzen, and wine revenue doubled (+102%). If fiscal grain revenue is discounted by the mean grain inflation rate, it fell by 16%.

When analysing the fiscal burden by economic sector, it would again be ideal to compare a pre- and post-tax sectoral distribution, which is not possible with

⁵⁸¹ Pfister, C. (1995): Tab. 9.3 (432). His figures are for the canton in its 1980 borders only.

⁵⁸² The figure of half the population being active is probably a conservative estimate for an economy in which child labour was common. Excluding women from the active population would be a mistake, since most of them actively contributed to the economy.

eighteenth-century data. A sectoral breakdown of fiscal and tax revenue by sector is the only possible proxy.

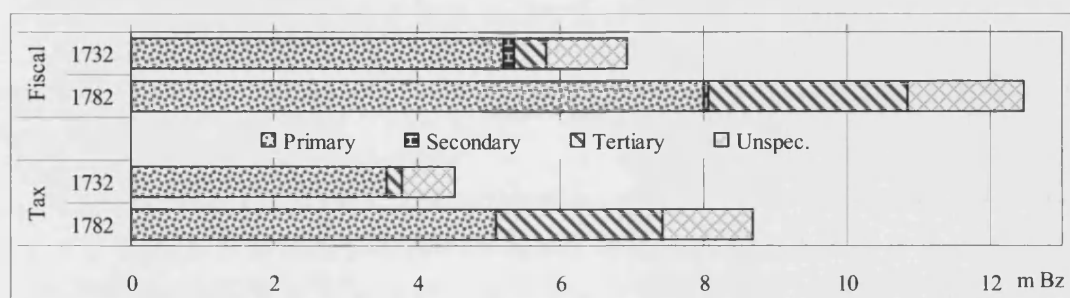


Figure IV-32: Fiscal and Tax Revenue by Sector

Source: Database, Fiscal and Tax Revenue.

Unsurprisingly, the primary sector contributed most to Bernese fiscal revenue. The contribution of the secondary sector was almost non-existent, while the share of the tertiary sector increased rapidly from 1732 to 1782 as a result of raised transit duties (discussed above). Christian Pfister has estimated that in the period 1762-1771, a share of 57% of the cereal production in the canton was subject to tithes by the Bernese state.⁵⁸³ On average, the agricultural sector therefore paid a 5.7% tax to the state ($0.57 \times 10\%$) for tithes alone. This did not represent the entire burden on grain producers, however, since many tithes were due to private landowners, who were often patrician families. Pfister has also calculated that as an overall average, 14-19% of a harvest was used for tithes and rents. This was still much lower than the rough estimates for feudal duties and taxes in the Empire, which range from 22% to 40%.⁵⁸⁴

The regional distribution of the fiscal burden was calculated in Figure IV-33.

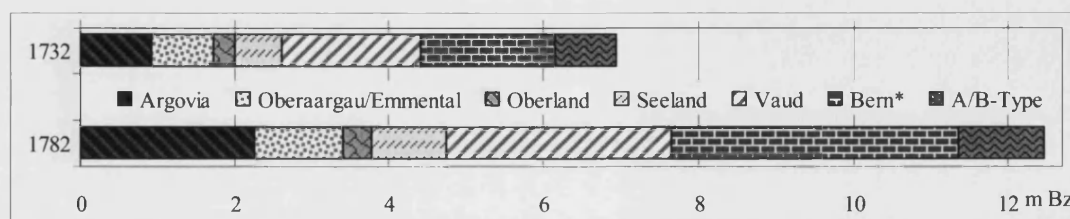


Figure IV-33: Relative Distribution of Fiscal Revenue by Region

⁵⁸³ Pfister, C. (1975): Table 27/1. On a further 33.2%, tithes were levied by other institutions, such as communes or particulars. With 5.8% of the harvest subject to foreign tithe-holders, only 4% of the Bernese harvest were free from taxation through tithes.

⁵⁸⁴ Pfister, C. (1995): 171.

Source: Database, fiscal revenue of D₁-Type accounts. A- and B-Type accounts added as *A/B-Type* (almost all were recorded in A-Type accounts).

Most fiscal revenue was recorded in accounts of institutions that were based within the city. Of the bailiff accounts, Vaud and Argovia contributed most. They were also the most populated. I have corrected for this by calculating per capita fiscal burdens for all D₁-Type accounts, based on the population distribution described earlier, and discounted for grain inflation by calculating 1782 figures with deflated prices for grain revenue (row 1782*).

	Argovia	OberAG/E.	Oberland	Seeland	Vaud
1732	15.28	18.74	11.00	13.18	16.22
1782	31.63	17.16	8.38	22.58	22.27
1782*	28.47	14.09	5.56	18.79	19.00

Table IV-11: Locally Collected Fiscal Revenue per Capita by Region (in Bz)

Source: Database, fiscal revenue in D₁-Type accounts only. Population distribution calculated as for Table IV-8. 1782* is for figures with grain revenue discounted by the overall mean grain inflation rate.⁵⁸⁵

Strictly speaking, Table IV-11 does not show the total fiscal burden for each region, but the part of it that was locally recorded. The figures can only be compared under the assumption that all other fiscal revenue was equally distributed. The relative regional distribution looks similar to total revenue per capita, discussed above (see Table IV-11). Fiscal revenue increased in Argovia, Vaud and Seeland and declined in Obaraargau/Emmental and Oberland. By 1782, Argovians carried by far the highest fiscal burden, followed by Vaudois and Seelanders. The inhabitants of Oberland, on the other hand, only contributed little towards Bernese fiscal revenue. In Oberaargau/Emmental, fiscal revenue per capita declined over the period.

For grain tithes as one of the most important source of revenue of the Bernese state, it is worth considering the regional distribution in absolute terms as well. Institutions in the city collected 35% (both 1732 and 1782) of total tithe revenue for the state. The league table for tithes by region shows Vaud on top (22% and 24%), followed by Oberaargau/Emmental (13% and 14%), Argovia (12% and 12%),

⁵⁸⁵ The fact that in some instances fiscal revenue per capita seems higher than overall revenue per capita in Table IV-11 is caused by the use of a mean inflation rate for grain. This can overstate overall inflation if the true inflation rate was lower than the mean.

Seeland (13% and 11%), and Oberland (4% and 5%). These figures seem consistent with Christian Pfister's figures for tithe revenue measured by weight.⁵⁸⁶ With the population distributions taken into account, Table IV-12 shows tithes paid per inhabitant for each region. Since tithes were not levied on people but on land, I have also included tithe revenue per surface of arable land.⁵⁸⁷

	Per Capita					
	Argovia	OberAG/E.	Oberland	Seeland	Vaud	Bern**
1732	5.94	9.24	5.44	8.18	6.09	34.16
1782	8.18	10.22	4.88	12.17	8.74	32.88
1782*	4.98	6.22	2.97	7.41	5.33	20.03

	Per Hectar					
	Argovia	OberAG/E.	Oberland	Seeland	Vaud	Bern**
1732	6.14	3.57	0.65	7.71	3.02	4.80
1782	9.92	6.17	1.07	10.39	5.16	7.65
1782*	6.04	3.76	0.65	6.33	3.14	4.66

Table IV-12: Grain Tithe Revenue per Capita

Source: Database, grain tithe revenue. Population distribution calculated as for Table IV-8, figures on arable land from Schluchter (1988). 1782* is for figures with grain revenue discounted by the overall mean grain inflation rate. *Bern*** stands for the residual of the country.

The figures for institution from the city (row *Bern***) are not fully comparable with those for the territory, since they are only based on a residual calculation for population and surface. Tithe revenue by institutions within the city could also include lands in the territory. The 'tithe burden' seems to have been highest in Seeland and Argovia when measured per capita; when measured per surface, Oberaargau/Emmental and Seeland look like the most taxed regions. Unsurprisingly the Oberland, where grain production and feudal duties were less prevalent, contributed significantly less in relative terms. Table IV-12 confirms the earlier finding that any increase in tithe revenue from 1732 to 1782 was caused by grain inflation rather than growing revenue in kind.

⁵⁸⁶ See Pfister, C. (1975): Table 25/1. His figures for 1782 are: Bern 30.7%; Aaretal (=Oberland) 4.2%; Oberaargau and Emmental 18.1%; Unteraargau (=Argovia) 15.1%; Seeland 5.8%, Vaud 25.7%. Differences can be explained by sampling (mine is a selection of accounts for each region; he did not include all types of grain), conversion prices, and different categorisation of regions. For the period 1762-71, Pfister also gives the breakdown for the state's tithes, which are slightly different (Table 27/1, series *MGH Zehnten*): BE 23.9%; AG 16.7%; OAE 17.2%; OBE 4.9%; SEE 7.0%; VD 30.3%.

⁵⁸⁷ I have calculated this from the 1798 figures in Schluchter (1988), assuming there was no increase in arable land.

Militia Duties as a Hidden Fiscal Burden

For my empirical analysis so far, I have only considered revenue and expenditure that was recorded in government accounts. One issue that is systematically excluded by this approach are transactions for the Bernese militia. Because information about this is not reliable and detailed enough, I have decided to address it in a separate section rather than include it in my database. For an overall consideration of the fiscal burden, forced labour extracted by the militia should be included. The militia system not only raised revenue in the form of *corvée* labour, it also ‘spent’ it as days served for defence of the canton. The direct costs involved were small, since regular training was not remunerated, although communes usually contributed a token salary and food supplies, for which the government fixed maximum payments.⁵⁸⁸ When calculated as an opportunity cost, however, redistribution through the militia system was considerable.⁵⁸⁹ Added to this should be the cost of equipment that soldiers had to purchase and maintain at their own expense. Since all these transactions were not recorded in detail, I have to rely on estimates to calculate the ‘militia burden’. The variables involved are army size, training frequency, opportunity cost of serving and the total cost of equipment (see also Section II-5 above).

Exact figures for the size of the Bernese army in 1732 are unknown. I assume effectives of 45,000 men, based on the army size in 1721. In 1782, the army consisted of some 64,000 men.⁵⁹⁰ The militia usually trained for 40 days a year in spring and autumn, before and after the harvest season.⁵⁹¹ The opportunity cost for serving in the militia can be proxied with wage data for construction workers (discussed in Section VII-14 in the appendix).⁵⁹² The state subsidised the purchase of military equipment and provided ammunition, but the expense for a soldier could be considerable. In 1782, a full set of infantry gear cost L. 70-72 (700-720 Bz), which is the equivalent of

⁵⁸⁸ Feller (1955): 506. If the militia served for longer periods, soldiers received a daily allowance.

⁵⁸⁹ Other types of forced labour were not important in Bern, except for a few days of communal service (*Gemeinwerk*) in Seeland: Hagnauer (1995). On a communal level, citizens were required to work for road maintenance: Hostenstein (2005).

⁵⁹⁰ Rodt (1831-1834): Vol. 1, 186-189. The exact figure is 63,697, of which 27,218 were *Auszug* troops.

⁵⁹¹ Rodt (1831-1834): Vol. 1, 186-189.

⁵⁹² Based on Ebener (1999): Tables 5.2 and 5.3. See the discussion my Table VII-17 for details. The exact figures are 6.00 Bz (for 1732) and 7.37 Bz (for 1782).

almost 100 daily wages.⁵⁹³ Figures for 1732 are not known. We can assume that on average one in forty soldiers had to buy this equipment every year. This figure is obtained by considering the years of service (44, from 16 to 64), corrected by a lower life expectancy, plus the fact that some soldiers inherited rather than bought their equipment (see Table IV-13).⁵⁹⁴

	1732	1782	Unit	Source
Soldiers	45,000	63,697	men	Rodt (1831): 186-189
Trainings days per year	40	40	days/year	Rodt (1831): 186-189
Days served	1,800,000	2,547,880	days	
Wages	6.00	7.37	Bz/day	Ebener (1999): Tab. 5.2 and 5.3
Days served in Bz	10,800,000	18,777,876	Bz	
Equipment per soldier	578	710	Bz	Rodt (1834): 250
Replacement rate	0.025	0.025	(=1/40)	
Cost of Equipment	650,271	1,130,622		
Total Cost	11,450,271	19,908,497	Bz	

Table IV-13: Cost of the Bernese Militia Army

Sources: see Table.

If we add all regular costs of the Bernese militia army, they account for 11.4m Bz in 1732 and 20.0m Bz in 1782 (excluding the Geneva expedition). These sums are sizeable when compared to other revenue and expenditure figures recorded in government ledgers (see Figure IV-34).

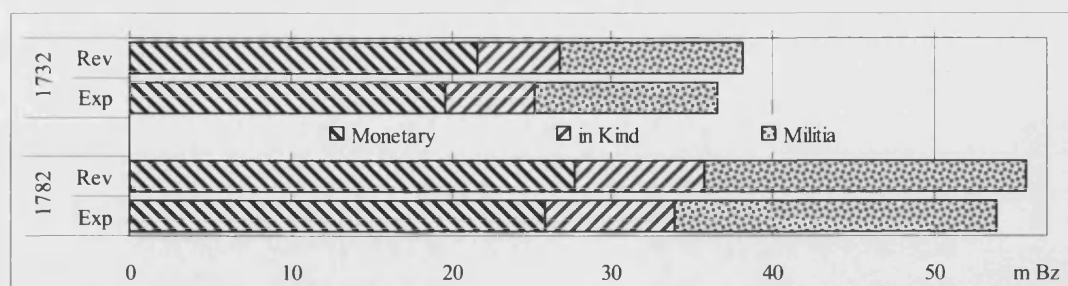


Figure IV-34: Revenue and Expenditure by Currency, including Militia

Sources: Database, net transactions (including grain sales, see Figure IV-5) and estimates for militia cost (see Table IV-13).

⁵⁹³ Rodt (1831-1834), Vol. 2: 250.

⁵⁹⁴ I have assumed that the cost of equipment at 710 Bz in 1782, and – based on a fixed ratio to wages (1 equipment = 96 daily wages) – at 580 Bz in 1732.

The militia accounted for 29.1% (1732) and 31.1% (1782) of revenue, as well as 35.8% (1732) and 36.7% (1782) of expenditure by the Bernese state. Adding militia duties also alters the results for fiscal redistribution discussed in this chapter. Militia revenue consisted of a tax levied in labour and a special tax for the equipment. Both had the state function *Finance and Taxation*. The sectoral distribution would follow the occupation of the soldiers. In theory, the conscription system should be non-discriminatory with respect to economic sectors. It is not clear if this was really the case, since information on which professions were over- or under-represented in the Bernese army are missing. In terms of expenditure, days served in the militia would count as special salaries, and the cost of equipment as military inventory. This would be categorised as expenditure for the *defence* function of the state.

With militia expenditure included, defence becomes by far the most important state function, covering 46.5% (1732) and 54.7% (1782) of current expenditure. If the expenses for the Geneva expedition are excluded from the 1782 figures, defence spending was 51.0% of current expenditure. These figures have to be qualified in two ways. First, their value cannot easily be compared to other states where military services had to be purchased. The frugal Bernese government would certainly have limited its defence budget if it actually had to pay for its army in cash. Second, when expressed in absolute terms, the Bernese figures were still low. Defence expenditure was equivalent of 8.9 (1732) and 16.5 (1782) tonnes of silver, which is a fraction of the hundreds of tonnes monarchical states paid for their standing armies.⁵⁹⁵

The fiscal burden on the Bernese population considerably increases if militia duties are included. The revised estimates are shown in Table IV-14.

	Total				per Capita				Share of Total Revenues	
	Million Bz		Silver (tons)		Bz		Silver (grams)		1732	1782
	1732	1782	1732	1782	1732	1782	1732	1782	1732	1782
Fiscal Burden	18.39	32.37	13.56	23.43	58.01	83.42	42.79	60.38	50.0%	62.2%
of which: Militia	11.45	19.91	8.45	14.41	36.12	51.31	26.64	37.14	31.1%	38.3%

Table IV-14: Revised Estimates for Fiscal Burden (including Militia)

Source: See Table IV-9 and Table IV-13.

⁵⁹⁵ Proxied by figures from the ESFDB: Multiplying the share of defence spending (see Figure VII-15) by overall expenditure from Körner (1995a): 401, the figures are as follows (in tonnes of silver, see years from Figure VII-15): Piedmont 17; Britain 2,500; Denmark 65-360; France 3,000; Prussia 112-485; United Provinces 439. These are very rough estimates with large error margins.

The fiscal burden increases by 165% (1732) and 160% (1782) with militia duties included (measured in Batzen). Probably a more accurate way is to add the 40 days of militia training per year to the average fiscal burden on the active part of the population of roughly 7-8 days' wages. Much like the fiscal burden in general, the main importance of the 'militia tax' was in its incidence. Serving more than a month per year in unpaid military training could be an important extraction of labour that represented considerable foregone earnings for many individuals.

The figures on militia duties presented here are highly dependent on the number of days served, for which there is only anecdotal evidence. As a result, they are little more than a 'back of the envelope' calculation. It would be interesting to consider regional differences in contributions to the militia in more detail, and to find more accurate estimations for the cost of equipment.

IV-6 Conclusion: Fiscal Redistribution

This chapter analysed how the Bernese state redistributed resources through its revenue and expenditure. The main source of data is a compilation of government accounts covering two sample years, 1732 and 1782. With regards to bailiff or county accounts, I have used a regionally weighted sample. For the calculations, units in which transactions were recorded were converted into stable monetary values, expressed in Batzen (Bz). The results have been discussed separately for different inflation rates for wages, foodstuffs and goods. Most measures indicate that the absolute amount of revenue and expenditure of the Bernese state increased between 1732 and 1782, but the figures show a fall when expressed in grain equivalents. This is the effect of grain inflation, which the government was shielded from by their transactions that were directly collected in grain. This was certainly the case for between one fifth and a quarter of the total amount recorded. On a per capita basis, the differences between the two sample years were small; the overall state budget per capita remained roughly the same.

I have analysed fiscal redistribution among the four dimensions factual (by nature of transaction), functional, sectoral and regional. In terms of the nature of transaction, the most important findings are that the Bernese state made a net profit in both years, which it proceeded to invest in financial claims and property. The returns

from previous investments also contributed significantly to the government's current revenue, mainly in the form of interest payments. Other important sources of revenue were the salt trade, tithes, land rents and indirect taxes. The latter increased substantially over time because of additional road tolls, which were in turn the outcome of previous infrastructure investments in road building. Current expenditure went to a broad array of categories, with salaries (c. 35%) and salt purchases (c. 20%) being the most important.

The most significant and distinguishing features of the Bernese republic only surface through comparison with other states. The absence of any debt servicing cost – the absence of a national debt – is remarkable, as is the low level of expenditure geared towards defence. This is confirmed by my analysis of redistribution by state function. In addition to revenue from finance and taxation, Bern had significant entrepreneurial returns; and its defence expenditure was low. Even in 1782, when a small military expedition to Geneva was launched, defence was only responsible for 6% of overall expenditure. The investigation of economic sectors which contributed to and profited from the Bernese fisc is challenged by the lack of information on professions, which results in a large number of unspecified records. For transactions which have sectoral information, the data show that resources were mostly levied from the primary sector and spent for the tertiary sector, with administration as the main beneficiary of state expenditure. This is an expected result, given the reliance of the Bernese state on tithes and land rents. Regional differences were also to a large extent caused by the traditional differences in feudal penetration. The relatively unburdened inhabitants of the Oberland generated significantly less government revenue per capita. While in Argovia, Seeland and Vaud revenue per capita grew from 1732 to 1782, they stagnated in the Oberaargau/Emmental region and fell in Oberland.

The fiscal burden on Bernese subjects increased from the equivalent of 3.6 days' wages in 1732 to 4.4 in 1782. In spite of an almost 50% increase, these figures are very low by comparison. Using 200 days' wages as a rough proxy for GDP, it would be the equivalent of a state quota of about 2%. Bernese subjects paid to their state about a third of what their French neighbours paid in taxes alone. Compared to a number of German states, the fiscal burden in Bern appears very low as well. However, as the militia army extracted resources in the form of forced labour which was not recorded in government accounts, these figures can be misleading. Based on

a rough estimate, militia duties increase the fiscal burden by 38%. It would therefore still be much smaller than in other European states. Since most revenue extraction was dependent on personal circumstances, average figures can give an inaccurate rendition of reality. Taxes were often levied on objects rather than people, as the examples of tithes or land rents illustrate. As a result, differences in fiscal burden were significant, but they are difficult to measure.

The wider implication of the findings in this chapter is that the financial scope for state-building was limited in Bern. While the government had more resources to spend in absolute terms, the increase was roughly at par with population growth. When measured in grain equivalents, its spending power even declined over time. In other words, the Bernese state in the eighteenth century was 'built' with stable resources. The government also forfeited the possibility of introducing new taxes on property, relying mostly on traditional methods of extraction such as tithes and militia duties. In addition, returns from entrepreneurial activities were very important contributors to state finance. This confirms the image of Bern as a physiocratic state, depending to a large extent on its revenue in kind. This role was combined with the Cameralist postulate of the state acting as entrepreneur.

V The State as an Overseas Investor

V-1 Chapter Content and Background

On 22 June 1720, Samuel Müller sold 261 shares of the South Sea Company on behalf of the Bernese government for £198,730 (c. 26.5m Bz) in London. These titles were bought for roughly a seventh of the selling price a year earlier. This made 22 June 1720 arguably the most profitable day for a Bernese treasurer since the battle of Grandson in 1467, when Swiss troops looted the war chest of Duke Charles the Bold of Burgundy.⁵⁹⁶ Unfortunately for Bern, Müller failed to deliver the spectacular profit and was declared bankrupt; most of the speculative windfall was lost. Even though it was not representative of the government's investment strategy, the episode of summer 1720 illustrates how important foreign investments had become for the Bernese treasury.

This chapter will investigate how Bern acted as an investor in overseas capital markets. The remainder of this section will provide the historical and technical background. In Section V-2, I will discuss the ideas behind the canton's first overseas investments, including the situation on the domestic capital markets, the origin of its first loans in 1710 and the transition to purely financial investments a decade later. Bern's reaction to the South Sea Bubble – the events of summer 1720 mentioned in the opening paragraph – is the focus of Section V-3. Section V-4 is an analysis of the portfolio's administration on the basis of principal-agent theory. Subsequently, I will consider the investment strategy of the canton using tools of portfolio analysis, before concluding the chapter. The contribution of foreign capital investments to overall Bernese state finance has already been covered by Section III-5 and will only be referred to briefly throughout this chapter.

Historiography, Data and Currency Conversion

Since Julius Landmann's seminal study of Bernese overseas investment over a century ago, the issue has received little scholarly attention.⁵⁹⁷ Landmann's findings have been integrated into several other studies, but have never been complemented

⁵⁹⁶ Deuchler/Bernisches Historisches Museum (1963).

⁵⁹⁷ Landmann (1903) and Landmann (1904).

with further analysis.⁵⁹⁸ William Monter's research on Swiss overseas investment in England even ignored the activities of the Bernese state completely.⁵⁹⁹ More recently, the collapse of the *Malacrida* bank, which was closely involved in overseas investments of the canton, has been studied in detail by Nick Linder.⁶⁰⁰ Béla Kapossy has investigated the impact of overseas lending on Bernese political thought.⁶⁰¹ I have published some of my research of Bern's dealings during the South Sea Bubble, along with a working paper on its role as an overseas investor, on which part of this chapter is based.⁶⁰²

The primary data for my analysis is drawn from a contemporary book entitled *Hisotire der Ausländischen Stands Capitalien* (History of the Foreign Capital of the State), written in 1776.⁶⁰³ The function of this document is not entirely clear; it was presumably intended to educate future government officials about one of the cornerstones of Bernese state finance. Landmann's study relies heavily on the text and offers a closely edited version of its core parts.⁶⁰⁴ In addition to the *Historie*, I have used the accounts of foreign funds and government reports on the topic.⁶⁰⁵ To set Bernese investments in the context of the *Financial Revolution* in northern Europe, I have relied on asset prices collected by other scholars, mainly from Larry Neal and Gary Shea.⁶⁰⁶

A major problem with establishing the value of Bernese overseas assets is the plethora of currencies that were used across Europe and which were only partly standardised in Bernese government accounts. Sums were recorded in Pounds Sterling, Reichstaler and Bernese Crowns separately because the relative values of these currencies were not stable. This is similar to the current system of floating exchange rates with the major difference being that slow and scarce information during the early modern period made the establishment of reliable exchange rates difficult. One option was the use of parity rates defined as the ratio between the

⁵⁹⁸ For example: Peyer (1968): ch. 3; Feller (1955): 106-109; Körner (1999).

⁵⁹⁹ Monter (1969).

⁶⁰⁰ Linder (2003); Linder (2004). See also the older publications on *Malacrida*, particularly Mülinen (1896).

⁶⁰¹ Kapossy (1998); Kapossy (2002).

⁶⁰² Altorfer (2003); Altorfer (2004a); Altorfer (2004b).

⁶⁰³ StABE B VII 2389.

⁶⁰⁴ Landmann (1903).

⁶⁰⁵ StABE B VII 2396-2473; StABE A V 1470-1490; StABE B I 107.

⁶⁰⁶ Their material is only partly edited: Neal (1990) and ICPSR Study 1008:

<http://webapp.icpsr.umich.edu/cocoon/ICPSR-PRA/01008.xml>; Shea (forthcoming-b). Many thanks to both authors for allowing me the use of their databases, as well as for their valuable comments on earlier drafts of this chapter.

bullion content of minted ‘heavy’ coins for two currencies. These ratios were relatively stable over time, but differed from market exchange rates whenever there was a premium on a specific currency. Unless otherwise stated, I will use parity rates throughout this chapter and convert all transactions into Bernese Taler (abbreviated with the symbol *Thl*), with one Taler being the equivalent of 30 Batzen. I have opted for the Taler rather than the Batzen because the former was the main currency in which foreign funds were recorded. For London investments, I will also use Pound Sterling (£). The parity rates used for conversion are shown in Table V-1.

Symbol	Currency	Place	Parity
Thl.	Taler	Bern	1
Kr.	Krone (Crown)	Bern	1.2
BE-Lb.	Pound (Bernese)	Bern	4
L.	Livre Suisse (‘alter Franken’)	Bern	3
£	Pound Sterling	Britain	0.225
R.	Reichstaler	Empire	1.153
fl.	Guilder (Imperial)	Empire	2
Hfl.	Dutch Guilder	Netherlands	2.5
Bz.	Batzen	Bern	0.333

Table V-1: Conversion of Currencies to Bernese Taler at Parity Rates

Sources: Furrer (1995); Körner/Furrer/Bartlome (2001); McCusker (1978); Schneider, J. et al. (1992); Tuor (1977). See also Section VII-13 in the appendix for other Bernese currencies.

Real exchange rates tended to diverge from the parity course in times of financial crises or war; the two often came together. In this situation, flows of funds from one currency to another altered the relative position of offer and demand and hence their relative price. This resulted in an increase in the exchange rate for the currency in low demand, for which a premium had to be paid. However, in peacetime, exchange rates stayed reasonably close to parity courses to justify their use.⁶⁰⁷

V-2 Towards a Productive Use of the Cash Reserve

By the turn of eighteenth century, the Bernese government had a sizeable cash reserve secured in its vaults. The reserve had originally been intended to serve as a

⁶⁰⁷ For the use of parities see also Ashton (1966): 188-196.

war chest but had outdated this function in two ways. First, the need for contingency in cash declined because of the growing possibility of resource mobilisation on capital markets and through loans. Second, because Bern never had to use its reserves, they continued to accumulate beyond the coverage of immediate needs. The government's hoarding of cash excluded funds from productive use and was therefore subject to opportunity costs. This section will compile an overview of how the government became increasingly concerned with putting its reserves to productive use. I will present my case chronologically beginning with the Bernese government's earlier attempts to invest on the domestic mortgage market to the loans of 1710 and their conversion into portfolio investments.

Early Investments from the Cash Reserve

In spite of the investments described in this chapter, the Bernese cash reserve served its original purpose as a war chest on a number of occasions. During the Neuchâtel succession of 1699, Bern opposed French aspirations and had to protect the principality by sending troops. An anonymous citizen from Bern penned a mocking letter to the French ambassador that the half-rotten money from the treasure would be unearthed to finance a militia that was in serious need. In his words *'pour faire manquer une couple de 100m ecus à nostre Canton qui en fera la depense sans beaucoup de peine puisque ces escus à demi moisés dans les coffres serviront à dresser et à excercer une milice, qui en a fort besoin.'*⁶⁰⁸ The second war of Villmergen against the Catholic cantons of the Swiss Confederation was also funded solely by a withdrawal from the cash reserve.⁶⁰⁹ As discussed in Section III-5, the military needs of the 1790s were mainly financed through the sale of overseas assets rather than the bullion from the government vaults.

Some government officials had realised that hoarding cash limited monetary circulation and might exert an adverse effect on state finance.⁶¹⁰ They also discussed this as a problem of the Bernese economy as a whole, arguing that an outflow of bullion was harming domestic trade. Their worries were largely unfounded, as I will explain in more detail below. At a time when the Bernese capital market was

⁶⁰⁸ Unknown Bernese citizen to Castella (11 January 1708), quoted from Feller (1912): 46 (note 1).

⁶⁰⁹ See Section III-5 above. Bern withdrew 437,500 Thl (13.125m Bz).

⁶¹⁰ Such arguments are also made for Prussia's treasure; see Henning (1974). He argues that hoarding cash has harmed the economy.

characterised by problems of abundance rather than shortage, the effects of a cash drain were probably minute. Contemporary authors cited the negative trading balance and scarcity of ‘good money’ as aggravating factors. This view was expressed in 1687 by the newly founded Commercial Council, which was a government chamber modelled after the French *Conseil de Commerce* under Colbert. In an exposé to the Great Council, the Commercial Council described money as the blood that kept the political body alive:

As the ordinary circulation of blood in the natural human body maintains the health and life of the natural human body, its congestion conversely causing illness and even death; so can the liquid wealth in money and circulating ready cash maintain the well-being of the political body of the republic; yet the lack of cash and poverty [can create] big inopportunities, and sometimes even its decline, as can be amply seen from history.⁶¹¹

The report then tried to establish a trading balance for Bern. All imported goods were listed and their value estimated at 700,000 Thl. This sum was set against virtually no exports. The Commercial Council added profits generated by the salt monopoly and the state administration to this negative balance for being ‘excluded from circulation, as if they were alienated outside the country.’⁶¹² To address the negative situation, the report proposed to encourage the settlement of Huguenot refugees, who would engage in commercial and industrial activities throughout the country. The ultimate goal of this policy was the export of manufactured goods. In spite of comparing the effects of the cash reserve to a cash drain, the report of 1687 did not suggest an investment, let alone an overseas investment. The government took more than two decades to come to this conclusion. When a visit to the vault in 1697 found that there was not enough money to support an army of 30,000 for a year, the Secret Council pondered over ways to achieve this objective.⁶¹³ Their suggestions are not known, but large-scale investments took another twelve years to materialise in the form of loans to the Dutch and British discussed below.

There were predecessors to these loans: from its early existence as a medieval city-state, Bern had lent money to noblemen in the surrounding areas. Subsequent

⁶¹¹ StAB B V 2: 47-52, quote: 47. The passage is quoted in Schneider, H. (1937): 35. For the use of similar metaphors from Locke to Quesnay, see Christensen (1994): 249-288 and Finkelstein (2000).

⁶¹² StAB B V 2: 48.

⁶¹³ See Section III-5 above for the episode of the 1697 inspection.

governments were well aware of the political leverage that could be exerted this way. The seizure of lands and titles that had been pawned as collateral for loans was one of the main expansion strategies for the nascent territorial state. The most impressive *coup* was landed in 1554/55, when Bern and Fribourg took over the lands of the Duke of Gruyère for failing to service his debts towards the two republics.⁶¹⁴ Lending money was both an investment and a political tool. This did not only apply at the inter-state level, but also within the state itself. Strategic loans buttressed clientelistic relations and enhanced political influence over subjects or rivals. Ulrich Pfister has argued that the financial dependency of borrowers on their lenders was more important than feudal links in early modern Switzerland.⁶¹⁵

Throughout the sixteenth century, Bern was heavily engaged in lending to other Swiss states and Protestants across Europe.⁶¹⁶ The French crown was also a recipient of funds which were largely generated by French payments for Bernese mercenary troops. The notorious credit habits of the French gave the Bernese government also some experience in dealing with reneging debtor states. The best solution was deemed to be avoidance of such loans, which the Bernese government did for most of the seventeenth century; though the French crown still maintained outstanding dues. This thorny issue was a constant point of contention between the Bernese and the French ambassador based in Switzerland.⁶¹⁷ Throughout the seventeenth and eighteenth century, claims on outstanding interest payments were usually settled by Bern demanding salt supplies for a few years, which were then delivered until the next default. In 1720, Bern estimated its claims against France at 630,000 Thl.⁶¹⁸ These debts were never repaid, nor did they yield any interest payments. The write-off is illustrated by the fact that neither the accounts for foreign funds nor the *Historie* document mentions a single claim on France. To the French, beyond their well-known financial problems, maintaining debts with the canton represented a tool for tempering anti-French feelings in Bern. The potential repayment of outstanding debts was viewed a trump-card in political negotiations. Overall, financial credibility was of little concern to both the Bernese and French when it came to the latter's loans. Things took an interesting turn in 1794, when the Bernese government was asked to

⁶¹⁴ Körner (1980); Körner (1995b).

⁶¹⁵ Pfister, U. (1992b).

⁶¹⁶ Körner (1980): 277-290.

⁶¹⁷ Feller (1955): 96, 329; Gern (1970): 174-175.

⁶¹⁸ Feller (1955): 329 (the exact figure was 2,524,786 BE-Lb). The debt had been re-negotiated in 1787: StABE B VII 2465/2.

register its loans for a conversion into paper money *assignats*. When confronted with the dilemma of either accepting the Revolutionary government or forfeiting its claims, the Bernese decided to wait and see. As a government report put it, it was ‘better to wait with patience for better times than to take a step that could have severe political consequences.’⁶¹⁹

Another option for investing funds from the cash reserve was the purchase of territories or jurisdictional powers which could be integrated into the republic. The problem was that such lands within close geographical proximity rarely appeared on the market. If a local title was put up for sale, patricians were often more interested in making a purchase for their own families rather than the state. The canton had acquired several small territories throughout the century, such as the County of Castelen in 1732.⁶²⁰ There had also been attempts in the 1700s to make the Emperor sell the Fricktal, a neighbouring county. Bern proposed to buy this territory, whereas the Habsburgs preferred to use it as collateral for a loan. The canton wanted to avoid having the Emperor as debtor because of his poor credit history and reputation for not paying interests regularly. During a second attempt to buy the Fricktal for Bern in 1737, only a political uprising prohibited the closure of a deal.⁶²¹

Finally, the government could also invest on the domestic capital market. With the virtual absence of commercial and industrial credit, this market consisted almost exclusively of mortgages, which the government had secured in its function as a lawmaker (discussed in Section II-6 above). Most of the mortgage credit was on agrarian land. Since patricians were important players in this market, there was a conflict of interest. In finding the best investment opportunities, patricians as private investors competed with the government which tried to find a productive use for the financial surplus of the state. The government significantly increased its domestic loan portfolio with the so-called *Auskauf* (buyout) of 1677. In that year, an edict declared the mortgage of Bernese lands to foreigners illegal.⁶²² The government offered to discharge the mortgages of all affected parties and lend them money at the conditions they had previously enjoyed. Put simply, the Bernese government evicted foreign lenders and took over their mortgages. The risk of default for these loans was

⁶¹⁹ StABE B VII 2465/57.

⁶²⁰ See the list in footnote 181 above. For Castelen, see also Section III-5 above.

⁶²¹ Landmann (1903): 80-97.

⁶²² Foreigners were defined as non-residents of the canton.

low because the foreign lenders had already screened their borrowers. The government took advantage of its law-making powers to acquire and secure a safe loan portfolio. The *Auskauf* had been funded by an *assignment* of 1m Bz from the salt trade account and the withdrawal of half this sum from the cash reserve.⁶²³ Compared to the overall size of financial transactions, the funds which could be invested in the domestic mortgage credit market were limited. From the late seventeenth century onwards, the state started granting loans to private borrowers and companies to stimulate domestic economic development.⁶²⁴ This exacted a negative effect on the capital market, as there were insufficient investment opportunities to absorb the credit on offer. Economists use the term *crowding out* to describe when government borrowing absorbs money that would ordinarily have been invested productively.⁶²⁵ In eighteenth-century Bern, there was a *reversed crowding out*, since the government was active as a lender, not as a borrower. The *Auskauf* of 1677 magnified this problem.

Government decrees and usury laws fixed the interest rates for mortgages in Bern (discussed in Section II-6). Philip T. Hoffmann, Gilles Postel-Vinay and Jean-Laurent Rosenthal describe a similar situation in eighteenth-century Paris as a ‘priceless market’.⁶²⁶ With interest rates fixed by law, the capital market could not be coordinated through the interest rate as the price for money. Information about the borrowers’ ability to service debt was crucial in lending decisions because investors could not apply a premium for riskier loans. As their only options, investors had to either lend at the fixed rate or withhold their funds, referred to as *credit rationing*.⁶²⁷ The main adverse economic effect of credit rationing is a lack of capital, which was not severe in the Bernese case, as there was a consistent oversupply in the market. Credit rationing only affected lenders, who failed to find sufficiently secure investment opportunities for their funds. With its jurisdictional and administrative records, the Bernese state benefited from the enormous information advantage it had over other investors. This information could also be utilised by individual government members who acted as bailiffs and wanted to enter the local capital market. As in the rest of the Swiss Confederation, a lack of productive investment opportunities curtailed the demand for capital. Combined with wealth accumulation

⁶²³ RQBE, vol. 7/1: 329-336; StABE B I 2: 94; Landmann (1903): 13-23; Altorfer (2006).

⁶²⁴ Landmann (1903): 13-23; Bodmer (1973).

⁶²⁵ Temin/Voth (2005).

⁶²⁶ Hoffman/Postel-Vinay/Rosenthal (2000).

⁶²⁷ Temin/Voth (2005); Hoffman/Postel-Vinay/Rosenthal (2000).

that was not hindered by war or taxation, this led to an oversupply of capital. The result was a massive capital export, facilitated by a banking sector specialised in these operations.⁶²⁸

From the situation of oversupply on the domestic capital followed the investment of funds in Paris, London, or Amsterdam by patricians. For the state to trail the same path, the decision making process was complex and solicited criticism both within the government and from outside. Abraham Stanyan shared the view of the Commercial Council about a lack of circulating money (discussed above) and was at the same time sceptical about the economic impact of foreign investment: ‘Whoever will take the Pains to compare their [i.e. Bern’s] Exportation, must by this Account cast up such a Balance against them, that he will rather wonder to find that there is any Money left in the Country, than that it is a poor one.’ Two centuries of peace may have enabled Bern to hold out against a capital drain, but bullion was scarce because of the public treasure ‘which, for want of Circulation, is lost to the Country [...] [and because of] the Want of Conveniences, in placing Money at Interest upon good Security, which forces the People to put it in foreign Banks; and so the Country is deprived of the use of it.’⁶²⁹ As mentioned in the previous subsection, in reality the canton suffered less from a lack of capital than from an insufficiency of productive investment opportunities.

The Loans of 1710

In 1709, the Secret Council was ordered to investigate investment opportunities for a ‘considerable sum of idle government money [...] for the drain to be stopped and [money] to be returned to the whole country.’⁶³⁰ The increasingly impersonal nature of public credit throughout the eighteenth century had reduced some of the earlier political importance of loans between governments and made investment for simple financial reasons possible. This transition was gradual, as the first foreign loans by Bern were motivated not only by economic, but also political goals. When the Great Council decided to start credit negotiations with Great Britain and the United Provinces in 1709, both these states were at war with the canton’s geopolitical

⁶²⁸ Körner (1999); Ritzmann (1973); HLS (2002), article *Kapitalmarkt*.

⁶²⁹ Anonymous [Abraham Stanyan] (1756): 165-166.

⁶³⁰ StABE A II 626: 19-20. The original words are: ‘eine Nahmhaffte Summa müßig liegenden Oberkeitl. Gelts [...] damit der außlauff gestoppet werden thut deß ganzen landts an gelt retroviert seye.’ The same argument was used in the *Historie* of 1776 (discussed below).

rival of the time, Louis XIV, in the extremely costly war of the Spanish Succession. Bern had a weak military alliance with the Dutch and was negotiating a defence treaty with Britain which never materialised. The *spiritus rector* behind these activities was Mayor Johann Friedrich Willading, leader of the anti-French party in the government and also the wealthiest citizen of Bern.⁶³¹ Support for fellow Protestants was fuelled by religious solidarity as well as personal contacts with Holland through mercenary regiments. The Queen of England finally received a credit of £150,000 (666,666 Thl) from Bern against yearly interest payments of 6%, guaranteed by future revenue of taxes on wine and other consumables.⁶³² As for the Dutch loan, the treasury in the Hague issued six bonds on the republic of Holland, each worth R. 100,000 (115,300 Thl), with a maturity of 15 years at 4% interest.⁶³³ The final sum granted was almost a fifth in excess of the sum that the Great Council had originally intended to lend overseas (1m Thl).⁶³⁴ The difference in interest rates is remarkable and was a risk premium that Britain had to pay for its less sound financial administration.⁶³⁵

The transfer of money to its destination proved to be a complicated matter, since bills of exchange from Bern to Holland or London could not be easily purchased. According to Markus Denzel, none of the Swiss cities was integrated into the European system of exchange.⁶³⁶ This was mainly a result of the low level of commercial activity which rarely required facilities for large overseas payments. The purchase of bills of exchange directly from merchant bankers would only be possible with exorbitant handling fees. For the loan to Queen Anne, her ambassador to Protestant Switzerland, Abraham Stanyan, was willing to receive the £150,000 in cash on her behalf.⁶³⁷ He could then transfer the funds to Italy where it was used to pay Britain's allies. The Dutch on the other hand, insisted that Bern pay the loan directly to their treasury in the Hague.

⁶³¹ Willading owned Bank stock since 1701: BERO AC27 423:4057. For the political situation: Feller (1955): 195-240 and Fischer, H.R.v. (1927).

⁶³² StABE B I 94: 194 and StABE B VII 2389.

⁶³³ StABE B VII 2389; Landmann (1903): 24-30; see also Altorfer (2003).

⁶³⁴ The actual loans cost 1.232m Thl because of favourable exchange rates: StABE B VII 2389 and StABE B I 94: 194.

⁶³⁵ This is also interesting in the light of discussions about the impact of the Glorious Revolution on borrowing costs: North/Weingast (1989); Epstein (2000): ch. 2; Sussman/Yafeh (2003).

⁶³⁶ Denzel (1998). He measures market integration by the regularity of published exchange rates, which is a proxy at best.

⁶³⁷ StABE B VII 2389. It was the same Abraham Stanyan who wrote an anonymously published *Account of Switzerland* a few years later (see footnote 219 above).

The Bernese envoy to the peace negotiations in the Hague, François Louis de Pesmes de Saint Saphorin, relied on information from Dutch merchants and advised the government on this matter. St Saphorin's correspondence with Mayor Willading presents interesting information about financial transactions in the height of the *Financial Revolution*.⁶³⁸ St Saphorin devised a sophisticated plan for transferring the funds to their destination by purchasing bills of exchange on Amsterdam in Genoa, making a profit on favourable exchange rates along the way (see Figure V-1).

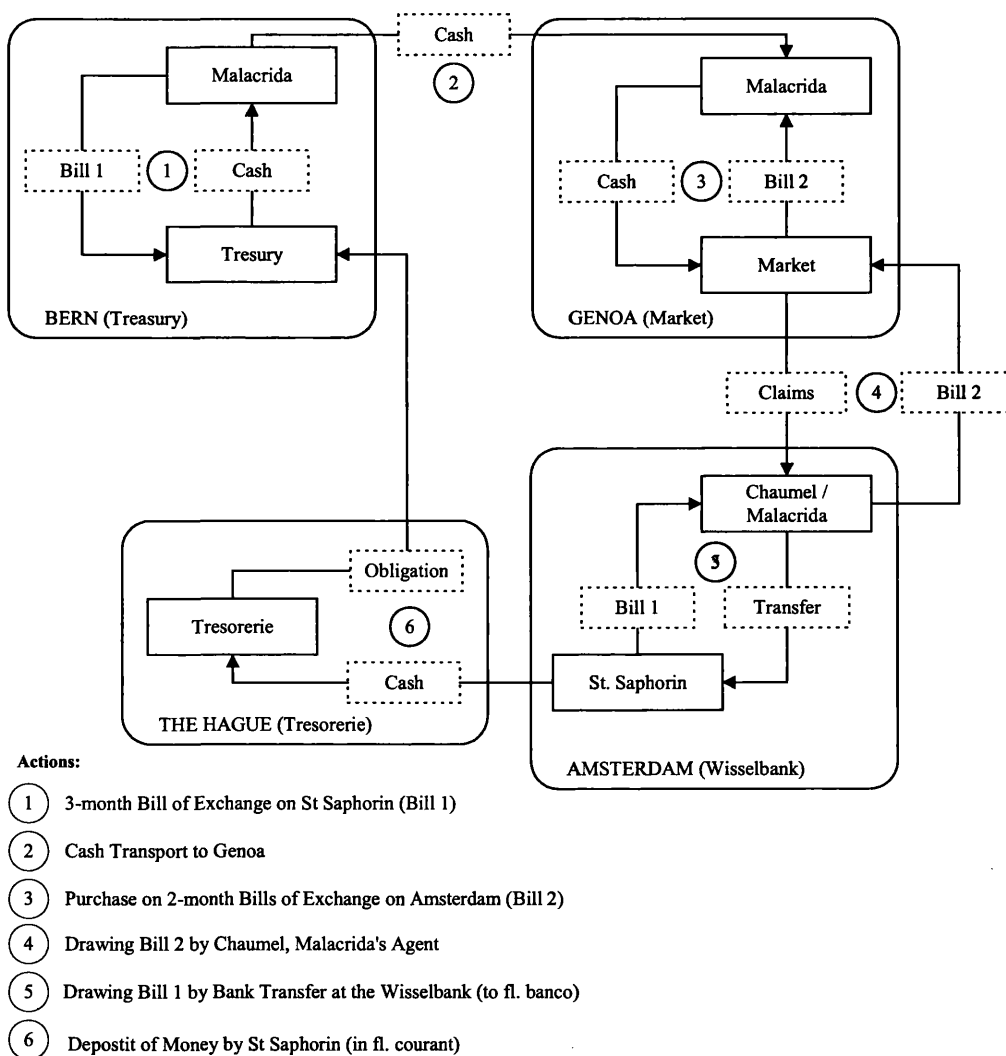


Figure V-1: Transferring Money from Bern to Amsterdam for the 1710 Loan

Source: based on *Livre Argent Anabaptistes* (StABE B I 94). See also Altorfer (2003): 65 (Fig. 1).

⁶³⁸ StABE B I 107. See also Altorfer (2003).

St Saphorin suggested a cash transfer to Genoa, where bills of exchange drawn on Amsterdam could be bought on the open market. The government was careful not to disrupt the exchange rate by transferring too much money at a time. It also kept the market uninformed since an anticipation of the money transfer by speculators would entail a deterioration of conditions for the exchange. The government worked closely with the only bank in Bern, *Malacrida & Comp* for this operation. The bank was founded by patricians who were barred from holding office for religious reasons.⁶³⁹ With the ongoing war in Italy, money to pay troops was scarce and thus highly valued. This allowed the purchase of bills of exchange on Amsterdam at a premium as these funds ran against the general flow of transfers. In peacetime, the reverse situation would be expected because the Italians had a negative trading balance with the Dutch and English. Thus, Bern profited from an *agiotage* profit on the transfer.⁶⁴⁰ For the second instalment of the Dutch loan, Stanyan received £100,000 in cash against bills of exchange drawn on London, from where the money could be easily transferred to Amsterdam. This second route was riddled with problems, as the English defaulted on their bill payment.⁶⁴¹

As discussed in Section III-4, the loans of 1710 comprised the largest single transaction undertaken by the Bernese government in the eighteenth century and had a large impact on its cash reserve. But while the loan capital was important to the canton, its amount was miniscule compared to the size of the British national debt, which had increased by £37.29m during the war of the Spanish succession. The overall debt was roughly 250 times greater than the Bernese loan.⁶⁴² Even in per capita terms, that difference was significant. In 1722, the British national debt per (British) capita was c. £10.5, whereas Bern invested c. £0.5 per (Bernese) capita in London.⁶⁴³ For other comparative figures for the 1710 loan to Britain, see Table V-2.

⁶³⁹ For a more detailed description, see Altorfer (2003). For *Malacrida & Comp.*, see Section V-4 below and Linder (2004).

⁶⁴⁰ In this context, the Italian word *aggio* refers to the difference between the actual exchange rate and their parity rate that is based on the bullion content of coins.

⁶⁴¹ See Altorfer (forthcoming) for details.

⁶⁴² Hamilton (1947): 127; see also O'Brien/Hunt (1999); Brewer (1989); Ferguson (2001).

⁶⁴³ The total value of Bernese foreign investment was therefore about £1 per capita in 1710-1720; it was about £2.15 in 1764 and had fallen to £1.35 by the time of the French invasion. The British per capita figures are based on a national debt of £55.283m (in 1722) and a population of 5.25m.

Sum (£)	Incident	Ratio	Source
150,000	Loan to England	1.00	StABE B VII 2389
98,438	Second War of Villmergen 1712	0.66	Feller (1955): 318
142,020	Bernese Claims on France 1720	0.95	Feller (1955): 98
16,395,000	British National Debt 1713	357.87	Hamilton (1947): 127
55,283,000	British National Debt 1722	368.55	Hamilton (1947): 127
9,177,968	Capital South Sea Comp. 1711	61.19	Neal (1990): 52
38,564,180	Capital South Sea Comp. 1720	257.09	Neal (1990): 52
< 118,000	Swiss Investors in London 1712	0.79	Monter (1969): 290-291
123,491	Assets of Peter Henriquez jun. 1709	0.82	Dickson (1967): 263

Table V-2: Comparative Figures to Bernese Loan to England in 1710 (all in £)

Sources: see Table. *Ratio* is the relation between the sum and the Bernese loan to England.

If Bern became one of the largest single investors in the London capital markets, at least until the middle of the century, this was also because the market had become extremely fragmented as a result of the *financial revolution*. When the canton lent Britain £150,000 in 1710, even the wealthiest individuals of the city were worth considerably less. The biggest investor mentioned by Peter Dickson was Peter Henriquez Jr., a member of the ‘cosmopolitan mercantile plutocracy of the City’, with total assets worth £120,000 (excluding any South Sea stock for which there is no information).⁶⁴⁴ The total Swiss investment in London according to William Monter was £25,000 in 1709 and slightly more than £150,000 in 1718. In 1712, Bernese citizens held £16,813 in Bank stock and subjects from Vaud an additional £8,705 in shares of the *East India Company*.⁶⁴⁵ The ledgers of the *Bank of England* account for £9,446 shares in possession of Bernese citizens in 1720 and £11,920 in 1725; Vaudois holdings were £3,924 and £6,001 respectively.⁶⁴⁶ As the stock ledgers of the *South Sea Company* have not survived, holdings and transaction of individual investors in these securities cannot be traced. The only available record for 1723 shows 44 shareholders who were citizens of Bern, with total assets of £35,126 compared to the canton with £235,000 (discussed below).⁶⁴⁷

⁶⁴⁴ Dickson (1993): quote 263. The assets of Peter Henriquez jun. in 1709 were: £20,500 Lottery Annuities, £46,591 East India stock, £25,500 Bank stock (plus £20,500 new subscription in 1709).

⁶⁴⁵ Monter (1969): 290-291. His numbers include Lottery Annuities, Bank and East India stock, but not South Sea stock.

⁶⁴⁶ This data is from Ann Carlos and Larry Neal, based on the Bank stock ledgers from the BERO [see also Carlos/Neal (2006)]. The authors have kindly supplied me with this information.

⁶⁴⁷ The BERO possesses the only list of shareholders of the *South Sea Company*. It is a subscription list for the capital split in midsummer 1723. I thank Larry Neal for letting me use his database of investors for this query.

Investment on Foreign Capital Markets

Malacrida & Comp played an important role as advisors when the government made a significant change in its investment strategy in April 1719. For the first time in its financial history, Bern bought shares of a private company on the capital market.⁶⁴⁸ Less than a decade earlier, treasurer Alexander von Wattenwyl had written to St Saphorin that English shares were not suitable for the canton: '*Les actions en Angleterre, quoy que d'un profit considerable, nous paraissent requerir trop de mouvements et de soin – de sorte que nous ne pensons point d'en acheter.*'⁶⁴⁹ It is not clear what caused the government to change its view. The Great Council was informed that the loan to Queen Anne would be redeemed prematurely as part of a conversion scheme of the British national debt in January 1719.⁶⁵⁰ As Bernese protests to the English ambassador were futile, the government had two options: to withdraw its money or invest it in securities of the chartered companies that managed the British national debt. For the latter, a Bernese government report to the Great Council proposed to buy *5%-Lottery Annuities*, a parliamentary fund 'and solid as nothing else.' Stocks of the *Bank of England*, the *South Sea Company*, or the *East India Company* were not advised since they were all 'subject to revolutions [i.e. changes in price].'⁶⁵¹ *Muller & Comp*, the partner of *Malacrida & Comp* and Bern's banker in London, did not carry out the orders from the Great Council to purchase Land Tax tallies. Instead, they recommended a purchase of South Sea stock.⁶⁵² The government decided to purchase some shares 'as a test' initially, and eventually invested the entire £150,000.⁶⁵³

In this way, Bern joined the ever-increasing circle of investors in joint-stock companies which were mostly engaged in government financing. Their emergence had been a result of the so-called *Financial Revolution*.⁶⁵⁴ Investors could profit from

⁶⁴⁸ Bern had already bought Bank stock from interest payments in 1711 because the exchange rate was unfavourable. These assets were sold shortly afterwards and the money transferred to Bern: StABE A II 631: 188.

⁶⁴⁹ Wattenwyl to St Saphorin (29 January 1710): StABE B I 2: 204-208 (quote: 208). Willading had suggested to buy English funds: Willading to St Saphorin (27 October 1709): StABE B I 107.

⁶⁵⁰ Dickson (1993): 84-89.

⁶⁵¹ StABE A V 1506: 38.

⁶⁵² StABE B VII 2389; PRO C 11/483/2.

⁶⁵³ StABE A VII 665: 358. The original words were: '*zu einem probier streich.*'

⁶⁵⁴ For the *Financial Revolution*, see in particular Dickson (1993); Roseveare (1991); Tracy (1985); see also footnote 98 above.

an array of innovations that had enabled capital markets to expand rapidly in width and depth. At the root lay a system of government finance based on parliamentary commitments to secure the national debt with regular interest payments. This 'funded' national debt was then issued in tradable securities, such as annuities or bonds. In a second step, the British government started to sell its debt to private joint-stock companies rather than on the open market. Joint-stock companies, like the Bank of England and the South Sea Company, were privileged by parliamentary edicts and enjoyed close ties with important government officials.⁶⁵⁵ They financed the takeover of public debts by floating shares on the capital market. Such a debt-for-equity swap had the advantage that investors did not have to buy government debt directly but could purchase shares in companies instead. These shares were easier to resell, hence investors benefited from a liquidity premium for which they were willing to pay lower interests than for direct loans to the government itself which were comparably cumbersome to trade and administer.⁶⁵⁶ The advantages for the government were the lower interest payments which ultimately allowed the pursuit of geopolitical interests through borrowing on an unprecedented scale.⁶⁵⁷ The price was a commitment to play by the rules of the capital markets: paying interests regularly and not reneging on public debt were supposed to maintain the government's reputation and credibility.⁶⁵⁸

As a function of these developments in public credit and the financial innovations related to long-distance trade, Amsterdam and London had emerged as the most advanced and important European financial markets of the eighteenth century.⁶⁵⁹ The two cities were well integrated through a reliable network of payments, information and legal action.⁶⁶⁰ Beyond this London-Amsterdam axis, capital markets were still badly integrated and information communicated slowly. Because the innovations were so radical in character, 'teething problems' were unavoidable and financial crises appeared to loom around every corner. Depending on an author's standpoint with respect to market efficiency theory, crises are either the outcome of irrational speculative manias and exuberances (Kindleberger, Chancellor), or a reaction to the uncertainties linked to economic transition and thus the necessary

⁶⁵⁵ Carswell (2001) stresses the political differences between Whig supporters of the Bank of England and Tories in support of the South Sea Company.

⁶⁵⁶ Neal (1990): 1-19.

⁶⁵⁷ Brewer (1989); Ferguson (2001); O'Brien (1988); O'Brien (2001).

⁶⁵⁸ Neal (2000): 124. See also the discussion of North/Weingast (1989) in the introduction (Section I-2).

⁶⁵⁹ For the latter: North (1991). See also Section I-2 above.

⁶⁶⁰ Neal (2000).

and useful learning experiences on the way to a sounder financial system (Neal).⁶⁶¹ Even with the benefit of hindsight it is often difficult to separate change from crisis. Contemporary observers are not always congruent with statistical indicators; their writing is often biased and had a tendency to over-dramatise.⁶⁶² Rumours about Britain not being able to service her national debt were common, with David Hume being among the most prominent advocates of a voluntary state bankruptcy.⁶⁶³ In spite of all these inconveniences and uncertainties, the new capital markets offered relatively safe investment opportunities. Compared to investments in land, trade or foodstuffs, financial investment was the best way to generate regular and reliable returns, an opportunity that the Bernese government was anxious not to miss.

As a government-cum-shareholder, Bern was almost unique. Some other Swiss republics had followed its example, but on a considerably smaller scale.⁶⁶⁴ The only state that possibly preceded Bern in foreign investment was the canton of Solothurn. As early as 1698, this state held bonds of the Paris City Hall, most of which became worthless during the Mississippi crisis of 1720. It is unclear from the sources if these bonds were purchased on the capital market or simply obtained through debt conversion. As the closest ally of the French king within the Swiss Confederation and host of his ambassador, it is likely that Solothurn's investment was more political than financial in nature.⁶⁶⁵ There were a number of other institutional investors from Bern itself, such as the butchers' guild, which held South Sea Company shares after 1725, as did associations and family funds. Although there are no detailed studies about this issue it can be argued that these institutions followed the example of the government belatedly and on a smaller scale.⁶⁶⁶ The same is true for individual investors from Bern. Monter mentions one single Bernese shareholder of the Bank of England in 1709 (although there were at least two in reality) and 15 in 1712.⁶⁶⁷

⁶⁶¹ Kindleberger (1989); Chancellor (1999); Neal (1990); Neal/Weidmenmier (2002).

⁶⁶² For a possible definition of financial crises: Kindleberger/Laffargue (1982): 2; See also Hoppit (1986): 39-42 and for a critical view Garber (2000). The literature on early modern financial crises is abundant. For a selection, see: Ashton (1959); Kindleberger (1989); Neal (1990); Flood/Garber (1994); Chancellor (1999); Schnabel/Shin (2004); Duckenfield/Altorfer/Koehler (2006), vol. 1.

⁶⁶³ Hume (1994): 166-178; see also Hoppit (1990) and Hont (1993).

⁶⁶⁴ Veyrassat (1982): 290-291 (Annexe 2); Büchli (1916); 82-85; Peyer (1968): 30-33.

⁶⁶⁵ Büchli (1916). For the conversion schemes: Bély (1996), article *Rentes sur l'hôtel de ville*.

⁶⁶⁶ BBB ZA Metzger 19 and 1121; See also Schläppi (2001): 398; Capitani (1985): 77; Zesiger (1910): 143-145. Guilds were also amongst the creditors of *Malacrida & Comp* (discussed below): StUB H XXII 117.1 (8). For investment by the von Wattenwyl family fund: Braun, H. (2004): 155-162.

⁶⁶⁷ Monter also misspells the name of the first Bernese holder of Bank stock (Graffenreid instead of Graffenried), which might be due to a spelling error in the original ledger. In addition to the citizens

According to the stock ledgers, there were 13 Bernese holding Bank of England stock in 1720 and 20 in 1725.⁶⁶⁸ Other institutional investors in London were from the United Provinces. Dutch orphanages, hospitals, or family funds often held English assets.⁶⁶⁹ Another state that participated in the London capital market of the late eighteenth century was Hesse-Cassel, where the Landgrave purchased stocks using the proceeds from selling mercenary troop services to Britain. Interestingly, the Landgrave himself had obtained loans from Bern in 1738-1750 and 1758-1763. Another credit request was declined in 1774 because, as an internal report put it, ‘this court [has] too big a war machine and is not sufficiently economical [with its resources].’⁶⁷⁰

To sum up this section, by investing abroad, the Bernese government had drawn the ultimate conclusion from the dilemma it faced through limited domestic investment opportunities and the resulting low returns. Since it tried to limit the unproductive hoarding of cash in its vaults and could not invest at home, going overseas was the only option left. While the first foreign loans had to a large extent been politically motivated, their conversion to purely financial investments was not. This was facilitated by innovations which made capital markets more impersonal and secure.

V-3 Reaction to Crisis: The South Sea Bubble

Problems of investor behaviour often become most tangible in times of crisis. In studying crises however, a potential bias of tradition should be kept in mind. Contemporaries – and historians – are more likely to register extraordinary events than uneventful ones which are considered regular business. As Edwin Perkins noted,

from Bern, there were 10 subjects from Vaud who held shares of the *East India Company*: Monter (1969): 290 (note 3) and 291. The other investor in Bank stock was Mayor Willading (see footnote 631 above).

⁶⁶⁸ In addition, the Bank had 8 Vaudois shareholders in 1720 and 9 in 1725. This data is from Ann Carlos and Larry Neal, based on the Bank stock ledgers in the BERO [see also Carlos/Neal (2006)]. The sums held are discussed below.

⁶⁶⁹ Carter (1975) and Wilson, C. (1941).

⁶⁷⁰ Landmann (1903): 75 (quote) and 54-58. The original quote is: ‘weil [...] dieser Hof einen allzugrossen Kriegsstaat und nicht genugsame Ökonomie führe.’ For Hesse-Cassel: Ingrao (1987) and Ferguson (1998): ch. 2 (60-80).

‘the bad guys get all the ink.’⁶⁷¹ This section will analyse the government’s reaction to financial crises using the example of the South Sea Bubble of 1720, which was mentioned in the opening paragraph of this chapter. This crisis had a substantial impact on where and how Bern invested its money abroad.⁶⁷²

The difficulties of defining and interpreting financial crises have already been discussed.⁶⁷³ The South Sea Bubble of 1720 was one of the most dramatic financial events of the century, particularly for those involved in government securities.⁶⁷⁴ The crisis was driven by the issue of shares by the *Governor and Company of the Merchants of Great Britain trading to the South Seas and other Parts of America and for Encouraging the Fishery*. In spite of its name, the main activity of the South Sea Company was the administration of the British national debt.⁶⁷⁵ The company had secured a contract for taking over all government short-term debt in 1719, which was later extended to large parts of the remaining government debt. This was an example of the debt-for-equity swap which was described earlier. The company released four subscriptions for government debt holders to sign up for South Sea stock between April and August 1720.⁶⁷⁶ Since the term of conversion between government debt and South Sea stock was not fixed, the company directors had an interest in boosting share prices, which translated into a more favourable conversion price. All instruments available, legal and otherwise, were used to convince investors that trading their claims on the government for South Sea stock would be profitable. This was certainly the case for as long as share prices rose until June 1720. When it became apparent that the company directors could not honour their commitments, the bubble burst and South Sea share prices fell rapidly. Figure V-2 shows market prices for South Sea Company shares in 1720 as noted in *Castaing’s Course of the Exchange*, edited by Larry Neal.⁶⁷⁷ Prices between 24 June and 22 August are not

⁶⁷¹ These words were used by Perkins (2003).

⁶⁷² This section is based on Altorfer (2003) and Altorfer (2004b).

⁶⁷³ See previous Section (V-2) and footnote 662 in particular.

⁶⁷⁴ For Hoppit, the South Sea Bubble had little impact on the rest of the economy, except for those inexperienced investors who suffered most. He argues with the number of bankruptcies of non-landholding proprietors: Hoppit (1986): 47–48.

⁶⁷⁵ For the non-financial activities of the *South Sea Company*: Paul (2004).

⁶⁷⁶ For details: Shea (2004a); Shea (2004b).

⁶⁷⁷ Neal (1990): appendix. Daily courses are from ICPSR Study 1008:
<http://webapp.icpsr.umich.edu/cocoon/ICPSR-PRA/01008.xml>.

spot prices, but forward prices for the opening of the books, as the company closed its transfer ledgers between these dates.⁶⁷⁸ Vertical lines represent the four subscriptions.



Figure V-2: Share Price of the South Sea Company and the Assets of Bern, 1720

Sources: Neal (1990): appendix, based on *Castaing's Course of the Exchange*; daily courses are from ICPSR Study 1008: <http://webapp.icpsr.umich.edu/cocoon/ICPSR-PRA/01008.xml>. The nominal value of a South Sea Company (=SSC) share was £100. Prices from 24 June until 22 August are forward prices for the opening of the books: Neal (1990): 101 (see also footnote 678). Vertical lines are for subscriptions.

To Larry Neal the South Sea bubble, in conjunction with the virtually parallel Mississippi crisis in Paris, was ultimately the result of converting fixed-interest, irredeemable national debt into tradable, variable-yield securities. The bubble occurred because of problems with the adaptation of new market instruments. In the beginning, during the 'rational bubble,' the share price rose because investors were prepared to pay a high liquidity premium for these securities.⁶⁷⁹ The crisis laid the basis for London's international capital market: 'The South Sea Bubble proved to be the "big bang" for financial capitalism in England.'⁶⁸⁰ This interpretation is rejected by Edward Chancellor, who argues that the liquidity premium could not have been so great as investors with a desire for liquidity before 1720 could have held other assets

⁶⁷⁸ Neal (1990): 101. For the discussion on forward prices, see the exchange between Dale/Johnson/Tang (2005) and Shea (forthcoming-a).

⁶⁷⁹ Neal (1990): 62-71.

⁶⁸⁰ Neal/Weidmenmier (2002): 10-11 (quote: 11).

like Bank of England or Million Bank shares. The attempts of the South Sea Company in 1720 were not the first to convert public debt into private stock either.⁶⁸¹ Since the company had no prospects for profitable trade, the value of its shares was derived entirely from government payments that would fix it around £150. For Chancellor, the bubble was therefore entirely irrational and speculative; it was nothing but an investment strategy in which everyone hoped to find a ‘greater fool’ who would pay a higher price for shares later.⁶⁸² Most economists tend to agree with Neal’s view.⁶⁸³

When Bern bought South Sea Stock in April 1719, the Great Council had expected an increase in share price if Britain could overcome the commercial war with Spain and negotiate a peace.⁶⁸⁴ The government was surprised by the actual rise in share prices, which it did not anticipate to be on such a scale.⁶⁸⁵ When *Muller & Comp* reported in April 1720 that prices in London were rising dramatically, the Great Council decided to sell its shares.⁶⁸⁶ On 22 June, the day before the books of the *South Sea Company* were closed for dividend payments and when the share price was almost at its apex, Bern sold its South Sea stock, resulting in a profit of almost 660% compared to the original cost of its investment! Calculated on a yearly basis, the 261 shares sold that day made a staggering return of 571.2%. The last orders from Bern were to sell the remaining stock at prices between 1,200% and 1,500% of par (see Table V-3).

date N.S.	date O.S.	order			carried out		
		shares £100 each	remains £100 each	price £100/share	shares £100 each	date (O.S.)	price £100/share
12/04/1720*	01/04/1720	600	700	240	600	22/04-20/06	365.26
14/06/1720	03/06/1720	200	500	(best)			
19/06/1720	08/06/1720	200	300	481	261	24/06/1720	761.41
26/06/1720	15/06/1720	300	0	800	0	(not carried out)	
21/08/1720	10/08/1720	239	200	1200	0	***	
21/08/1720	10/08/1720	200	0	1500	0	***	
23/09/1720	12/09/1720		0	1000	0	***	

Table V-3: Bernese Orders to Sell South Sea Stock 1720

⁶⁸¹ Such debt-for-equity swaps had occurred in 1697 (Bank of England), 1711 and 1719 (South Sea Company). The first South Sea conversion even led to a fall in the share price: Chancellor (1999): 93.

⁶⁸² Chancellor (1999): 92-95. In his critique, he fails to cite Neal’s most important work [Neal (1990)].

⁶⁸³ In particular: Garber (2000); Temin/Voth (2004).

⁶⁸⁴ StABE A II 666: 37-39. For the brief war and the peace with Spain: Dickson (1993): 90-156.

⁶⁸⁵ For share prices: Neal (1990): appendix.

⁶⁸⁶ StABE A II 670: 77.

Sources: StABE B VII 2389; StABE A II 670; PRO C 11/483/2. *O.S.* is for dates in old style (Julian calendar, used in Britain), *N.S.* is for new style (Georgian calendar, used in Bern). *Shares* is for the amount of shares concerned by the order, *remains* is the number of Bernese shares after the order was carried out.

The final Bernese orders reached London when share prices had already started to fall.⁶⁸⁷ The South Sea share price never reached the levels at which Bern intended to sell its remaining stock. In Figure V-3, the Bernese assets are compared with the South Sea Company share price from Figure V-2.

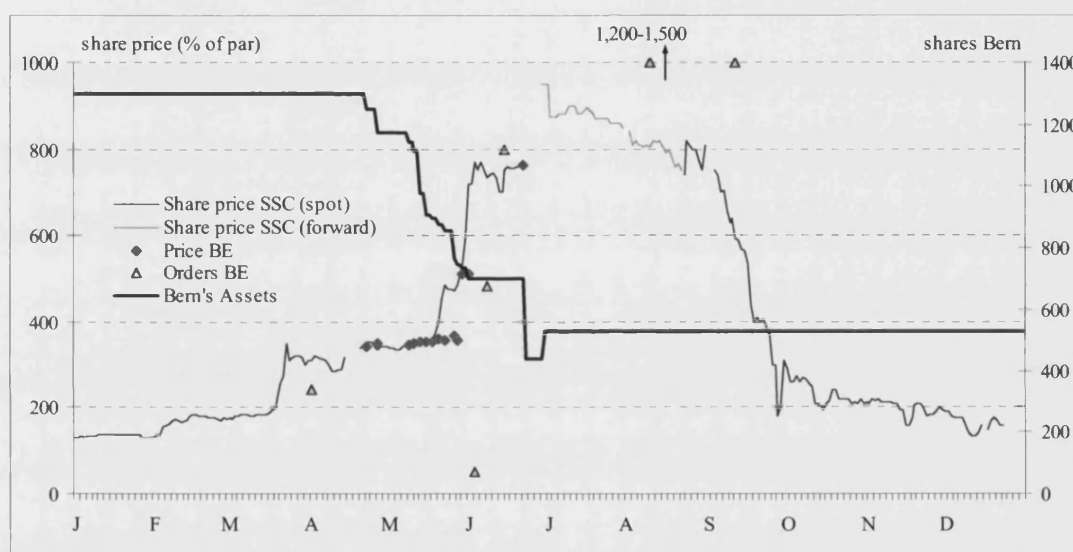


Figure V-3: Share Price of the South Sea Company; Assets and Orders of Bern, 1720

Sources: South Sea share prices as Figure V-2 (see discussion there); Bernese assets from StABE B VII 2389. For a list of orders, see Table V-3.

By the end of June 1720, the canton had made the enormous profit of £416,558. Bern, which ironically has the bear as its national symbol, followed a highly successful bull strategy during the bubble. To outsiders it seemed like a splendid operation: King George congratulated the republic for its financial operations and *Applebee's Weekly Journal* blamed it as a foreign profiteer of the speculative mania.⁶⁸⁸ However, the qualitative evidence from Bernese government archives paint quite a different picture. The success was largely unintended and its stark contrast to

⁶⁸⁷ StABE A II 671: 2, 22, 62, 284.

⁶⁸⁸ StABE A II 670: 292-293; *Applebee's Weekly Journal*, 16 July 1720; See also Dickson (1993): 150 (who misinterprets it as a wrong rumour) and Carswell (2001): 137 (note 29).

well-informed speculators like *Hoare's* bank which was actually 'riding the bubble' cannot be exaggerated.⁶⁸⁹ The motivation for the Bernese sale was a worry that the sudden rise in share prices could render the investment unsafe.⁶⁹⁰ Thomas Manning, the English ambassador in Bern at the time, also shared this view. On 19 June 1720, he wrote to his secretary of state James Craggs about the government of the canton:

Their apprehension that a fall of the stock may be as sudden and as great as the rise has been[,] has caus'd this resolution [to sell the shares]. [...] Contented with their present gain and distrustful of the future, they think it a wise part to secure the former, and not to tempt their fortune, or rely wholly upon the latter.⁶⁹¹

During the summer of 1720, the Bernese were badly informed and constantly lagged behind current market developments. In fact, most of the profit was made because of the time that orders took to be transferred to Britain and carried out. The canton at first benefited magnificently from opportunistic behaviour of their London agent *Muller & Comp* who had expected prices to rise further and therefore delayed the sale of shares.⁶⁹² To the English public, however, this was of little importance. In February 1721, two members of the Bernese government wrote home from London that 'everywhere people complain that the machinations of the South Sea directors has caused big losses in England [...] and some speak [...] more than we would like about the profit that our estate [i.e. Bern] is said to have made.'⁶⁹³

Most of the windfall which was made during the summer of 1720 was lost in the bankruptcies of *Muller & Comp* in London and *Malacrida & Comp.* in Bern.⁶⁹⁴ They had used the canton's shares as collateral for speculative credits without consent of the principal. This happened despite the fact that the bankers were members of government families and risked drastic consequences for their families' wealth, influence and honour.⁶⁹⁵ As a first reaction to this crisis, the government sent two representatives to London to manage its foreign assets. One of them, Samuel

⁶⁸⁹ See Temin/Voth (2004).

⁶⁹⁰ StABE A II 67: 77.

⁶⁹¹ Manning to Craggs (19 June 1720): PRO 95/50.

⁶⁹² PRO C 11/483/2; Altorfer (2004b); Linder (2004).

⁶⁹³ Morlot/Tscharnier to Sinner (6 February 1721): BBB Mss. Hist. Helv. III 89.

⁶⁹⁴ Linder (2004).

⁶⁹⁵ For the concept of honour see Muldrew (1998). After the bubble, all property of the *Malacrida* associates was confiscated and they were banned from the city.

Tscharner, was appointed *Commissioner for the English funds* soon after, a newly introduced office that existed until 1765 (discussed in the next section).⁶⁹⁶

The reason why Bern did not choose the more drastic solution of a complete withdrawal from foreign capital markets was because the government had only lost a speculative profit and not the invested capital. The canton made an overall profit, as can be seen from Figure V-4, which shows the value of Bernese investments in London from 1719 to 1724 on a monthly basis. Market values were calculated with data from *Castaing's* published by Neal.⁶⁹⁷

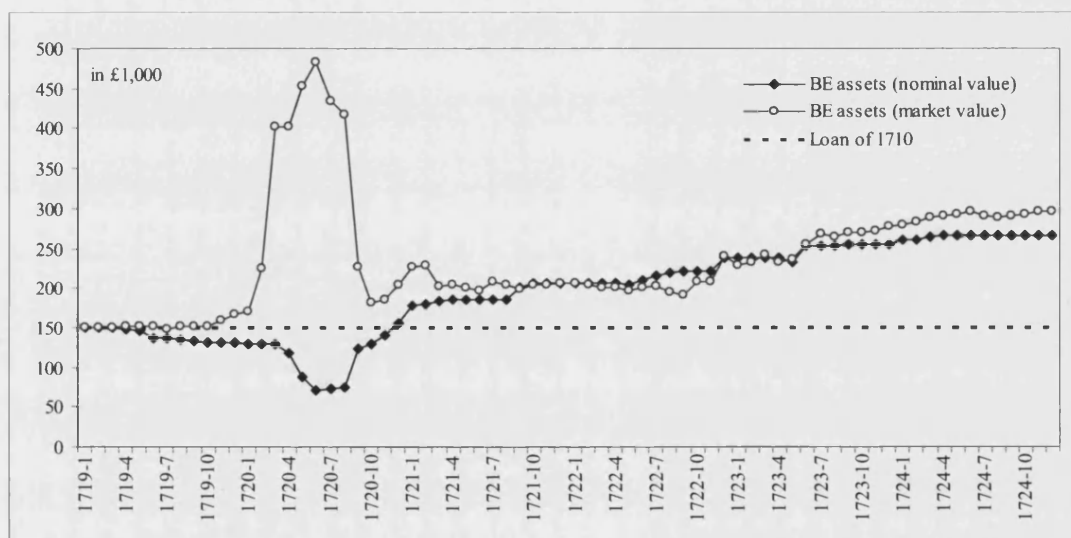


Figure V-4: Bernese Assets in London, 1719-1724 (Nomial and Market Value, Monthly Figures)

Sources: *Historie* (StABE B VII 2389 and accounts foreign funds (StABE B VII B VII 2396-2473); see also Landmann (1903); prices from Neal (1990), appendix and Dillen (1931); see footnote 697 for details.

During the time of the Bubble, the market value of Bern's assets soared in spite of asset sales that show by their decreasing nominal values in Figure V-4. After all the bankruptcy trials of the early 1720s, the funds of the canton were still worth considerably more than the original sum of £150,000 invested four years before (the dotted line in Figure V-4). If we add the sums that were delivered to the Treasury in

⁶⁹⁶ RQBE, vol. 9/1: 201-206.

⁶⁹⁷ Edited by Neal (1990), appendix. Prices for South Sea annuities (old and new) have been edited for Amsterdam by Dillen (1931). His data is very reliable and is almost perfectly correlated with the London series for prices quoted in both spots [see Neal (1990): 146].

Bern before the *Malacrida* bankruptcy, the overall profit during the South Sea Bubble was well in excess of £100,000.⁶⁹⁸ This makes the profit of *Hoare's* bank (£28,000) look less impressive in scale, even if it was achieved with a much smaller initial capital.⁶⁹⁹

By midsummer 1723, when the *South Sea Company* divided its capital, Bern was by far its largest single stock holder, with assets worth £255,214 (nominal value: £253,000).⁷⁰⁰ Had the government simply kept its original stock from the beginning of 1720, its shares would have been worth £131,138 by then.⁷⁰¹ Even though other London investors had more balanced portfolios, only one of them is known to have had more money invested on the capital market.⁷⁰² The strong concentration of Bern's assets in South Sea stock is remarkable and can only be explained as a very particular form of risk aversion. Commissioner Tschärner considered annuities too risky, because they were not registered in stock ledgers.⁷⁰³ In a report of 1725, he also explained that *Bank of England* and *East India Company* stock were insecure because of their involvement in trade.⁷⁰⁴ Tschärner failed to recognise that spreading investment would help to curtail investment risk.⁷⁰⁵

The reaction of the Bernese government to later crises of the eighteenth century was much less dramatic. In fact, it usually did not react at all, as the constant investment in nominal terms shows (discussed below).⁷⁰⁶ During the crises that Hoppit classified as crises of public finance (i.e. 1745 and 1761), the Bernese reaction was even anti-cyclic.⁷⁰⁷ In 1745, the government decided to profit from low share prices and sent 50,000 Thl to London to buy 3%-annuities. These were considered 'pure parliamentary funds and thus best secured, and because of their very low interest are the last to be redeemed, [and] at the moment [they] can be purchased at

⁶⁹⁸ See also Landmann (1903): 94.

⁶⁹⁹ Temin/Voth (2004): 1655.

⁷⁰⁰ Data for a comparison with other investors is from Larry Neal, who has kindly provided me with this data.

⁷⁰¹ Altorfer (2004b). These calculations do not consider any dividend payments.

⁷⁰² Holdings in South Sea stock (nominal): Sir Denis Dutry £141,600 (overall asset market value: £202,779), Sir Peter Delmé £122,103 (overall £325,222), Bank of England £150,000 (overall assets unknown), Million Bank: £136,147 (ditto). See Dickson (1993): 270-284. Market values were calculated with Neal (1990): appendix.

⁷⁰³ StABE B VII 2389.

⁷⁰⁴ StABE B VII 2465/1.

⁷⁰⁵ Other eighteenth-century investors were more aware of this: Carter (1975): 48-49; Bernstein (1996):

6.

⁷⁰⁶ See the figures in Landmann (1903).

⁷⁰⁷ Hoppit (1986): 45.

15% below their true and intrinsic value.⁷⁰⁸ The main consideration of the government was its fear of debt redemption by the British, to the point that the canton's authorities were willing to invest in lower yield securities to avoid being paid back. As an additional measure of security against redemption, Bern bought annuities issued in different years (1744, 1745, and 1750). Ashton argued with evidence from exchange rates that Dutch investors had the same bullish strategy of buying during a financial crisis, in the hope of a price increase.⁷⁰⁹

To summarise Bern's experience during the South Sea Bubble, the canton had made enormous profits from selling its assets when share prices were at their height in summer 1720. This was the unplanned outcome of a series of uninformed decisions, slow communication and opportunistic behaviour by the canton's London agent. Although most of the speculative profit was lost shortly afterwards, Bern emerged from the troubled 1720s with a more valuable portfolio and was arguably one of the largest investors in London by 1723.

V-4 Portfolio Administration as a Principal-Agent Problem

The case of Bern's investment in London presents typical features of a principal-agent relationship, where the government as an investor (the principal) uses an agent to manage its portfolio. Microeconomics offers a broad range of principal-agent theory to deal with this issue.⁷¹⁰ The main concerns are with problems that arise because of opportunistic behaviour, when the agent has differing individual objectives and the principal cannot ensure that the task is carried out in pursuit of her goals. The risk of self-interested behaviour by the agent (moral hazard) increases if a task is impossible or too expensive to monitor; if differences in incentives between

⁷⁰⁸ Landmann (1903): 47. Similarly, in 1740 the Financial Commission expected that an immediate outbreak of war with Spain would bring a fall in prices for public funds and provide the opportunity to buy at low prices: StABE A V 1486: 49-56.

⁷⁰⁹ During crises, the foreign exchange rate did turn in favour of the pound. Ashton explained this by the bull investment from Dutch investors and a run for liquidity in London when merchants sold foreign bills of exchange at very low prices: Ashton (1966): 194.

⁷¹⁰ For an overview: Milgrom/Roberts (1992), esp. ch. 6. Agency theory is often combined with concepts from game theory to explain the strategic behaviour of actors: Dixit/Nalebuff (1991); McMillan (1992); Hart, O. (1995). For an explicit use of agency theory in a comparison of early modern fiscal systems in Europe: Kiser (1994).

principal and agent cannot be resolved by designing and enforcing a complete contract; or if information is asymmetric.⁷¹¹ Several studies of early modern European capital markets explicitly use agency theory.⁷¹² Avner Greif's analysis of principal-agent problems in long distance trade has found that problems of imperfect monitoring, especially in non-repeated transactions, can be overcome by group cohesion that provides an informal contract enforcement institution (second party enforcement).⁷¹³ In contracting with their agents, principals of the early modern period had to overcome the same basic problems as their modern counterparts. However, there were also significant differences: transaction costs were much higher and coordination mechanisms were slow. Information was extremely costly, and the legal framework for the contract enforcement was only partially available.⁷¹⁴ With the fundamentals of principal-agent theory and their constraints in mind, we can formulate a set of working hypotheses for investments made by Bern. First, government officials can be expected to show awareness to problems of contract design, such as agent remuneration or monitoring. Second, in the absence of a universally enforceable legal system for Bern, the government was likely to use alternative informal enforcement mechanisms. Third, if changes in administration occur, they can be expected in response to agency problems. It is possible to test these hypotheses using documents about the administration of Bern's foreign portfolio.

The loans of 1710 had been prepared by the Secret Council as a matter of foreign policy.⁷¹⁵ After the South Sea Bubble, the Secret Council was expanded to include the Mayor and two experts ('councillors') for matters concerning foreign investments. It was then referred to as *Geheime Räte und Beigeordnete*, which I will call the *Financial Council* for simplicity. The Great Council was the ultimate decision maker for all investment decisions; the Financial Council had to prepare decisions and report on important issues.⁷¹⁶ The minutes of the Financial Council have not

⁷¹¹ Milgrom/Roberts (1992): ch. 6.

⁷¹² Hoffman/Postel-Vinay/Rosenthal (1999); Hoffman/Postel-Vinay/Rosenthal (2000); Neal/Quinn (2001).

⁷¹³ Greif (1996); Greif (2005); Greif (2006). Compared to a legal system, they were only a second-best solution, because group membership was not free. See Weber, M. (1978); Sugarman (1996).

⁷¹⁴ North (1991).

⁷¹⁵ The Secret Council consisted of eight Senators: Linder (2003): 4.

⁷¹⁶ Landmann (1904): 6; Linder (2003): 164-184. The instruction is edited in RQBE, vol. 9/1: 199-201.

survived, but some of its discussions about the administration of foreign funds were recorded in a collection of government reports, the *Responsa Prudentum*.⁷¹⁷

As explained above, the first loan to England in 1710 was transferred by Ambassador Stanyan.⁷¹⁸ Bankers *Malacrida & Comp* from Bern were entrusted with the administration of interest payments for the loan. *Malacrida* was a company founded by young members of patrician families who had converted to Pietism. As followers of this faith, they refused to swear an oath on the Second Helvetic Confession and Unity of Faith that Bern had introduced in 1699.⁷¹⁹ As a result they became ineligible for government office. Robbed of their political ambitions, they founded a bank with close ties to the government. They were associated with Saumuel Müller, a citizen from Bern active as banker in London, and together they formed *Muller & Comp*. The original purchase of South Sea stock in 1719 was in part a result of their opportunistic behaviour, when they did not carry out orders by the government but advised the purchase of securities instead; the same holds true for much of the profit made in summer 1720 (discussed above). The actions of Samuel Müller seem like a classic case of opportunistic behaviour, where an unmonitored agent does not follow the principal's orders. However, the outcome was not always benign. When Müller mortgaged the assets of the republic without the principal's consent to grant speculative credits, these became non-performing loans once the asset price bubble burst.⁷²⁰ As a result, both *Muller & Comp* and *Malacrida & Comp* were declared bankrupt. The government was worried about its London assets and sent two members of the Great Council, Marx Morlot and Samuel Tschärner, as 'commissioners' to handle the matter. Morlot was a lawyer with knowledge of foreign languages and administrative experience, Tschärner was an officer in a Bernese mercenary regiment positioned in the Netherlands.⁷²¹ It is not known how good their financial expertise was. From their correspondence with the treasury, it can be argued that they were acquainted with most investment tools of the time, though they did expect the government to despatch an accountant to London for assistance.⁷²²

⁷¹⁷ An accountant or secretary carried out minor administrative duties. He was not part of the government, but usually a young member of a ruling family: RQBE, vol. 9/1: 83.

⁷¹⁸ See Section V-2 above and StABE B VII 2389. For Stanyan see footnote 219 above.

⁷¹⁹ Dellsperger (1984); Dellsperger (1993); Feller (1955): 168-173.

⁷²⁰ This episode is also referred to as the *Malacrida* crisis: Mülinen (1896); Landmann (1903): 24-50; Linder (2003); Linder (2004).

⁷²¹ HBSL (1921-1934), articles *Morlot* (# 8) and *Tschärner* (#10).

⁷²² Tschärner/Morlot to Sinner (21 April 1721): BBB Mss. Hist. Helv. III.89 (for the request: 39).

The way in which the office of a commissioner for the English funds was established as an *ad hoc* solution to a problem and then perpetuated further illustrates the patrimonial character of Bernese administration.⁷²³ Tschärner remained in London until 1724 to manage the assets, as well as to attend the bankruptcy trials of *Muller & Comp.*⁷²⁴ Shortly before his return, the government sent instructions for the future administration of English funds: a member of the Great Council should be elected and sent to London for two years, with a yearly salary of £600 (c. 2,666 Thl). He had to collect interest payments and report to the Financial Council, was accountable to the Great Council and would be accompanied by a secretary-cum-accountant.⁷²⁵ Thus, financial intermediaries were excluded from the administration of the portfolio as a reaction to a crisis. Contractual relations to banks were replaced by a direct line of command from the Great Council to one of its members, linked to the republic by both birth and oath.⁷²⁶ The sanctions for opportunistic behaviour included the exclusion from future government offices as well as the loss of both fortune and honour; this also threatened his whole family.⁷²⁷ Private banks only became involved in the administration of the English funds after 1765, when London bankers *Van Neck & Comp* managed the assets and informed the government about financial matters.⁷²⁸ For investments on the continent after 1732 the Great Council relied on banks from Vienna, Frankfurt, Dresden, Amsterdam and Geneva, as well as domestic banks.⁷²⁹ By sending one of its members to London, the government paid a high security premium for the administration of its English funds. This do-it-yourself solution was more expensive than contracting the task to a third party, and it impeded gains from specialisation. This move stirred a lively discussion within the frugal Bernese government.⁷³⁰ Before the commissariat for the English funds was formally established in 1730, the Financial Council would have preferred contracting with a

⁷²³ See for example: Agena (1972). For the Bernese commissioners: Linder (2004): 182-198.

⁷²⁴ For the trials: PRO C 11/483/2.

⁷²⁵ StABE A II 682: 347.

⁷²⁶ One document also mentions his 'duty to the estate' ('*Standespflicht*'): StABE A V 1479: 365-380. See also Linder (2003): 164-184.

⁷²⁷ The loss of honour is not to be neglected in a pre-modern society: Muldrew (1998).

⁷²⁸ *Van Neck & Comp* was a Dutch-English-Huguenot partnership. It was one of the most important and influential actors on the London capital market around 1760: Wilson, C. (1941): 111-114; Carter (1975): 99.

⁷²⁹ See the (incomplete!) list in Landmann (1904): 4.

⁷³⁰ Landmann (1903): 6-7.

London bank, but it was outvoted by the Great Council, who insisted on introducing this new and profitable office for one of its members.⁷³¹

The commissariat was an office similar to the post of bailiff in one of the more profitable counties of the canton.⁷³² The commissioner was elected amongst the members of the Great Council by majority, served for four years and received a fixed salary.⁷³³ The appropriate remuneration for the office was controversial. The Financial Council considered a yearly salary of £600 largely sufficient, citing that most ambassadors in London were not paid even half as much. Furthermore, this pay rise could attract ‘all kinds of subjects’ to stand for office who may not ‘carefully examine themselves if they have the necessary capacity [for this task].’⁷³⁴ In microeconomics a situation where high remuneration attracts the wrong economic agent is referred to as adverse selection, or a ‘lemon problem.’⁷³⁵ The Great Council did not share this concern and decided to pay the commissioner £800 a year, but abolished the post of a secretary at the same time. This relatively high salary was also intended to compensate for the prohibition of other sources of income for the commissioner during his tenure as a measure to prevent opportunistic behaviour. The commissioner was neither allowed to trade assets for himself or others, nor to collect interest payments or perform any other duties for third parties.⁷³⁶ This awareness of agency problems arose from the negative experiences encountered in the past. Apart from the case of *Muller & Comp*, the secretary Samuel Schneider had cheated several government members in 1729 and absconded with their private money.⁷³⁷

After the commissariat was established, discussions about the administration of foreign funds did not come to a halt. As early as 1737, suggestions of its abolition were raised.⁷³⁸ In the 37 years of its existence there were at least 13 attempts to

⁷³¹ StABE A V 1470: 899, 1000-1001; After the abolition of the commissariat in 1765 a report against its re-introduction estimated that this would mean to ‘satisfy a farfetched private interest’: StABE A V 1479: 357-364.

⁷³² The commissariat was classified as an office of the second class in the four-class system of government offices: Feller (1955): 106-129; Anonymous [Abraham Stanyan] (1756): 81-82.

⁷³³ For bailiffs, see Section II-4 above.

⁷³⁴ StABE A V 1470: 999-1007, quote: 1002. It is not clear if the statement about ambassadors was true.

⁷³⁵ Akerlof (1970).

⁷³⁶ StABE A IV 215: 912-916, edited in RQBE, vol. 9/1: 201-206. See also StABE A V 1473: 285-297.

⁷³⁷ One victim was future Mayor Christoph Steiger: BBB Mss. Hist. Helv. L67; see Linder (2003): 173.

⁷³⁸ StABE A V 1472: 133-158.

reform the commissariat and its instructions changed several times.⁷³⁹ The critique centred on two issues: the lack of candidates and the problem of security. The lack of candidates was the result of several factors that made this office unattractive. A commissioner was stationed far away from home; the high salary did not make up for missed career opportunities in Bern, where an even more profitable bailiff position could be obtained (see figures in Section II-4). In contrast to this, living in London was expensive and, as one report had it, a commissioner had to live ‘amongst people whose language he [the commissioner] neither knows nor understands.’⁷⁴⁰ Furthermore, tasks undertaken in normal times were repetitive, since a commissioner only had to collect dividends and write ‘increasingly sterile’ letters, a duty that the Financial Council considered both unaccustomed and unworthy of a government member.⁷⁴¹ As a remedy against all these unappealing aspects, there were attempts to raise the salary for the commissioner.⁷⁴²

To address the lack of candidates, the abolition of the existing limits in eligibility and a reduced term of office were discussed.⁷⁴³ A diplomat from Basel had suggested the transformation of the commissariat into a fully fledged embassy in London in 1750, but this option was never seriously considered within the Bernese government.⁷⁴⁴ The major subject of debate was the security of funds and interest payments – or the agency problem of opportunistic behaviour. One proposal sought to establish an additional guarantee for commissioners, as they were dealing with considerable sums on behalf of the treasury.⁷⁴⁵ Such a guarantee would have had to cover at least one years’ worth of dividends to be effective, approximately £10,000 (or 1.3m Bz). Such a huge sum made it difficult to find someone willing to stand as guarantor, ‘considering that the office is so remote, and there are so many fatalities,

⁷³⁹ The 13 attempts for reform are only those for which reports can be found in StABE A V 1472 – A V 1490. For effective changes: RQBE, vol. 9/1: 201-206.

⁷⁴⁰ StABE A V 1478: 9. The reports also mention the strange, or foreign air and food (the German expression *fremd* means both ‘strange’ and ‘foreign’).

⁷⁴¹ In the view of the Financial Council, this task was more suitable for a merchant: StABE A V 1479: 10 (report written in April 1765, after the abolition of the commissariat).

⁷⁴² StABE A V 1486: 905-910 and 1478: 826-837. The limits to eligibility were the same as for other offices of the second class (discussed in Section Section II-4 above): StABE A V 1486: 905-910 and 1478: 826-837.

⁷⁴³ StABE A V 1472: 133-158 and 1478:826-837, 902-911.

⁷⁴⁴ Sir Luke Schaub to Mayor Steiger (25 August 1750): BBB Mss Hist Helv L 74(2); also quoted in Utz (1992): 110.

⁷⁴⁵ The documents speak of *Bürgschaft* (collateral, bail): StABE A V 1472: 133-158 and 1478: 902-911.

temptations and dangers a friend [i.e. the commissioner] is exposed to.⁷⁴⁶ The Financial Council was also aware that such collateral would further reduce the field of potential candidates.⁷⁴⁷ Having said that, the discussion reveals how important the security of its investment was to the government.⁷⁴⁸ The Great Council did not trust the internalised sense of duty of its own members whole heartedly, in spite of the existence of both formal and informal enforcement mechanisms.⁷⁴⁹ After all, the fraudulent activities of *Muller & Comp* had happened even with informal inter-group sanctions in place.⁷⁵⁰

When the commissariat was finally abolished in 1765, Bern paid considerably less for the administration of its English funds. According to the contract with *Van Neck*, they received £200 per year, which was not even a quarter of what a commissioner had been paid previously if travel expenses are included. The bankers had to inform Bern in good faith about ‘news that is likely to have an influence on [Bern’s] interests.’ As security (collateral) for dividend payments, *van Neck* had to mortgage £10,000 in 3%-Consols to Bern.⁷⁵¹ A report by the Financial Commission of 1737 shows that an earlier, stalled project had expected bankers *Boissier & Selon* from Geneva to mortgage real estate as a security, which they apparently refused.⁷⁵² Improved monitoring possibilities, such as a well established legal infrastructure in London, and the availability of more reliable and faster information helped reduce the costs of contracting out.⁷⁵³ Even after the commissariat was abolished, discussions were continued for a short time. There were concerns that the financial know-how within the government was disappearing or that information provided by bankers was unreliable. These arguments were dismissed with reference to the ‘great many books

⁷⁴⁶ StABE A V 1478: 902-909.

⁷⁴⁷ StABE A V 1472: 133-158 and 1478: 902-911.

⁷⁴⁸ See also StABE A V 1473: 285-297.

⁷⁴⁹ Greif (1996).

⁷⁵⁰ The property of the bankers was confiscated and they were banned from the city. For the trials: Linder (2003): 135-147.

⁷⁵¹ In case of a capital transaction they would have to do the same for the sum involved. The convention is edited in: Landmann (1904): 63-64 (annex 32).

⁷⁵² StABE A V 1472: 133-158. As a reply to this, David Gruner as the successor of *Malacrida & Comp* had proposed his services, but considered that mortgaging property could harm his credibility. It is according to his proposal that *Boissier & Selon* had finally refused this form of collateral: BBB Mss. Hist. Helv. II.9 (35).

⁷⁵³ See North (1990); North (1991).

written and published in all languages' and to existing contacts to London through both merchants and private investors.⁷⁵⁴

To analyse the inherent problems of portfolio administration, I have used micro-economic principal-agent theory. The main findings are that the government was well aware of the underlying agency issues. By carrying out financial administration through a member of the Great Council sent to London rather than relying on foreign bankers, the government was willing to pay a high security premium for this costly do-it-yourself solution. Throughout its period of existence, the office of commissioner for the English funds attracted much critique, as the government was trying to find a balance between adequate remuneration and incentives to avoid issues of moral hazard. The commissariat was largely the outcome of the painful experiences Bern had made during the South Sea Bubble. After several uneventful decades in which communication and information improved, the time was finally right for a return to contracting out the administration of foreign funds to London banks in 1765.

V-5 Early Modern Portfolio Analysis

Financial economics offers a set of sophisticated tools for analysing investment portfolios and their performance.⁷⁵⁵ In this section, I will use some simple methods to analyse the risk profile of the Bernese investment strategy. I will first explain the applied techniques, then discuss the London portfolio and finally Bernese investments on the Continent.

The basic principle of portfolio management is for an investor to diversify holdings in order to maximise the expected return for a given amount of risk.⁷⁵⁶ The underlying assumption is that yields are inversely related to risk, or that investors have to pay a negative risk premium for safe assets. The *capital asset pricing model (CAPM)* suggests that markets will adjust to ensure that returns compensate investors for the risk of their assets when held with a perfectly diversified portfolio. It

⁷⁵⁴ StABE A V 1479: 357-364 and 365-380.

⁷⁵⁵ See for example: Elton/Gruber (1995) or Kohn (2004).

⁷⁵⁶ The basic concept was presented by Markowitz (1952); Markowitz (1959).

calculates an expected return for any asset as a function of the rate of return of risk-free assets, plus a risk premium (called *Beta coefficient*) for this particular asset.⁷⁵⁷ The problem when applying these models quantitatively to early modern times is to find the necessary data. London and Amsterdam asset prices have been edited, but there is little information about markets on the Continent.⁷⁵⁸ For example, prices for bonds issued by the *Vienna City Bank*, one of Bern's major investments, are anecdotal.⁷⁵⁹ Some of the canton's assets were not traded at all. It was therefore impossible to calculate their real value. Furthermore, it is difficult to define a risk-free return for the eighteenth century; the fact that there was never a state bankruptcy in Britain does not mean that government securities were safe *ex ante*. Innovations in government finance were still relatively recent and the governments' commitment to follow the new rules of the capital market was not always beyond any doubt. As a proxy for risk-free assets, Neal uses the *Consol*, a fixed interest government bond that was introduced in 1751.⁷⁶⁰

Given the imprecise nature of the raw data, the use of sophisticated econometric techniques would suggest an inappropriate degree of accuracy. Because my figures are largely based on non-market values and parity courses (see Section V-1), I only use basic models of financial economics, such as yearly holding-periods rate of return (HRP). The HRP is defined as

$$\text{HRP}_t = [(P_{t+1} - P_t) + D_{t+1}] / P_t$$

Where P is the price per share as a percentage of par, and D is the dividend as a percentage of par. A regression of the HRP series for a single stock against that of the market as a whole provides the beta coefficient as a measure for the risk of an asset. Beta coefficients usually range between 0.5 for low-yield, low-risk securities and 1.5 for high-yield, high risk assets.⁷⁶¹ I will use HRP regressions for the London

⁷⁵⁷ For the basic CAPM: Elton/Gruber (1995): 294-310; Neal uses a simplified version for the eighteenth century: Neal (1990): 125-131.

⁷⁵⁸ For Amsterdam and London: Neal (1990); Dillen (1931).

⁷⁵⁹ Records before the establishment of the Vienna stock exchange in 1771 are uncertain. After this date, bond prices had to be posted by official brokers, the *Sensale*. It is not clear if these prices were published; they have not been edited so far. See Chaloupek/Eigner/Wagner (1991): 930; Baltzarek (1973): 1-32; Fuchs (1998). I thank Dana Stefanova (Vienna) and Markus A. Denzel (Leipzig) for information about this matter.

⁷⁶⁰ Neal (1990): Consols were perpetual and redeemable ('consolidated') annuities. For the time before Consol prices are available (i.e. before 1753), Neal extrapolated back using 3%-Bank annuities until 1723 and South Sea annuities for earlier years: Neal (1990): 127 (note 16).

⁷⁶¹ Neal (1990): 55. HRP regressions are usually made with monthly data.

portfolio, for which market data is available. For the canton's Continental portfolio, gross returns on investments were calculated by setting the revenue recorded in Bernese accounts in relation to the capital. Standard deviations for these gross returns are an indication of the underlying risk of assets. These quantitative results will be compared with unsystematically collected qualitative data about portfolios of other investors and with government reports about the foreign funds.

The London Portfolio

The early investments in London and their transformation into portfolio investments have already been discussed (see Sections V-2 and V-3 above). Figure V-5 provides an overview of Bernese investments at market value, calculated with data from *Castaing's Course of the Exchange* published by Neal.⁷⁶²

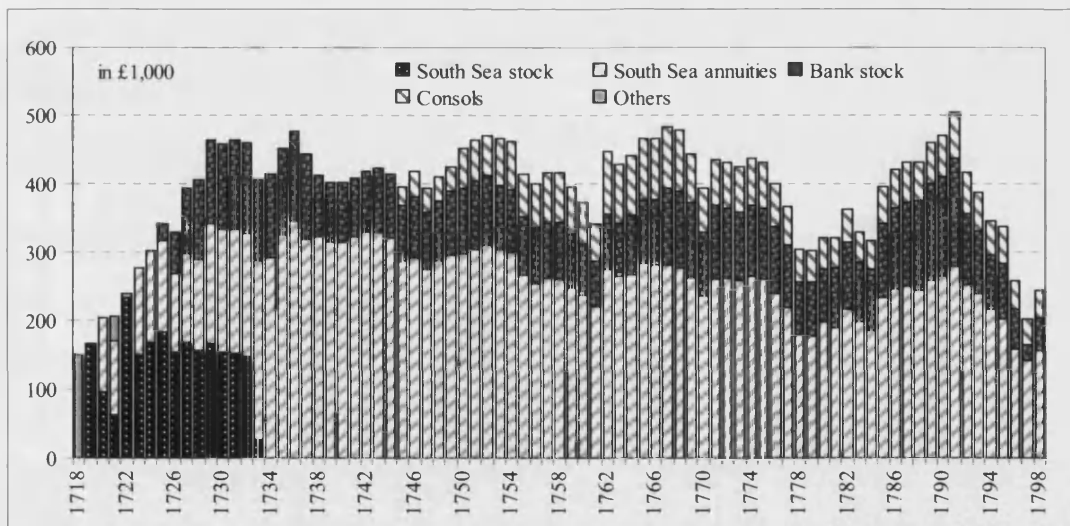


Figure V-5: Investment of Bern in English Funds 1718-1798, Market Value

Sources: *Historie* (StABE B VII 2389) and accounts for foreign funds (StABE B VII B VII 2396-2473); Landmann (1903); calculated with prices from Neal (1990), appendix and Dillen (1931) as discussed in Figure V-4. The category *others* consists of short-term investment, such as Land-Tax bills. *SSC Annuities* combines old and new South Sea Annuities.

Investment in England increased until 1730 and remained constant for about six decades, despite some fluctuations. The two troughs of the 1760s and the late 1770s

⁷⁶² Edited by Neal (1990), appendix and Dillen (1931). See also footnote 697 above.

were due to low share prices. In the 1790s, the value of English funds fell rapidly when Bern liquidised its funds (see Section III-5 above). In 1719, the entire portfolio consisted of South Sea stock. After the South Sea Bubble, the canton also held Bank stock, South Sea annuities and several short-term assets. All these bearer bonds were sold for South Sea stock in 1722. When the *South Sea Company* split its capital a year later, half of the assets became South Sea annuities. The redeemed Dutch loan was invested in Bank stock between 1725 and 1730. After the mid-1730s, there were no more significant changes in the portfolio. If new assets were bought, they were Consols. From 1792 to 1796, the government sold mainly Bank stock.⁷⁶³

To assess the risk of this portfolio, it would be ideal to regress its HPR against the HPR of an average market portfolio, but since dividend payments for its calculation have not been edited, I have used fixed interest annuities as an alternative. As a result, HPR of the Bernese portfolio were regressed against the HPR of a *Virtual Consol* in a linear regression.⁷⁶⁴ Thus, only a relative beta coefficient (relative to the Consol) can be established. We would expect the portfolio of Bern as a risk averse investor to have a similar beta coefficient to the Consol, considered to be the safest asset of the time. The regression results in Section VII-21 in the appendix indicate that the Bernese portfolio was almost identical to the Consol and therefore rather low-risk, with a relative beta coefficient of 0.9702 (the results are highly significant but have a relatively low value for R squared of 0.7890). The HPR series themselves had a very high volatility.⁷⁶⁵ The conclusion from this quantitative analysis is that the London portfolio of the canton was a low-risk and low-yield investment. This interpretation can now be verified with qualitative evidence from government sources.

The security of its investment was always of major concern to the government. For example, Bern bought Bank stock in 1725 because this was believed to be the safest of the English funds. In addition, bearer bonds (such as annuities) were considered less safe than the registered stock, because they could be sold more easily by an agent without the consent of the principal.⁷⁶⁶ In May 1730, the Great Council

⁷⁶³ See Landmann (1903) for the nominal values.

⁷⁶⁴ *Virtual* in the sense of: before its official establishment: See also note 760. For the regression: Hudson (2000): 153-159; Neal (1990): 55.

⁷⁶⁵ With an arithmetic average of 3.66%, the standard deviation is 9.16% (min. -29.66%, max. 28.49%); a mean cannot be calculated with negative values.

⁷⁶⁶ StABE B VII 2389.

ordered the Financial Commission to report on different investment opportunities. They suggested to abstain from further investing in South Sea stock because Bern already held £158,700 at this time. It was considered the most endangered and uncertain of all the English funds in the case of war. Moreover, the company directors were not held in high esteem. Overall this is a remarkable assessment of the fund in which the republic had most of her money invested. The report also dissuaded the government from buying shares of the *East India Company* that were supposedly overpriced, despite a yearly dividend of 8%. More suitable for Bern were annuities of the *South Sea Company* or the *Bank of England*, because they were ‘a parliamentary fund and not involved in risky commercial ventures.’⁷⁶⁷ In particular, titles of the Bank were said to have an excellent reputation, being the most profitable assets despite their relatively high price.

When the government thought about withdrawing money because of the ‘uncertain times’ in 1792, the assets in London were considered the easiest to liquidate. A high price and an advantageous course of exchange made them suitable for such an operation, even though they were also the canton’s most secure investment. According to the Financial Commission, bonds of the *Vienna City Bank* were less volatile and should thus be saved for ‘urgent necessities.’⁷⁶⁸ Another major concern of the government was the fear that Britain might repay her national debt.⁷⁶⁹ In a report of 1732, commissioner Lerber was worried that South Sea stock could be repaid as soon as the British started to redeem debts. The Great Council discussed the possibility of increasing its continental assets, but finally decided to leave the money in England, where ‘the whole nation is liable, to pay a little more, and to be safe.’⁷⁷⁰ But the government was still concerned about the commitment of the English to play by the rules of the capital market, at least in the way the Bernese understood them. In 1736, there were complaints that the English parliament – with ‘deceit and force’ – tried to get rid of foreign creditors by repaying them through the sinking fund while

⁷⁶⁷ StABE B VII 2465/1. The Great Council decided to invest in Bank stock on 7 June 1730.

⁷⁶⁸ StABE B VII 2465/56. It is not possible to test this quantitatively with HPR regressions, since bond prices for the Vienna City Bank are not edited. The standard deviation of their gross returns was lower than that of the English funds (median gross return: 4.57%, std dev: 0.90%; for the English funds: 3.79% and 1.10% respectively); see Section VII-21 in the appendix for details.

⁷⁶⁹ See also Steiger, C.F. (1952); Kapossy (1998).

⁷⁷⁰ Quotes from Landmann (1903): 53.

taking up loans at lower interest rates; in the opinion of the Bernese government this was only harming the old creditors.⁷⁷¹

Continental Investments

Given that the Bernese strategy for its London investment was to maintain a low risk profile, the continental portfolio will be analysed with the hypothesis that the government was willing to take a greater risk by starting to invest there. This hypothesis will first be discussed quantitatively, then against the background of qualitative evidence.

Figure V-6 shows Bernese foreign investment from 1710 to 1798 based on contemporary accounts. Its assets in London are at market prices, the rest are at nominal value with currencies converted at parity rate.⁷⁷²

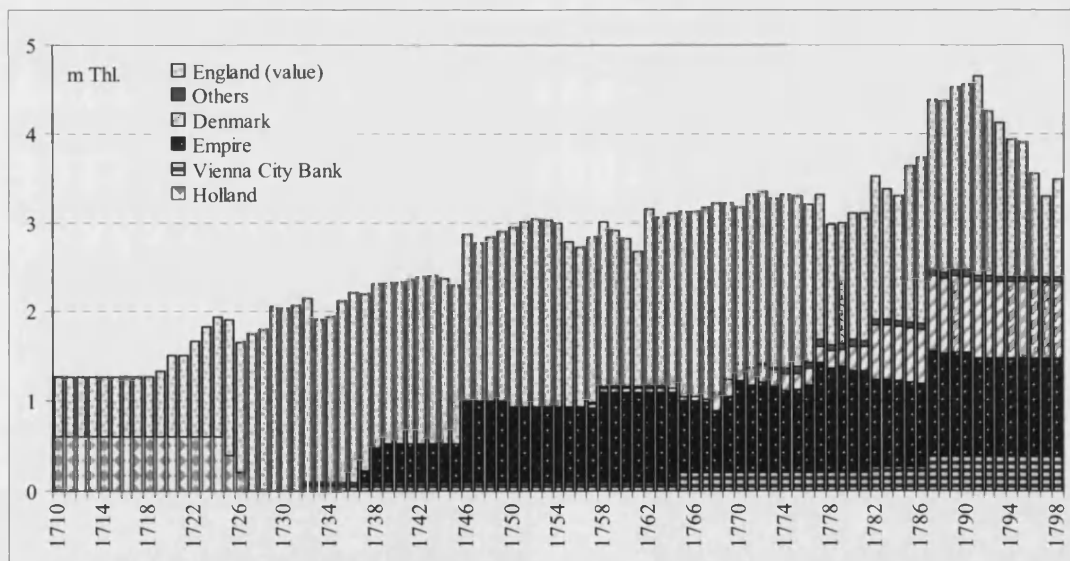


Figure V-6: Foreign Investments of Bern by Geographic Distribution, 1710-1796

Sources: *Historie* (StABE B VII 2389) and accounts of foreign funds (StABE B VII B VII 2396-2473); see also Landmann (1903): 90-91. *England (value)* calculated as explained in Figure V-5. See Table V-4 for the full list of investments and their classification.

⁷⁷¹ StABE B VII 2465/2; Landmann (1903): 51-52.

⁷⁷² For parity rates, see Section V-1 above.

The general trend of the overall sums invested increased until the middle of the century and then remained constant for some 30 years. This was followed by a short and steep rise in the 1780s and a drastic fall in the 1790s. Geographically, most of the assets were concentrated in London. After 1732, investment was made in the Empire, first in bonds of the *Vienna City Bank*, later in bonds and loans to cities, princes or estates. In the second half of the century, the king of Denmark became one of the largest debtors; he was joined in 1787 by the Emperor (see also Sections III-4 and III-5 above). In Table V-4, I have calculated the gross returns on all Bernese loans and funds.

	Date	Security	N	Gross Return				
				max	min	mean	median	std dev
English funds (value)	1718-1798	(funds)	77	5.89%	1.22%	3.79%	3.77%	1.10%
Vienna City Bank	1732-1798	B	65	6.54%	1.69%	4.57%	4.59%	0.90%
Tax Office Leipzig (Electorate of Saxony)	1737-1781	B	38	5.96%	0.00%	2.74%	2.96%	1.47%
Count of Hesse-Cassel (1738-49; 1758-63)	1738-1763	M	19	6.92%	2.33%	4.13%	4.65%	1.18%
City of Leipzig	1746-1798	C	46	9.31%	0.00%	4.08%	3.97%	2.09%
Electorate Estates of Saxony	1746-1776	C	25	7.49%	0.00%	2.95%	3.30%	1.99%
Duke of Wurttemberg	1750-1798	M	48	8.10%	2.45%	5.28%	5.40%	0.86%
King of Sardinia	1750-1764	B	14	4.00%	2.28%	3.84%	4.00%	0.47%
King of Denmark	1757-1798	B	40	6.77%	1.24%	4.55%	4.82%	1.22%
Duke of Mecklenburg-Schwerin	1769-1798	M	29	5.07%	2.58%	3.78%	3.90%	0.76%
Bishop of Speyer	1770-1778	M	9	3.88%	2.59%	3.53%	3.88%	0.54%
Count of Nassau-Saarbrücken	1770-1798	M	24	5.90%	0.00%	4.02%	4.36%	1.59%
City of Ulm	1772-1788	C	17	5.82%	1.94%	3.81%	3.88%	0.73%
Abbot of St. Gallen	1772-1798	M	25	6.47%	1.29%	3.83%	3.92%	0.91%
Count of Hesse-Darmstadt	1775-1798	M	21	6.47%	0.00%	4.97%	4.81%	1.24%
City of Nuremberg	1776-1798	C	16	6.27%	0.00%	3.89%	4.61%	2.32%
Duke of Zweibrücken	1777-1798	M	13	3.96%	0.00%	2.33%	3.88%	1.95%
Duke of Saxony-Weimar	1779-1790	M	9	6.52%	0.00%	4.35%	4.35%	1.77%
Emperor	1787-1798	B	10	6.12%	4.01%	5.72%	6.12%	0.78%
Duke of Schwarzenberg	1788-1798	M	9	3.88%	3.88%	3.88%	3.88%	0.00%
Commune of Le Locle	1789-1792	C	3	4.80%	4.80%	4.80%	4.80%	0.00%

Table V-4: Bernese Overseas Capital Investment: Funds and Loans

Sources: *Historie* (StABE B VII 2389 and accounts foreign funds (StABE B VII B VII 2396-2473); see also Landmann (1903): 90-91. In the column *Security*, *B* stands for bonds, *M* for loans secured by mortgage, *C* for loans secured by collective guarantee; *N* stands for the number of observations (i.e. years). The values for *All Bonds*, *All Mortgages*, and *All Collective Guarantee* were calculated as the yearly sum of interest payments divided by the capital invested at the given year. I have not included the loan sums because they were changing over time. See Figure V-6 for an overview by region.

When comparing gross returns, we would expect the continental assets to have a higher yield and higher standard deviation than the English funds as an indicator of their risk. Table V-5 provides aggregated data for investment categories defined by the type of security offered. We would expect higher risk for investments in loans

secured by mortgage (usually to princes) or by collective guarantee (cities and estates).

Investment / Security	Gross Return		
	N	Mean	SD
English funds	77	3.79%	1.10%
Investment in bonds (Continent)	167	3.87%	0.90%
Loans secured by mortgage	205	3.96%	1.21%
Loans secured by collective guarantee	107	3.49%	1.49%

Table V-5: Gross Return on Different Investments

Sources: *Historie* (StABE B VII 2389 and accounts foreign funds (StABE B VII B VII 2396-2473); see also Landmann (1903): 90-91. *N* is for the number of yearly interest payments for each type of investment, *SD* for standard deviation. See Table V-4 for the full list of investments and their classification.

A direct comparison between the different types of investments is difficult because loans had fixed interests while the return on funds – at least on some of the funds – varied. The investment in continental bonds had a slightly higher yield than the English funds, but their standard deviation was smaller. Loans secured by mortgage were slightly riskier, with higher average returns and standard deviation. Loans granted against collective guarantee paid a lower interest rate and had a higher standard deviation. This was also because most non-performing loans of Bern were of this type.

My quantitative analysis of government documents focuses on the most interesting of the continental investments.⁷⁷³ The hypothesis is that Bern used a (proto-) country risk assessment for its decisions.⁷⁷⁴ After the Dutch loan of 1710, the canton's first investment outside London was made in 1732, when bonds issued by the *Vienna City Bank* (VCB) were chosen to diversify the portfolio. This bank issued bonds guaranteed by the city of Vienna in order to finance the Imperial debt, modelled after the French *Rentes sur l'Hôtel de Ville de Paris*.⁷⁷⁵ Bern bought these

⁷⁷³ For a chronology and a complete list: Landmann (1903).

⁷⁷⁴ *Proto* in the sense that it was used before the concept was formally invented. For country risk assessment: Calverley (1985); Haner/Ewing (1985). For a historic example from the late eighteenth century: Ortuba (1963); Ortuba (1975).

⁷⁷⁵ For the Vienna City Bank: Fuchs 1998; Chaloupek/Eigner/Wagner (1991): 909-997; Baltzarek (1973): 1-32; Dickson (1987): vol. 2: ch. 10 (300-339).

bonds shortly before the *Vienna City Bank* suffered a severe crisis in 1733.⁷⁷⁶ It is not clear what other investment opportunities were discussed for this first investment on the continent, but shortly afterwards the Financial Council was asked to report about possibilities for further diversification. These included estates in the Empire (Silesia, Nürnberg, Württemberg), princes (the Count of Isenburg and Bündingen, the Margrave of Baden-Durlach) and even a commercial project of a merchant from Geneva (M. Port, for salt trade).⁷⁷⁷

Despite its investment in bonds of the *Vienna City Bank*, the Bernese government avoided direct financial relations with the Emperor. He repeatedly offered the Fricktal as collateral for a loan, but Bern was more inclined towards purchasing the county (see Section V-2 above).⁷⁷⁸ In 1728, a report by the Financial Council recommended against providing an Imperial loan in order to avoid having great lords as debtors, from which, ‘as is known, it is difficult to obtain one’s capital, and no republic wants to provoke their antagonism.’⁷⁷⁹ To avoid this issue, the government concealed its identity for the 1787 loan. When the Emperor issued loans in Frankfurt a few months earlier, the printed prospectus did not arrive timely enough for Bern to participate in the subscription.⁷⁸⁰ For the second loan, the Financial Council proposed an investment of fl. 250,000 (125,000 Thl), but the Great Council decided to take up the whole sum of fl. 500,000 (250,000 Thl). Bonds were issued in Vienna to the name of Frankfurt bankers *Bethmann Bros.* and then endorsed to Bern. The intention was to leave the Imperial treasury uninformed about the true nature of its creditor.⁷⁸¹ It is doubtful that the strategy worked, given that the decision to invest was made by the Great Council within which secrecy was difficult to maintain.

The government usually applied a country risk assessment to its investment decisions, although it was not always as explicitly stated as in the report about Duke of Hesse-Cassel in 1774 mentioned above (see p. 252). In exceptional circumstances,

⁷⁷⁶ Fuchs (1998): 71-91. He mentions a ‘spectacular drop’ of bond prices without providing quantitative data.

⁷⁷⁷ StABE B VII 2465/2. Part of the Financial Council wanted to concentrate the investment in Vienna, others to spread the money evenly over different investments.

⁷⁷⁸ Landmann (1903): 80-97. In 1703, St Saphorin was the Imperial agent for negotiations with Bern: Mensi (1890): 417. For St Saphorin, see Section V-2 above and Altorfer (forthcoming).

⁷⁷⁹ The original text says: ‘[...] will man sich anders nicht mit ihrer Feindschaft beladen, die [sic, should be: der] doch jeder republikanische Staat sorgfältig ausweichen soll’: Landmann (1903): 82. For similar demands of the Emperor to Zurich (1706-1737): Peyer (1968): 125-127.

⁷⁸⁰ The prospectus is reprinted in Landmann (1903): 126-127.

⁷⁸¹ The same procedure was applied for the interest payments: Landmann (1903): 85-87.

security standards were not strictly applied for political reasons. For example, a loan to the city of Ulm was granted despite concerns about security because of the credibility of its citizens, geographical proximity and the purpose of the loan being a grain purchase to avoid starvation.⁷⁸² The same generosity was applied for some loan extensions, where lower interest rates were conceded, mostly at times when the debtors were at war. In 1787 – before investing in the Imperial loan discussed above – several investment opportunities were assessed. According to the report of the Financial Council princes, cities and estates with the appropriate guarantees were unlikely to take up loans at 4%, which was considered the minimum interest rate when lending overseas. Therefore, the money should be invested in public funds, of which the most appropriate were in France, England, Saxony and Vienna. With regards to an investment in France, the possibility was not even seriously discussed. Bern had so far ‘adopted a system of which no reason for change seems to be existent.’⁷⁸³ There were already important sums in England, and conditions were not particularly favourable at this moment. Funds in Saxony were accorded a good reputation, but the interest payment (3%) was deemed too low. The interest rate paid by the *Vienna City Bank* (4%) was considered more attractive and the funds safer.

Apart from studying investments which were made, it is perhaps more interesting to look at gaps in the portfolio and explore why Bern bypassed some prime investment opportunities. A number of demands from small states were declined upfront.⁷⁸⁴ More strikingly, France did not receive a single Batzen in the eighteenth century, arguably because the canton’s old claims from the sixteenth century were still outstanding (as discussed in Section V-2 above). The Bourbon kings were notoriously unreliable debtors and the French capital markets was less well developed than in England and Holland.⁷⁸⁵ Geneva, with which Bern had close ties, was the major centre for French financial ventures that were sometimes of dubious nature.⁷⁸⁶ Despite – or rather because of – its nature as a high-risk business, several private investors from Bern were heavily involved with their personal money in life annuities and other French assets. Government members appear to have been less risk averse with their private investment than public funds, even though

⁷⁸² Landmann (1903): 73.

⁷⁸³ StABE B VII 2465/36.

⁷⁸⁴ Landmann mentions the Duke of Mecklenburg-Strelitz, the City of Dünckelsbühl in Swabia, the City of Milan, or the Republic of Wallis: Landmann (1904): 6.

⁷⁸⁵ See Hoffman/Postel-Vinay/Rosenthal (1999); Hoffman/Postel-Vinay/Rosenthal (2000).

⁷⁸⁶ See Lüthy (1959); Sayous (1935); Sayous (1937).

systematic numbers on this cannot be established.⁷⁸⁷ Other Swiss Cantons were less scrupulous than Bern. Solothurn's investment in bonds of the Paris City Hall was already mentioned (see Section V-2 above) and Zurich increased its French assets after Necker became finance minister in 1778. The Zurich investment consisted of bonds issued by cities in Burgundy and Artois county, as well as life annuities.⁷⁸⁸

None of the arguments used for France can explain the absence of Bernese investment in the most important and developed capital market of the eighteenth century, Amsterdam.⁷⁸⁹ After the 1710 loan ran out in 1725, Bern did not make further investments with the Dutch, whose funds were not even evaluated in the investment proposals. This was probably because there were hardly any new issues of Dutch government bonds; those that were issued were usually oversubscribed despite bearing relatively low interest rates. However, foreign governments used the Amsterdam capital market to issue their own bonds. The absence of Bern in these ventures can probably be attributed to low interest rates in the overcrowded capital markets of the Netherlands.⁷⁹⁰ The Dutch themselves were net capital exporters, even though Amsterdam regularly outperformed London in terms of net capital returns.⁷⁹¹

In the second half of the century, a public debate ensued around the safety of the canton's investments.⁷⁹² The key issue was that overseas investment created a new form of dependency as Bern had to rely on the commitment of its debtor states to service their debts. This was noted by several contemporary critics of the state's foreign investments, of which Adam Smith was certainly the most prominent. In the *Wealth of Nations*, he mentioned the Bernese case, highlighting the inherent danger for the canton of

placing it [i.e. money] in the public funds of the different indebted nations of Europe, chiefly in those of France and England. [...] The security of this revenue must depend, first upon the security of the funds in which it is placed, or upon the good faith of the government which has the management of them; and secondly, upon the certainty or probability of the continuance of peace with the debtor nation. In the case of war, the

⁷⁸⁷ One example would be Friedrich Karl Ludwig Manuel: BBB Mhh. XXII.59. Thanks for Andrea Schüpbach and Manuel Bigler (Bern) for providing this data.

⁷⁸⁸ Peyer (1968): 135-138, 140-141. Some of the assets were held by the state-run bank *Leu & Comp*: see Landmann (1905).

⁷⁸⁹ Wilson, C. (1941): 195.

⁷⁹⁰ For the low interest rate: StABE B VII 2389.

⁷⁹¹ Hart, M.t./Jonker/Zanden (1997): 56 (table 3.5), 20-21, 52-56.

⁷⁹² See Kapossy (1998).

very first act of hostility, on the part of the debtor nation, might be the forfeiture of the funds of its creditor.⁷⁹³

As explained above, Bern never invested in French funds, but the difficulty of getting regular interest payments on its outstanding loans is a case in point for Smith's argument. Reformers from the Bernese Economic Society were also sceptical about the dependence on foreign debtors and doubted their stability. In addition, they saw economic dependence as being incompatible with the political self-determination of a free state.⁷⁹⁴ On the other hand, the fact that Bern was profiting from the high tax burden and the constant warfare of other states was not considered a moral issue by the Economic Patriots. Even the state as a potential speculator was apparently not criticised. Patricians in favour of foreign funds defended the state's policy to invest. In the view of Karl Friedrich Steiger, it was only with the additional revenue from foreign interest payments that the Bernese government could maintain the freedom it inherited from its forebears and maintain a low tax burden on Bernese subjects while establishing a welfare state that was generous in his view.⁷⁹⁵

The government's dilemma was that in order to secure sufficient funds for a war chest to help maintain geopolitical independence, it had to rely on foreign debtors to service their national debt. The reasons why Bern decided to undertake the risk of investing overseas were economic and political. Economically, issues of monetary circulation and the lack of productive domestic investment opportunities were push-factors.⁷⁹⁶ Politically, the government gained internal independence from its subjects and their claims for political participation by generating 'tax-free' returns from investing, as was discussed under the heading of a *representation cycle* in the introduction (see Section I-3 above). From this perspective, the promise of safe and generous returns from investing on impersonal capital markets abroad was too attractive to let go.

In this section, I have analysed Bernese overseas investments with qualitative and quantitative methods. The results of the former show the canton as a risk-averse investor that obtained returns that were roughly in line with the most secure assets of

⁷⁹³ Smith (1976): 819-820.

⁷⁹⁴ Kaposy (2002): 245. See also Kaposy (1998).

⁷⁹⁵ Steiger, C.F. (1952), based on a speech made in 1784.

⁷⁹⁶ This is discussed in Section V-2 above.

the London market. On the Continent, the government took slightly more risk but can still be qualified as a 'widow-and-orphan' investor. Qualitative evidence supports this view, as the government used embryonic forms of country risk assessment in its investment decisions and preferred steady returns to high interest payments. The most interesting gaps in Bern's overseas portfolio are France for political and the Netherlands for financial reasons.

V-6 Conclusion: An Assessment of Bernese Overseas Investments

The importance of overseas investment to Bernese state finance was addressed in Section III-5. The sums invested in 1710 represented about the same amount as all other transactions recorded by the A- and B-Type accounts that were later listed in the *General-Bilanzen*. They were also significant compared to the amount of cash stored in the government vaults: according to my own estimate, the loans of 1710 reduced the cash reserve by roughly two fifths (see Figure III-23 above). Interest revenue from overseas investments was also considerable, reaching 14.7% of current revenue in 1732 and 17.1% in 1782 (10.3% and 13.8% of total revenue respectively).⁷⁹⁷ Although this is not the third of the canton's income that Landmann had estimated, it was still a significant contribution to the Bernese surplus state.⁷⁹⁸ While the sum invested was large by Bernese standards, it was only a fraction of the national debt of the recipient states. Nevertheless, Bern was one of the largest single investors in London, where the capital market of the city was fractured as a result of financial innovation that lowered entrance barriers for investors. By the late eighteenth century the canton had become one of many investors with similar sums at stake and was surpassed by the big players.⁷⁹⁹

Another way of assessing the importance of Bern's overseas investments is their role in the surplus state model. Foreign loans generated returns that were independent of taxpayers' consent, making them an attractive option for the government to secure its independence. The foreign investments started as a

⁷⁹⁷ Database (as in Chapter III above); see also Table IV-2 and Table IV-4 above.

⁷⁹⁸ Landmann (1904): 9. He used information from *General-Bilanzen* and *General-Tabellen* from 1785-1795 (discussed in Section III-4 above).

⁷⁹⁹ See for the expansion: Neal (1990).

geopolitical tool to bolster relations with political allies during the time of the War of the Spanish succession, when Bern was at loggerheads with France. The government was willing to bear the risk of investing its money abroad because of the overcrowded domestic capital market, political motives and the desire for independence from its own taxpayers. If we assess Bern's relationship to risk as an investor, it acted very cautiously, both in terms of portfolio administration and investment strategy. The impersonal nature of the early modern capital markets helped the government to downplay the political importance of its investments, but the independence of taxpayers came at the cost of an exposure to market movements and uncertainties. Having no national debt itself, the canton profited from the indebtedness of other European states which relied on capital markets to finance their warfare expenditure, and thus qualifies as a free rider of the *Financial Revolution*.

In 1720, the government made enormous windfall profits during the South Sea Bubble, which were lost almost immediately afterwards through the bankruptcies of her London agents. If the canton did not withdraw from capital markets entirely as a reaction, this was because the losses affected only a speculative gain and not the original capital invested. The crisis had a major impact on how Bernese funds in London were administered and led to the replacement of financial intermediaries by government members. This was a costly solution to avoid agency problems. Diversification through investment on the continent a decade later was not only a late reaction to the South Sea Bubble, but also a way of averting dependency on a single borrower. The creditworthiness of Britain as the most important recipient of Bernese funds was questioned at several occasions. After 1732, Bern had a balanced portfolio of mostly low-yield (low-risk) securities, with slightly higher risk taking on the Continent. With its investment strategy, the government acted as a widow-and-orphan investor, seeking a steady interest payment rather than a quick profit. Qualitative data from its decision-making process supports this view. Issues of security were the central guideline when the government compared investment opportunities in a (proto-) country risk assessment. Thus, the quantitative and qualitative evidence on investor behaviour demonstrate Bern's low-risk profile as an investor. If we assume that the government acted as a rational actor – and there is no reason why we should not – it can be argued that it was willing to pay a negative risk premium in the form of missed opportunities from higher returns. The safety of its investment was a highly valued utility in both the canton's investment strategy and portfolio administration.

With respect to the ongoing debate about how integrated early modern capital markets were, evidence from the Bernese case points out how uninformed one of the largest ‘institutional investors’ of the time was. It might well be that the canton was representative for widow-and-orphan investors who invested in financial assets without much knowledge about how the market worked. The lack of information and know-how also points out severe limitations of early modern capital markets, once the scope is broadened beyond Amsterdam and London as the most advanced and integrated financial centres.

VI Conclusion: State-Building without Taxation

The Bernese state was a puzzling entity for both contemporary observers and historians alike with its absence of warfare and taxation. My thesis proposes solutions to parts of this puzzle. This conclusion consolidates the empirical findings and discusses their wider implications for the study of early modern state-building. The first section summarises the main points of the empirical analysis in the context of the surplus state model outlined in the introduction. Section VI-2 discusses the physiocratic nature of the Bernese government, both with respect to state-building and economics. In Section VI-3, theoretical explanations that were discussed in the introduction will be used to put Bern into a European context, giving an overall assessment of the canton's alternative way of state-building.

VI-1 Bern as a Surplus State

The Bernese fiscal constitution was overtly patrimonial. It evolved to comprise a structure with numerous coexisting accounts, all of which were interconnected through a complex system of transfer payments. Every officeholder was responsible for all transactions he carried out on behalf of the state with his private fortune. A sophisticated system of checks and balances limited moral hazard and ensured that agents behaved in the government's interest. While the logical way to secure this would have been the establishment of a consistent and transparent budgeting process, this was never attempted by Bern. Instead, the government assessed its financial situation by compiling accounting information in tables, which revealed its half-hearted approach to the reform of fiscal institutions.

My empirical analysis of Bernese state finance takes a two-pronged approach, combining the long-term consideration of the most important government ledgers with a structural breakdown including all accounts for the sample years 1732 and 1782. In absolute terms, the canton's expenditure was comparable to that of other small territorial states in Europe. With an estimated government expenditure of 17-22 tonnes of fine silver per annum, Bern spent about as much as Genoa or Sicily, but considerably more than other Swiss states.⁸⁰⁰ In per capita terms, Bernese expenditure of 55g of fine silver was roughly half of France's, but slightly more than that for

⁸⁰⁰ Figures for Bern are for 1732 (17 tonnes) and 1782 (22 tonnes); see Section IV-2 for details.

Italian or German states of comparable size (see Section IV-2). The overall increase in public revenue, which more than doubled over the course of the century, was extensive in character, as it only mirrored population growth. With an annual growth rate of 1.3%, government finance was also roughly in line with secular grain price inflation in Bern (see Section III-4). Between the sample years 1732 and 1782, revenue grew by 30% when measured in the stable Batzen currency, by 6% when compared to wages, by 12% relative to tiles as a price-stable item; in grain equivalents, revenue even fell by 10%, which because of the high yearly fluctuations of grain prices requires careful interpretation (see Section IV-2). The government used a dual system of monetary payments and contributions in kind to avoid negative effects from grain inflation. Roughly a fifth of overall revenue was levied in grain and wine. This was consumed, stored and the eventual surplus sold on the market.

When considering Bern in the context of the surplus state model presented in the introduction, all elements can now be underlined with empirical evidence: budget surpluses, low level of defence expenditure, the absence of a national debt, investments and low taxation levels.⁸⁰¹ First, the Bernese state consistently ran *budget surpluses* throughout the century. As far as reliable aggregated data is available, this was the case in 78 out of 96 years, with most deficits occurring in the 1790s. On average, the budget surplus was 11.8% of revenue although with high yearly fluctuations. Current revenue regularly exceeded current expenditure, resulting in a *profit* that was then invested. Profit rates averaged 12.6% over the century and were even more volatile than budget surplus rates. If the state was able to increase its overall assets over time this was largely the result of accumulated profits (see Section III-4).

Second, as both the long-run and the structural analysis illustrated, the canton was blessed with *low levels of defence expenditure*. In the two sample years, military spending was an estimated 4.4% (1732) and 10.7% (1782). The latter figure includes the cost of a small expedition to Geneva; if this is excluded, defence expenditure falls to around 6%. This is remarkably low in comparison with other European states, both in absolute and in relative terms (see Section IV-3 and IV-4). However, the cost of Bernese military measured through recorded expenditure alone can paint too rosy a picture. The main defence burden was shouldered by militia soldiers who were trained regularly and provided their own equipment without compensation. If

⁸⁰¹ For details about the elements of the surplus state model, I refer to Section I-3.

extracted labour through the militia system is factored in as an opportunity cost, both defence expenditure and the fiscal burden on the Bernese population rises considerably (see Section IV-5).

Third, Bernese state finance was characterised by the *absence of a national debt*. In contrast to its European neighbours who invented sophisticated techniques of funding their budget deficits by floating loans on the newly established capital markets, the canton had no need to borrow money. This manifested itself in the complete absence of any records of public debt or debt service in the empirical evidence. Instead of amassing debt, the canton accumulated assets.

Fourth, the Bernese government was in a position to *invest* its surpluses with the aim of generating future returns. The main types of investments have been discussed in Chapter III; the data show that foreign capital investments were quantitatively the most important by far (see also Chapter V). Purchases of territories and judicial rights by the Bernese government, for which there is only limited financial information, were relatively few in number as such objects rarely appeared on the market. The state also had relatively moderate sums invested in grain, wine and salt inventories. The cash reserve is a special issue, as it did not generate a direct financial return. Since the treasure was originally intended as a war chest, its 'return' was arguably the peace dividend that ensued for as long as the bullion fulfilled its function of deterrence. The Bernese government had a long history of lending money on the domestic mortgage market, which had fuelled its territorial expansion and reinforced clientelistic relationships. In spite of that precedence, the scale and nature of Bernese overseas lending in the eighteenth century was unmatched by earlier activities. The first massive loans to Britain and Holland in 1710 were partly politically motivated, but their conversion into purely financial investments on the London capital market less than a decade later was not (see discussion below). Bern maintained a loan portfolio that served as an income generator as well as a contingency buffer till the end of the century.

Fifth, to the extent that comparable data is available, the level of taxation in Bern was the lowest of any European state. Only the other Swiss subjects benefited from similarly light fiscal burdens. For the sample years 1732 and 1782, the canton levied an estimated 16-23g of fine silver per capita. This is roughly equivalent to four days' wages for a construction worker or some 2% of economic output (GDP). By comparison, in France tax revenue per capita was roughly three times higher; in the

states of the Holy Roman Empire subjects also paid between two and four times as much (see Section IV-5). Direct taxation on property was virtually unheard of in the Bernese republic. Most of the tax income accrued from indirect taxes on salt – disguised as a monopoly profit – and tithes on agricultural returns. Since the latter were levied in kind, they were also immune to any detrimental effects of grain price inflation. Tithe revenue allowed the Bernese state to enlarge the content of its granaries, which in turn was used to stabilise grain prices as a tool of economic policy.

How dependent the positive equilibrium situation was on the absence of warfare became clear when the geopolitical constellation changed in the 1790s. With an invasion from Revolutionary France as an imminent threat to independence, Bern had to liquidate part of its overseas assets and current expenditure soared. Budget surpluses and high investments became hallmarks of the past. Ironically, the prospect of looting the legendary treasure of the canton was one of the main attractions which enticed the Napoleonic troops. At the downfall of the Bernese republic in 1798, the militia's military strength was dismal. Ultimately, the 'war chest' deterrence strategy had failed.

As outlined in the thesis introduction, the model of Bern as a surplus state functioned as a positive equilibrium structure, in which all elements are interdependent and mutually reinforcing. Some of the more obvious connections have been pointed out as *Militia-*, *Representation-* and *Investor Cycles* in Section I-3. The militia system secured national defence at a relatively low cost to the state, in spite of the cost to individuals serving in the army. Spending over a month in unpaid training every year meant an important deduction from potential earnings, although it kept the pecuniary tax burden low. Issues of domestic security in Bern were minimal; tax riots in particular were not common. The main forms of political protest were aimed at opening up participation in the republic within its existing form. This also ties in with the representation cycle. Since the Bernese state did not have to rely on direct taxation, there was no need to accommodate demands of taxpayers-cum-subjects. Embryonic attempts to integrate ruling elites from the territory into the government towards the end of the century were mainly intended to stabilise Bernese rule. Returns from the government's overseas portfolio investments helped to keep the fiscal burden at a low level and curtail attempts to reform the state fundamentally.

Bernese financial support to the Dutch and British in 1710 was on an entirely different scale from what had been lent in earlier centuries. Compared to the Bernese budget, the sums invested were huge: the 1710 investments were roughly 1.5 times the sum of overall government revenue for 1732. The loan to the British crown alone (£150,000) was more than 50% larger than the cost of the second war of Villmergen. Interest payments contributed roughly a fifth to current revenue (see Section IV-3 and V-2). The loans only covered a fraction of the borrowers' expenditure of the War of the Spanish Succession, however. The financial – as opposed to political – dimension of Bernese loans became apparent when they were converted into portfolio investments upon redemption. In the 'teething age' of capital markets, the canton made an enormous profit during the South Sea Bubble of 1720. A combination of ignorance and slow communication resulted in the sale of government assets at the right time. Although a portion of the windfall was lost through the opportunistic behaviour of their London agent, Bern still made a substantial profit and emerged as one of the largest individual investors on the London market.

The lesson that the Bernese government gleaned from the events of 1720 was to carry out its own portfolio administration rather than leaving it to financial intermediaries who were difficult to monitor. The Great Council was willing to pay a high risk premium for this solution, which was in place for four decades. Otherwise the government changed little in its investment strategy; it was only in 1732 that the loan portfolio was diversified by investing on the continent. Throughout the second half of the century, Bern regularly lent money to foreign rulers, which in turn made the republic dependent on the goodwill of these borrowers. In particular, the fear of Britain renegeing on her national debt undermined the perceived security of Bernese portfolio investments and was ultimately in conflict with their purpose of enhancing government independence.

In terms of fiscal redistribution, the results from the data are what would be expected for an early modern state. The government taxed the least mobile resources, mainly agricultural returns and salt, while spending its budget on salaries and consumption. Hence the primary sector bore the largest part of the fiscal burden, and administration was the main beneficiary of state expenditure. The small size of the contribution made by proto-industry towards state finance is remarkable; it was almost entirely free of tax. The relatively small share of the Bernese budget compared

to the size of its economy meant that the scope for fiscal redistribution was small, thus limiting its economic effects.

VI-2 The Tithes that Bound

The Bernese government relied heavily on physiocratic and patrimonial ideals; both were epitomised by the tithe as a cornerstone of the canton's finances. Tithes allowed for an accumulation of granaries which were primarily a safeguard against harvest failures. In addition, granaries were also intended to stabilise prices while guaranteeing a lucrative profit if the government sold grain when prices were high and stored it when they were low. The empirical evidence suggests that this was the case for most years (see Section III-6). During severe harvest failures however, the government used large sums from the cash reserve to cover shortfalls in food supply. In the most dramatic agricultural crisis of the century in 1770, the Grain Chamber bought over 5,000 tonnes of grain from Sicily and Africa for 7.7m Bz. By selling it at a loss of 30% in spite of its high price, the government was willing to sustain heavy financial losses to prevent starvation and social unrest (see Section III-5). The idea of saving for the unexpected followed from a patrimonial attitude towards state finance. The state's budget was regarded akin to that of a household, in which good housekeeping should prevail. Spending more than could be afforded was frowned on and debts were considered living off future generations of citizens. The tight budgetary framework of the Bernese government was partly a result of this ideology by which expenses were curbed to stay in line with the limited resources.

Overall, the provision of public goods by the state was favourable. Bernese rule was relatively mild and benevolent; the state administration was effective and inexpensive. Courts were non-discriminatory by early modern standards, and the interference of the ruling elite to secure its economic privileges was comparatively small. Nevertheless, the judicial system remained fragmented and was an impediment to 'Smithian' growth through market expansion. The government was mainly concerned with agricultural issues, not least because Bernese patricians were landholding gentry and tithe revenues were crucial to state revenue. Patricians were also among the most important private recipients of tithes and land rents, which is why property rights for mortgages were better developed and protected than mercantile law.

The government controlled the administration of the canton very tightly. The main positions were staffed by patricians, who were elected as bailiffs to govern over counties in the subject territories for a limited period. These positions were not sinecures; a bailiff was expected to reside *in loco* and carry out administrative tasks himself. With its extensive territory, the canton provided a sizeable number of relatively well-paid administrative offices, which were recruited exclusively from the Great Council. The Bernese parliament had evolved into a body of full-time politicians-cum-administrators whose main ambition was to serve in one of these positions. Bernese patricians retained traits of Weberian *honoratiore*s, although the ideal of serving the Res Publica for the sake of civic duty had been replaced by a generous remuneration for government offices. Access to government became increasingly limited by the high opportunity cost of waiting until accession to a lucrative position. Patricians were usually well educated and prepared for their duties, having been groomed with the prospect of becoming bailiffs at some point in their lives. In this sense, the Bernese administration bore some traits of a professional bureaucracy without fulfilling its main criteria of recruitment by qualification. Without a proper separation between private and public fortune, patrimonial traits persisted.

An incumbent bailiff was in charge of the public inventory, for which he was held accountable by the government. He collected revenue on its behalf and was allowed to deduct expenditure within strict guidelines set by the *Vennerkammer* as a supervisory board. The *Venners* also scrutinised the yearly accounts submitted by each bailiff on the financial aspects of his administration. Overall, the government followed a frugal – or parsimonious – approach to state finance. Lavish expense on representation was curtailed to make the state appear useful and sensible in its budget management. These were the virtues of a patriciate that considered itself the caretaker of the republic on behalf of future generations – more precisely, future generations of patricians. Towards its subjects, the government adopted a more paternalistic attitude, with the intention to provide a minimum of state activity at moderate cost, *sans* taxation and representation. In their daily administration, bailiffs were assisted by local support staff. These were often recruited from subaltern nobility who had secured exclusive access to their positions akin to the preferential entry that the patricians had into the government of the republic. These minor officials exercised considerable influence at the local level, mainly through an information advantages

they had over other subjects on one hand and over bailiffs who only served for a limited tenure on the other.

Since the bailiffs as those who were ultimately in charge of administration were also part of the government, this ensured that incentives of the two bodies were aligned. Principal-agent problems were therefore limited in their impact on the Bernese state. The remuneration of bailiffs illustrates this point well. They received a fixed salary complemented by variable payments for specific tasks and a share in the proceeds from grain sales. The latter gave them an incentive to sell grain at the best possible price. Based on the empirical evidence from the grain market in Nidau county this seems to have worked well: grain was usually sold when prices were high, to the benefit of both state and bailiff (see Section III-6).

As far as contemporary sources are available, the Bernese bailiffs appear to have achieved a reputation of being incorrupt and just. Although there may have been a bias in the tradition, the outlook of patricians and constitutional arrangements are viable explanations for this phenomenon. The constitutional arrangements in particular ensured that bailiffs were properly scrutinised and that any abuse of office was punished. A ban from future elections into government positions was a threatening prospect for any officeholder, since it could apply to his entire family. This created a system of peer pressure, which was further fuelled by the rivalry between families. The reliance of Bernese patricians on income from landholding limited economic conflicts of interest considerably. Because they were not involved in commercial or industrial activities, government factions had few vested interests to defend. On the other hand, from the perspective of farmers whose land was subject to tithes, the degree of government control was significant because in addition to the tax on agricultural revenue, cultivation was dependent on the landlord's consent. The choice of crops was determined by fiscal needs rather than by nutritional benefits. In addition, there was the risk of bailiffs abusing their information advantage to strengthen their own position in the mortgage market. The government's involvement in agriculture was not entirely negative, since patricians were among the main promoters of agricultural reform within the existing feudal order. The programme of the Economic Patriots, who were prominently represented in the Bernese government, was targeted at increasing domestic food production with the aim of maintaining the canton's economic independence and securing government revenue through high tithe receipts.

For (proto-)industry and commerce, the lack of involvement of Bernese patricians in economic affairs had a two-fold impact. First, regulation was moderate and can be characterised as benign ignorance. Economic privileges existed locally, but overall subjects were free to engage in economic activity. The systematic preference of the capital towards its territory, which occurred in other city republics, was absent in Bern. This negligence proved less benign for export-oriented industries. Bernese textile producers could not rely on their government to protect access to markets for imports and exports in the way privileged merchant-producers of St Gallen or Zurich could. While these cantons boosted cotton manufacturing, Bern was stuck with low-quality and low-margin linen production. It appears that in a world of mercantilism, the absence of protection outweighed the benefits of free enterprise. However, the fact that the canton missed out on industrialisation in the early nineteenth century only seems like a failure in retrospect. From a contemporary perspective, specialising in agriculture as the most profitable activity of its time made sense. On this note, the Bernese economy was arguably a victim of its own success based on the territory's rich soils and mild climate. The opportunity costs of changing to export-oriented proto-industry were too high. In terms of state-building, on the other hand, the strong reliance on the primary sector with its large yearly fluctuations limited the ability to plan ahead.

With its reliance on revenue extraction via tithes and forced labour through the militia the Bernese state was characterised by Béla Kapossy as an agricultural military republic.⁸⁰² This description is accurate as long as the absence of a standing army is acknowledged as a significant difference to other military states.⁸⁰³ It is also important to stress that commercial republics, such as Venice or the Dutch Republic, were largely funded through taxation on commerce and property, as well as by issuing public debt on the capital market.⁸⁰⁴ In the logic of the Bernese surplus state, relying on income and indirect taxation was inopportune because potential taxpayers would have to serve in the militia army in times of geopolitical crises when revenue was most urgently needed. This offered an additional reason for the state to accumulate surpluses as a contingency measure.

⁸⁰² Kapossy (2002)

⁸⁰³ The most obvious example is Britain, which has been labelled a fiscal military state: Brewer (1989); O'Brien (1988); O'Brien (2001).

⁸⁰⁴ Hart, M.t. (1999); Hart, M.t./Jonker/Zanden (1997).

Among the negative aspects of state-building in eighteenth-century Bern was that political representation and participation in top-level administration was limited to less than 1% of the population. Even among the citizenry, the concentration of office holding within an increasingly small patrician oligarchy deprived many talented Bernese subjects of playing an active part in the governance of their republic. This led to a status inconsistency, which was felt acutely by the economically successful who were unable to transfer their wealth into political power or rents. Furthermore, Bernese markets were only partially integrated domestically, much less with the remainder of the Swiss Confederation. The lack of a stronger push for economic unification was an impediment to 'Smithian' growth based on market expansion and regional specialisation. While this applies to Bern as a state, the potential benefits from judicial, institutional and market integration would have been even larger on the scale of the Swiss Confederation, which remained fragmented until the advent of the federal state in 1848. Even within *Ancien Régime* Bern, numerous path dependent inconsistencies prevailed, such as different measurements, customs, and inequalities. Property rights were relatively secure, but the legal system was ill-prepared for commercial activities.

The reliance on tithes for state funding was an important barrier to more radical agricultural reforms. The government and its patrician members as individual landholders had a vested interest in maintaining an existing 'feudal' mode of production which maximised the production of cash crops (wheat) for fiscal revenue rather than the most productive mode of agriculture, such as potatoes or dairy farming. A breakthrough in agricultural productivity increase was only reached after 1798, in spite of some precursors during the *Ancien Régime*. In the Oberland, where feudal structures were historically weaker, the economy shifted to a market-oriented mode of production much earlier than in the grain- (and tithe-) producing parts of the canton. The fact that production was free was arguably more important than the level of taxation. As a comparison with the textile industry suggests, exemption in itself was no guarantee of innovation. The Bernese textile sector may have been virtually free of tax, but it ultimately failed to succeed because it had neither the dynamism nor ability to adopt new commercial strategies.

VI-3 An Alternative Way of State-building: Fossil or Free-Rider?

The concept of a militia state and the idea that the state should rely on its own resources stemmed from traditional European ideals for state finance. They were amongst the constituent elements of the medieval *domain state* described by Joseph Schumpeter.⁸⁰⁵ If Bern was able to follow its virtues for so long, this was mainly due to its isolation from geopolitical pressure. Although the transition from domain state to tax state was not as well choreographed as it first seemed in Schumpeter's model, by the eighteenth century, domain states had become rare in Europe. From this perspective, Bern and the other Swiss states seem like fossils of a bygone era.

What changed was the nature of the domain. It was not limited to lands any more, but followed the Cameralist doctrine and expanded its activities to entrepreneurial activities such as salt trade and money lending. To use a term by Richard Bonney, Bern had become an *entrepreneurial domain state*.⁸⁰⁶ Interestingly, mercenary services as one of the pioneering activities from which states had made economic profits had been buried to oblivion, at least from the perspective of state finance. In earlier centuries, the Swiss republics received important pensions from foreign states against the right to recruit troops. This was not the case in eighteenth-century Bern any more; its mercenary troops had evolved into the private business of patrician families. They kept a geopolitical importance and remained under tight political control through defensive treaties. In financial terms however, the Bernese state did not benefit financially from the export of mercenary services. In this sense, it differed significantly from another eighteenth-century surplus state, Hesse-Cassel, which invested the payments for mercenary troops on the London capital market in a similar fashion.⁸⁰⁷

The canton profited in other ways from the externalities of European warfare. On one hand, the contracts for mercenary regiments ensured that the troops could be used at home in case of war, which helped to secure national defence by deterring potential invaders. Returning mercenaries also boosted the capacity of the Bernese militia, ensuring that at least some of the troops and officers had fighting experience. Put differently, Swiss soldiers killed on the battlefields of Europe were part of the

⁸⁰⁵ Schumpeter (1954).

⁸⁰⁶ Bonney (1995c): 447-463; for cameralists, see also Bonney (1995a): ch. 6.5.

⁸⁰⁷ Ingraio (1987). Interestingly, the Hessian 'business model' looks similar to that of sixteenth-century Swiss states: see Körner (1980) and Körner (1999).

price to pay for military independence and ‘neutrality’. The other significant way in which Bern benefited from geopolitical rivalry between other European states was through funding part of their national debt. Without the pressure of ever-increasing military costs, the establishment of capital markets in which impersonal and highly liquid bonds could be purchased was unlikely to have happened on such a large scale. Insignificant as Bern’s participation may have been to the recipients of its loans, the loans themselves represented one of the main contributors to the canton’s finances. Bern, in other words, was a *free rider* on the pan-European spiral of ever-increasing warfare expenditure and public debt. Additionally, there is a political twist to this free rider approach: by investing in Britain, the patrimonial and paternalistic Bernese government benefited from a national debt that was based on parliamentary consent, the very thing it hoped to avoid at home. One reason for the low fiscal burden was that across the channel, a ‘body of chauvinistic taxpayers’ (O’Brien) was willing to fund the geo-political aspirations of its government.⁸⁰⁸ It is truly ironic that the Bernese government, which invested abroad to avoid taxing its own population, benefited from the financial revolution in Britain in Holland, both of which relied on increasing the coercive capacities of their states to secure tax income.

There was an intrinsic conflict between the entrepreneurial element of Bernese state finance and its character as a self-reliant domain state. By investing abroad, the canton was purportedly dependent on other states, which ran against the ideals of Economic Patriotism. A public debate ensued about the sustainability of overseas investment as contemporary observers struggled to come to terms with the contradictions between autarchy and profits maximisation. In spite of mild criticisms of overseas investment, attempts to curtail dependence on lenders were ultimately unsuccessful. The government never seriously considered the liquidation of its assets except for funding military needs. The fruit of secure returns from abroad were too sweet for any radical alteration of the financial strategy.

The situation of the state hoarding and investing resources rather than spending it on welfare or to support industry has been diagnosed by Richard Feller as ‘an anaemia of commerce and trade, and a hypertrophy of the treasury.’⁸⁰⁹ This is a teleologic and anachronistic view, since the expectation of Bern’s engagement in modern-day welfare activities is clearly an illusion. The low levels of domestic investment were caused by the absence of sufficiently attractive opportunities within

⁸⁰⁸ O’Brien (2001): 25.

⁸⁰⁹ Feller (1912): 45.

Bernese territory. As evidence from the domestic capital market illustrates, being a surplus state was not entirely beneficial to the economy but could create an *embarrassment of riches*. Attempts by the government to invest on the local mortgage market led to a ‘reverse crowding out’ in which the state competed with private actors for the best investment opportunities. The results of this were low returns, credit rationing and capital export. Even if the oversupply of capital limited the adverse effect of credit rationing for the overall economy in Bern, wealthy individuals found it difficult to secure productive investments (Section V-2). The question remains why the abundance of capital did not lead to more productive investment. This might be yet another puzzle for historians to ponder.

Another open question is if the canton could have been as a state supporting industry and trade (a ‘Gerschenkronian’ state). It certainly had the financial means to do so, but the government decided not to follow this avenue after some unsuccessful attempts in the late seventeenth century, when a Commercial Council had been established. With their lack of commercial background, it is not clear how successful Bernese magistrates would have been in sponsoring (proto-)industry and protecting export markets. An engagement in the sector that most patricians were familiar with, namely agriculture, would have been more realistic. To be commercially successful in this area implied moving away from grain cultivation to dairy and cattle farming in many parts of the country – which is what happened in the early nineteenth century. The consequence would have been to change the feudal order and undermine the state’s tithe base. It could probably have been possible for the state to introduce some form of tithe-like income tax on agricultural returns to replace tithes. The opportunity cost of switching to a more commercially oriented agriculture must have been too high for the decision makers in Bernese government to ever consider such a change seriously, however. Instead, they preferred the status quo which benefited their interest as a social group most.

An overall assessment of Bernese state-building must stress its differences to the European paradigm. While it is commonly argued that state-building was a function of rising demands for funding geo-political rivalry, the cantons of the Swiss Confederation were curiously isolated from these developments. Yet, as I have argued in my thesis, the process of state-building clearly took place, albeit on a moderate level. The government attempted to unify its territory slowly while assuming new powers in the field of jurisdiction and economic policy. Furthermore,

the burgeoning number of decrees had a deep impact on the daily lives of its subjects. All this occurred within the boundaries set by limited resources, as the government only controlled a small part of the country's economic output. While the size of its budget increased in absolute terms, it hardly outpaced the rate of population growth.

Relying on traditional sources of revenue extraction as well as entrepreneurial returns, the Bernese government was dependent on co-operation from its subjects rather than top-down coercion. It stressed the legitimacy of its financial claims and largely restrained from introducing new fiscal duties. This *legitimacy approach* to state-building is an interesting niche strategy. It was a cost-effective alternative to the avenues taken by more coercive regimes. The Bernese state had neither the force nor the willingness to introduce a tax state, which would undoubtedly have faced fierce opposition by armed subjects on whom the government relied for defence. In this sense, the canton was trapped in its surplus state equilibrium. It could even be argued that the government failed to tax its population to the degree it could have. On the other hand, rather than being caught in a spend-and-tax spiral like most other European regimes of the time, Bern kept its budget in balance and on a moderate level.

Bern is therefore in strong contrast with all explanations of state-building that focus on geopolitical pressure as the main force in shaping polities. For example with respect to Charles Tilly's explanation, the canton followed neither a warfare and tax intensive way of state-building, nor could it rely on economic development to provide a substitute in the form of an increasing tax base. Its commercial base was small and lightly taxed. State-building in Bern was not coercion intensive, capital intensive, and also did not follow Tilly's third possibility of 'capitalised coercion', but an alternative route that was non-coercive and capital extensive. Although political representation was limited, the state-building process was consent based. The consent was not explicit and formal, but implicit: Bernese subjects were armed and posed a constant revolutionary threat. Furthermore, many decisions were delegated to the local level. This brings the canton closer to explanations by a state-building from below approach in the spirit of Peter Blicke and others. A better expression would probably be state-building with implicit consent, as the initiative was top-down and not bottom-up. With its respect for old traditions, at least in their formal way, Bern showed elements of an 'Old European' state in Gerhard's sense. Underneath the medieval structures,

the nature of the republic had fundamentally changed by the eighteenth-century, however.

Considering Bern from a perspective of New Institutional Economic History, the overall assessment seems favourable. Property rights were guaranteed and most political institutions were efficient in reducing externalities. The result of this in economic growth was not outstanding, however. This might be related to the fact that commercial property rights did not benefit from additional protection. Additionally, for most of the agricultural production the traditional feudal institutions that were in place in Bern – the crop rotation system and tithes – had significant externalities that made the return to the cultivator different from the overall agricultural return. The incentive to be more productive was small. The situation was different for enclosed lands, in which increased returns went directly to cultivators.

Finally, it is also difficult to reconcile the developments in Bern with Thomas Ertman's model of state-building that was outlined in the introduction (see Section I-2). While its infrastructure was clearly patrimonial in character, it is not clear where the canton's political regime stands on the scale between *constitutional* and *absolutist*. The government was not built on any formal consent from its subjects; they were not directly represented in the political sphere for the most part. However, this 'absolutist' rule was curtailed by the need to rely on cooperation from the ruled. Paradoxically, the very role of parliamentary assemblies in Bern was not to increase representation, but to limit it to an increasingly select group of oligarchic patrician families who extended their rule over the territory. The fact that Bernese financial history cannot easily fit into Ertman's model does not invalidate his explanations entirely. Rather, the contradictory outcome offers the possibility of exploring boundaries of his explanation and to challenge certain assumptions. Most significantly, it illustrates just how unique the Bernese state-building process is in a European context.

As a closing comment, while my thesis has described Bern as an extraordinary example of a state that runs against the paradigm of early modern state-building, this might in part be partly the result of a general neglect by the scholarly community when it comes to including peripheral countries into high-level explanations of state-building. After all Bern, along with the rest of the Swiss Confederation, might be representative of another Europe that has been overlooked all too often in

comparative studies focusing on the large, warring states which have survived into the modern age.

VII Appendix

VII-1 Abbreviations

£	Pound Sterling [Currency]
ACV	Archives Cantonales Vaudoises
Ag	Silver
AG	Aargau
Au	Gold
BBB	Burgerbibliothek Bern
BE	Bern
BE-Lb.	Pound; Bernese Pound [Currency]
BERO	Bank of England Record Office
BL	British Library
BoE	Bank of England
Bz	Batzen; Berner Batzen [Currency]
CAPM	Capital Asset Pricing Model
CC	200 (= Great Council)
EIC	East India Company
ESFDB	European State Finance Database
fl.	Gulden [Currency]
GDP	Gross Domestic Product
GE	Geneva
Hfl.	Dutch Guilder [Currency]
HPR	Holding-Period Return
Kr.	Krone, Crown [Currency]
L.	Livre Suisse; (Alter) Franken [Currency]
LU	Lucerne
NIE	New Institutional Economics
PRO	Public Record Office
R.	Reichsthaler [Currency]
RQBE	Rechtsquellen des Kantons Bern [see References]
SD	Standard Deviation
SH	Schaffhausen
SSC	South Sea Company
StABE	Staatsarchiv des Kantons Bern
StAAG	Staatsarchiv des Kantons Aargau
StUB	Stadt- und Universitätsbibliothek Bern
Thl.	Thaler [Currency]
VCB	Vienna City Bank
VD	Vaud
Xr	Kreuzer; Berner Kreuzer [Currency]
ZH	Zurich

Please note that abbreviations for accounts are shown separately on page 324.

VII-2 Glossary (Translations of German Words)

English translation	German original (primary sources and literature) ⁸¹⁰
Arrear(s)	Restanz
Arsenal-Senator	Zeugherr
Bailiff	Landvogt, Amtmann
Canton	Kanton, Stand, Staat, Ort
Central Account	Standesrechnung ⁸¹¹
Commissioner	Kommissar, Kommissarius
Commons	Allmend
Commune	Gemeinde
Condominium	Gemeine Herrschaft, Mediatamt
County	Amt ⁸¹²
County Enquiries	Ämterbefragungen
Court Clerk	Gerichtschreiber
Crop Rotation System	Dreizelgenwirtschaft
Demesne: <i>see</i> Domain	
Diet: <i>see</i> Federal Diet	
Domain, <i>sometimes</i> : Demesne	Domäne
Federal Diet	Tagsatzung
Financial Commission	Geheimer Rat und Beigeordnete
Government	“Schultheiss, Rät und Burger”; Regiment
Grand Officer	Grossweibel
Great Council (CC)	Grosser Rat, Burger, Rat der 200, CC (Latin for 200)
Mayor	Schultheiss
Peasant’s Revolt	Bauernkrieg
Public Morals (Policing of)	Sittenzucht
Salt-Senator	Salzherr (vom Rat)
Secret Council	Geheimer Rat, Geheimrat
Secretees	Heimlicher (H. von Burgern)
Senate	Kleiner Rat, Kleinrat, Rat
Small Council, <i>see</i> : Senate	
State Clerk	Staatsschreiber
Swiss Confederation	Eidgenossenschaft, alte Eidgenossenschaft, <i>Corpus Helveticum</i>
Townhall-Mayor	Ratshausammann
Treasurer	Säckelmeister, Quästor/Quaestor
Vice-Mayor	Stillstehender Schultheiss
<i>Venner, Vennerkammer</i>	[not translated; the original meanings of banner bearer and chamber of banner bearers cannot capture their functions, which included financial auditing]

⁸¹⁰ For the meaning of the terms in the primary sources, see Schweizerisches Idiotikon (1881-present); HLS (2002) and HBL (1921-1934).

⁸¹¹ There were two *Standesrechnungen*, one for the German speaking territory (*Deutsch Standesrechnung*) and one for the Vaud, or French speaking territory (*Welsch Standesrechnung*).

⁸¹² In the sense of: district (not: office).

VII-3 Original Texts Quoted in Chapter II

StABE B VII 862 (Jahrrechnung Aarberg):

Mein[e,] Johann Rudolff Wagner[s,] Vogts der Grafschaft Aarberg[,] zweyte Rechnung und Bescheid Alles meines Einnemmens und Außgebens solchen Amts wegen[,] vom Neüw Jahrs Tag 1782 biß Gleiche Zeith 1783.

[...]

Montags den 10tn February 1783 ward vor MnHgH. Teütsch Sekelmeister und Venneren, gegenwärtige Herren Johann Rudolff Wagner[s,] Landvogts zu Aarberg[,] 2te Amts Rechnung abgehört, und under dem gewohnten Vorbehalt der Mißrechnung, pahsiert, und gutgeheißen, durch welche dann, nachdeme bevorderst [es folgen Rechnungskorrekturen, sowie] der Herr Amtsmann auch mit etwas an Getreyd gratificiert[,] folgens Einnemmen und Ausgeben gegen einander gehalten, und abgerechnet worden, derselbe, mit Begriff seiner ferndirgen Getreyd Restanz, MmGhHrn ausher schuldig verblieben An Kronen 669, An Kernen 20 Mt, An Mühlekorn 20 Mt, An Roggen 75 Mt, An Dinkel 1769 Mt, An Haber 540 Mt.
Actum ut Supra.

VII-4 Categories of the *Deutsch-Standesrechnung* 1732

German (original)	English Translation
<p>EINNAHMEN An alten Restanzen Von Ohm Geld Von Zöllen und Gleith wegen Von Vögten, Ambt Leüthen und Schaffneren Von der Statt Wein-Schenk und Kornmeister An Zinsen An AbLoosungen An Steuern und Tribut An Verhör- Einzug- und Legitimations-Gelt An Bueßen, Confiscationen und Lehen Von Vergabungen und Erkaufften Pfründten; Von Verkaufften Häuseren, Erdrich, Wein und dergleichen An Habitanten- und Hinderäß-Gelt Das Allgemeine Einnemmen Verndige Restanz</p>	<p>REVENUE debts (arrears) of former officials wine tax customs duties balance from officials' accounts balance from the wine and corn accounts interest payments repaid loans special taxes and tribute judicial and criminal duties, confiscations, fines donations and pensions sold goods (houses, land, wine, etc) immigration and naturalisation taxes general revenue balance (arrears) of previous year</p>
<p>AUSGABEN Ordinaria An Rahts Besoldungen Das Allgemeine Außgeben An Leib-Gedingen, Baden Curen, Steuern, Allmoosen, Passaden, ProSemel und Dergleichen An Brand und Anderen Steuern Der FreyWeiblen Verdienst Verdienst sonderbarer Personen Bezahlte Restanzen Von Erkauftem An Gültbriefen Von Stifften, Pfarren und Studenten wegen An Zehrungen Von Gebatüwen wegen Umb Lundsche Tücher Schürletz, Wiffling und Leynen- Tuch Reith Löhn Mrghh. der Rächten / der Burger / der Knechte Amm Löhn und Verding zu Handwerken Artzet Löhn HandWerks Leüth Der Ambt und Dinst Leüthen Fronfastliche Bestellungen Restanz</p>	<p>EXPENDITURE ordinary salaries remuneration for government members general expenditure annuities, pensions, alms, cures, etc; payments for fire damage ("fire tax") salaries of "particular persons" (state employees) redeemed debts from former officials purchases loans stipends for religious education meals for buildings (maintenance and construction) cloth for uniforms riding expenses (i.e. travelling expenses) for Senators, Great Councillors and Servants nursing and indentures (orphans) medical expenses services by craftsmen expenses for official's horses arrears (i.e. balance)</p>

Table VII-1: Categories of the *Deutsch-Standesrechnung* 1732

Source: StABE B VII 613 (Deutsche Standesrechnung; 26 December 1731 to 26 December 1732)

VII-5 The *Restanzen* System

The Bernese state used a complicated system to transfer funds from its administrative units or institutions to the government. It relied on claims from the government on its officeholders, who were liable for all transactions that they carried out on behalf of the state with their private fortune. This system was particularly important for bailiff accounts (Type D accounts). For these, the balance at the end of the financial year was determined as an arrear (*Restanz*), which could then be transferred to central government. In reality, the technique was both complex and sophisticated. It had been invented to cope with the fact that many transactions in the counties were not paid in cash but in kind, mainly in grain and wine. To minimise the transportation of grain for account settlement at the end of each financial year, as well as to avoid the negative effects of high price inflation and volatility for foodstuffs, Bern used an accounting system that combined monetary with non-monetary units. Every incumbent had to take over the public inventory as his debt to the state while in office. All his transactions on behalf of the state were then added or subtracted from this debt. Temporary balances at the end of each financial year determined the amount of an officeholder's debt, which was called *Restanz*. While monetary balances were immediately transferred to the state at the end of each accounting year, an eventual inventory arrear was carried over to the next account for the time of an officeholder's tenure as *Restanz*.⁸¹³ Inventory arrears of the previous year (*Vorjahresrestanz*) constituted the opening balance of every ledger. This way, subsequent accounts included earlier debts of an officeholder towards the state. The final balance at the end of tenure was equivalent to the bailiff's total debt towards the state and hence also called *Restanz*. Using the word *Restanz* – as well as its English translation as *arrear* or *leftover* – is problematic in the sense that it has not been consistently used by contemporaries or historians. On one hand, the *Restanz* consisted of what was left over when expenditure was subtracted from revenue. In other words, it described the account balance (*saldo*) at the end of an accounting period.

The working of the *Restanzen* system is illustrated schematically in Figure VII-1. Please note that time runs from top to bottom and from right to left, to minimise arrows running across the graph.

⁸¹³ StABE B V 1470, 136-143.

The *Restanzen* System of Arrears (Type D Accounts)

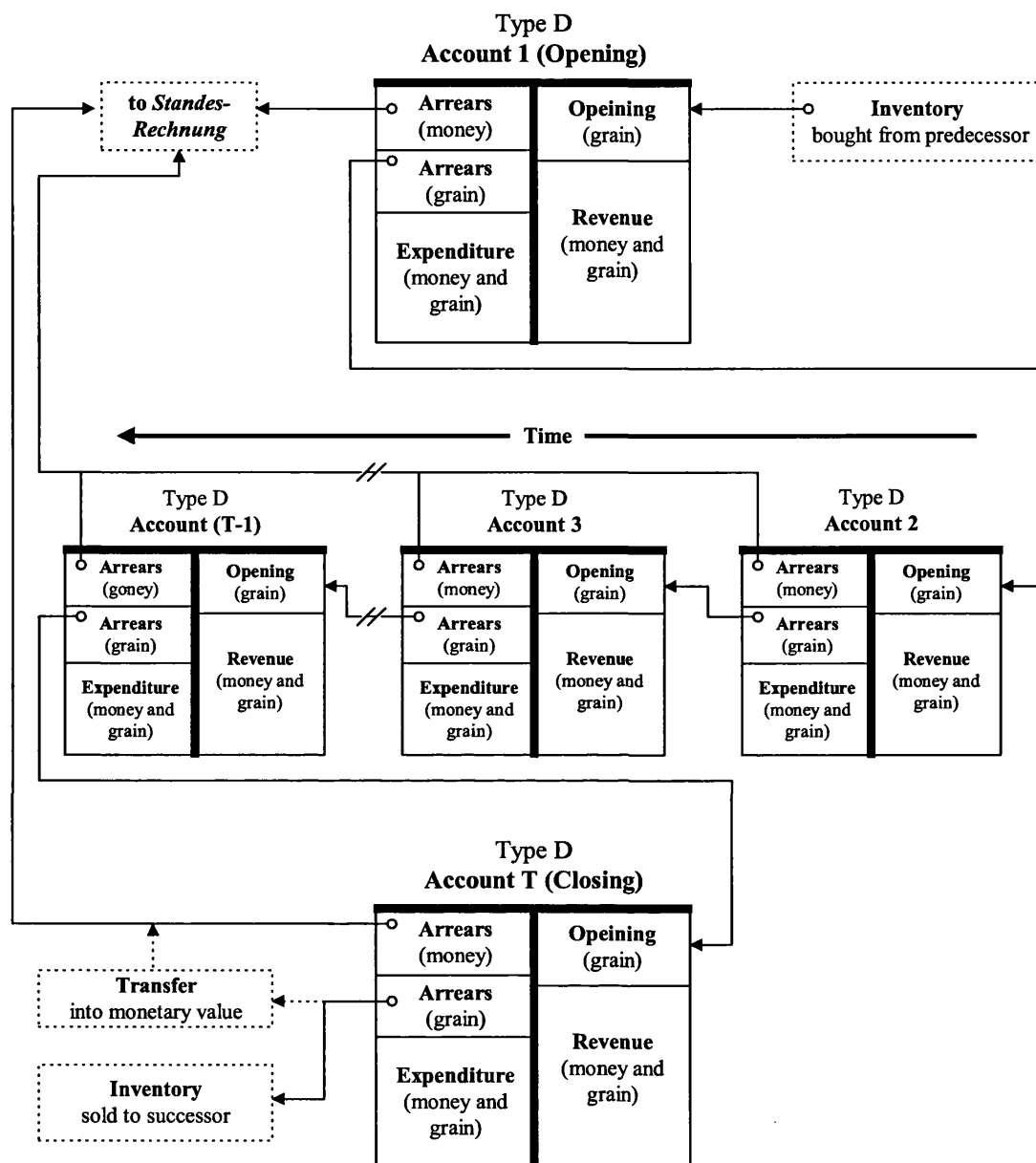


Figure VII-1: The *Restanzen* System of Arrears (Type D Accounts)

Abbreviations: T = Tenure. I have translated the term *Restanz* as *Arrears* for this figure.

Each new officeholder had to buy the content of the inventory – consisting mainly of the public granary – from his predecessor in the so-called *Amtskauf* (purchase of office).⁸¹⁴ The sums necessary to take over the inventory of a large county could be considerable and it would take a bailiff the full five years in office to accumulate enough funds for amortising this debt. In accounting terms, the purchased public granary was booked as an inventory, or opening balance, in the bailiff's first account. Added to this was the current revenue for the first accounting year. Once current expenditure was subtracted from total revenue, the difference was the first-year

⁸¹⁴ The handover of the office was called a bailiff's *Aufzug* (start) and *Abgang* (end). See also: Leuenberger-Binggeli (1999): 161.

Restanz a bailiff owned to the state. The monetary *Restanz* was due immediately, while an eventual grain *restanz* was carried over to the next account, where it was entered as an opening balance. Again, the bailiff added his current revenue, subtracted current expenditure and determined the new *Restanz*. This process was repeated for his period in office. In the closing account, the grain inventory was sold to the successor and the remaining debt in grain converted into a monetary debt. It was then added to the monetary balance of his closing account to determine the bailiff's final *Restanz*. After leaving office, bailiffs had 27 months to settle their final debt to the state.⁸¹⁵

In terms of institutional design, the main problem of a *Restanzen* system is that the state accumulated relatively large claims on its office holders during their tenure. *Restanzen* are in fact nothing but involuntary loans from the government to its officials. When it came to repayment, bailiffs often took their time, thus benefiting from an interest-free loan. In 1695, the Great Council confirmed the generous policy towards officeholders in terms of *Restanzen* repayment.⁸¹⁶ To overcome the issue of moral hazard – office holders not repaying their arrears – the punishment for belated payment included limitations on the eligibility for government positions. However, the fact that Bern did not introduce a penalty fee on late payment, or an interest payment on outstanding arrears, shows that the patrician families were probably not as diligent as they could have been in policing abuse of their peers.

Another way of looking at *Restanzen* is to understand them as an indicator for the profitability of an office and, if all offices are added up, of the overall state administration. The annual change in *Restanzen* shows the surplus (loss) between revenue and expenditure in any given accounting period. Therefore, the difference between revenue and expenditure should equal the difference between the current *Restanz* and that of the previous year.⁸¹⁷ I have calculated this for the county of Aarberg from 1700 to 1796. If grain prices are kept stable to eliminate the effect of price fluctuation, the two series are virtually identical. The correlation coefficient of 0.967 is significant at the 1% level.⁸¹⁸

The difference between the inventory a bailiff sold to his successor and the amount of grain received from his predecessor when starting the position was the bailiff's profit in grain. Added to this were eventual cash profits, if monetary expenditure and arrears were smaller than revenue. All these profits came in addition to his regular salary and *ad hoc* payments for administrative activities. Of course a bailiff could also make a loss during his term in office, notably when climatic distress lowered agricultural proceeds.

The *Restanzen* System in Practice: Johann Ott in Aarberg, 1731-1738

A concrete example from the county of Aarberg can illustrate how the *Restanzen* system worked in practice. Johann Ott (occasionally spelled Otth) was Landvogt of

⁸¹⁵ StABE B V 1470, 136-143.

⁸¹⁶ StABE B V 1470, 136-143.

⁸¹⁷ This is valid for transactions in kind; the monetary balance was transferred to the Treasury at the close of each accounting period.

⁸¹⁸ Data for Aarberg accounts, 1700-1796 (missing: 1729): StABE B VII 851-872; N = 115; I have used Pearson's Correlation (significance two-tailed). N is greater than 100 because of the numerous handovers, i.e. there are more accounts than years. Grain prices have been fixed at the mean over the whole time period for each type of grain.

Aarberg from 1731 to 1738.⁸¹⁹ He took over the office on Gallus day (16 October) 1731, which was the traditional handover date for most counties.⁸²⁰ Interestingly, while the handover day remained unchanged throughout the century, the accounting year varied with each new bailiff. It could be, say from 13 January to 13 January. For Johann Ott, the accounting year coincided with the calendar year. Therefore, his opening account covered the period from 16 October 1731 to 31 December 1731.⁸²¹ For the following years of his tenure, ledgers covered the calendar years from 1732 until 1737. Ott's closing account was for the period from 1 January until 15 October 1738, when his successor took over the post.

In Figure VII-2, all grain transactions have been converted into Berner *Batzen*, using prices from the bailiff's accounts. It follows the schematic outline of Figure VII-1, with revenue on the left-hand side of the T-account, expenditure on the right. Please note that as above, the timeline runs from right to left (see also Table VII-3 at the end of this section for details).

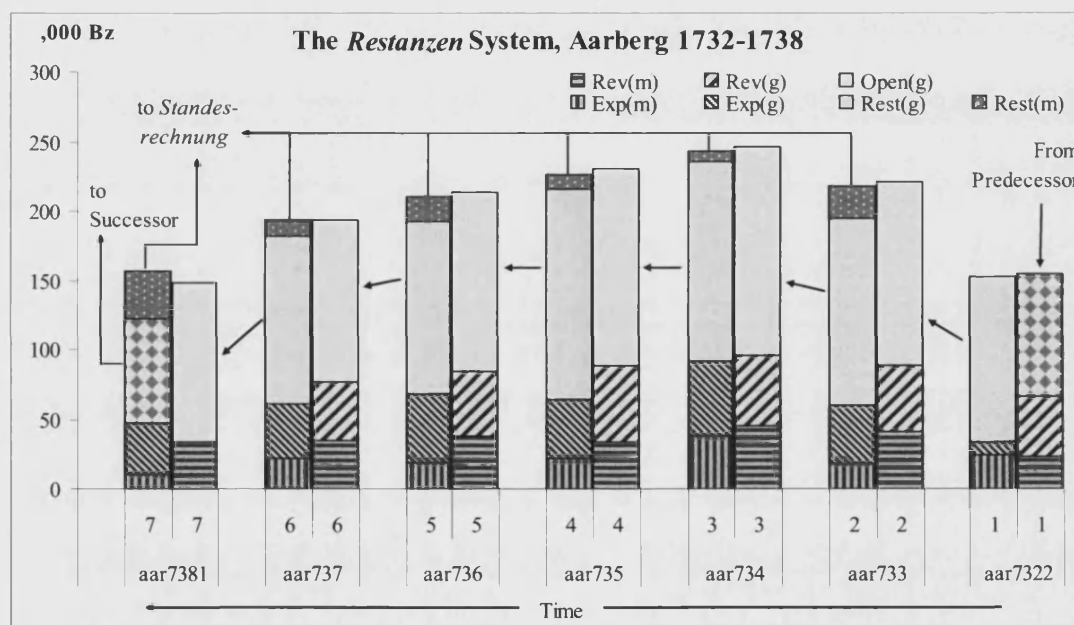


Figure VII-2: The *Restanzen* System, Aarberg 1732-1738

See also Table VII-3 in the appendix. Source: Aarberg accounts (StABE B VII 853-854). Please note that the time scale is from right to left. Revenue is shown in the right column for each account, expenditure on the left. Abbreviations: *Rev* = revenue, *Exp* = expenditure, (*m*) = money; (*g*) = grain; *Open(g)* = opening balance (in grain); *Rest* = *Restanz* (i.e. Arrear). For details about conversion into *Batzen*, see Section VII-13. The differences between revenue and expenditure within each year are caused annual price movement for grain. For filenames, see Section VII-9.

⁸¹⁹ He followed his brother Jacob Friedrich Ott, who had died in office. While it was not unusual for a relative to inherit an office, the heir usually only served for the remainder of the original term. Johann served a full term of six years, however.

⁸²⁰ Other days were Michael's Day (29 September) or Simon and Judae (28 October). See Leuenberger-Binggeli (1999): 161.

⁸²¹ In practice, Ott also included transactions that had occurred before his start, which had been transferred to him by his predecessor.

When starting his new job, Johann Ott bought the public granary from his predecessor. This was accounted for as an opening balance (*Einmessung*) in his first ledger. His first account also included the tithe revenue of the 1732 harvest. Although the harvest had taken place in July, tithes were due in autumn and thus recorded by the incumbent. In addition to tithes, Ott received current proceeds in cash on behalf of the government. From all this revenue, his expenditure in money and grain was deducted to establish the first *Restanz*. Minor grain arrears were converted into monetary units and added to the cash *Restanz*, which was due for immediate payment to the Treasurer. Meanwhile, the grain *Restanz* (or, grain inventory) was transferred to Ott's next account, where it was booked in as an opening balance. The process was then repeated until his last year in Aarberg in 1738. In his closing account, Ott recorded no revenue in grain, as the tithes for 1738 were collected by his successor. Ott's final arrear was calculated by deducting expenditure from revenue (plus the opening balance). The part of the grain *Restanz* that formed the public granary was sold to his successor, the remaining grain converted to monetary units and added to the monetary *Restanz*.

What Figure VII-2 illustrates is that simply looking at the total sum of revenue or expenditure for Aarberg would render spurious results compared to the net current transactions. The amount of *Restanzen* transferred from year to year was considerably larger than net revenue; in this example between 2.5 and 3 times. This makes establishing total revenue and expenditure of the Bernese state a more complex than simply collecting the sums for each single account.

The Financial Year

The accounting period for Bernese officials was usually twelve months. Two matters complicate the issue, however. First, the financial year did not necessarily coincide with the calendar year, nor did all ledgers start at the same date. Apart from the respect for old local traditions, this helped to avoid a bottleneck in auditing through the Venner chamber (see Section II-7). Second, office handovers occurred during the financial year, not at the end. Therefore, the twelve months of a handover year were divided between two accounts, written by different officeholders. Table VII-2 shows the start of the financial year for all known accounts in the years 1732 and 1782. They are separated by month and category of account. For the latter, I distinguish between *Regular* accounts, *Opening* accounts of newly elected officials and accounts which contained no transactions in grain. This is important because for grain revenue, the timing of the harvest was crucial. As a rule of thumb, those accounts with grain components were bailiff accounts. For ledgers that did not involve agricultural produce the timing of the financial year mattered little and could therefore easily coincide with the calendar year.

	1732			1782		
	Regular	Opening	No Grain	Regular	Opening	No Grain
1 st of Jan	3		6	25		13
January	13			4		
February	18		2	12		
March	14		4	9		2
April				3		4
May	4		2			2
June			1			3
July			1		1	1
August	1					
September		2	3			1
October		1			7	2
November	1	3	1		1	5
December			2			5
unclear		2				

Table VII-2: Start of the Financial Year by Month, 1732 and 1782

Source: Extended database (as explained in chapter IV and Section VII-9). *January* excludes accounts starting on the 1st of January, which are shown separately (as *1st of Jan*). *Regular* stands for accounts with grain revenue without handover in the sample year; *Opening* is for opening accounts of newly appointed bailiffs; *No Grain* stands for accounts without grain transactions.

Starting dates for the regular bailiff accounts were concentrated in the first three months of the year, while the opening ledgers of incumbent bailiffs started after the grain harvest in July. This enabled the outgoing bailiff to sell his surplus grain in the months before the harvest. Since tithes were due some months after the harvest in autumn, they would then be included in the opening account of the incumbent bailiff (see previous section). This technique limited the content of the public granary that a new bailiff had to buy from his predecessor during a handover and would give him some grain revenue of his own within a short time in office. The increasing number of regular accounts starting at the beginning of the calendar year in 1782 is an indicator for the standardisation that took place in the second half of the century. It also illustrates that the standardisation was far from complete.

Accounts of Johannes Ott, Aarberg 1732-1738

from to Account Nr	15 Oct 1731 31 Dec 1731 1	1 Jan 1732 31 Dec 1732 2	1 Jan 1733 31 Dec 1733	1 Jan 1734 31 Dec 1734 4	1 Jan 1735 31 Dec 1735 5	1 Jan 1736 31 Dec 1736 6	1 Jan 1737 15 Oct 1737 7							
	Exp	Rev	Exp	Rev	Exp	Rev	Exp	Rev						
Opening Money (Bz)								12,065						
Wheat (ms)		288	1,296	1,344	144	1,056	1,152	1,392						
Mischel (ms)		0	240	240	384	384	0	144						
Mill (ms)		192	1,056	960	720	960	1,056	480						
Rye (ms)		4,320	3,312	3,600	4,080	3,984	3,840	4,320						
Spelt (ms)		67,584	83,952	85,920	82,560	84,960	85,200	85,440						
Oats (ms)		12,240	25,152	25,200	27,360	28,560	24,000	28,800						
	from predecessor													
Current Money (Bz)	24,053	23,349	17,986	40,726	37,467	44,874	22,549	33,453	19,439	37,410	22,538	34,603	10,441	33,997
Wheat (ms)	100	1,504	1,153	1,216	1,993	1,216	257	1,216	1,077	1,216	877	1,216	1,168	0
Mischel (ms)	16	288	198	288	130	288	176	288	886	288	14	288	4	0
Mill (ms)	116	1,252	1,032	1,060	1,161	1,060	560	1,060	937	1,060	1,073	1,060	388	0
Rye (ms)	2,132	5,518	812	1,198	356	1,196	1,180	1,196	1,036	1,196	620	1,196	4,028	0
Spelt (ms)	3,620	88,316	18,888	22,536	23,547	20,548	17,488	21,096	22,327	22,696	21,287	21,652	84,620	0
Oats (ms)	1,488	27,428	14,036	15,088	13,756	16,164	13,316	15,304	17,481	15,384	14,271	16,788	28,082	0
Restanz Money (Bz)	-691		22,740	22,740	7,407		10,905		17,971		12,065		35,250	
Wheat (ms)	1,296		1,344	1,344	144		1,056		1,152		1,392		0	
Mischel (ms)	240		240	240	384		384		0		144		0	
Mill (ms)	1,056		960	960	720		960		1,056		480		0	
Rye (ms)	3,312		3,600	3,600	4,080		3,984		3,840		4,320		2,640	
Spelt (ms)	83,952		85,920	85,920	82,560		84,960		85,200		85,440		64,800	
Oats (ms)	25,152		25,200	25,200	27,360		28,560		24,000		28,800		12,000	
													to successor	
Filename	aar7322		aar733		aar734		aar735		aar736		aar737		aar7381	

Table VII-3: Accounts of Johann Ott, Aarberg 1732-1738

Source: StABE B VII 853. Abbreviations: Bz = Berner Batzen; ms = Bern-mäss (14.1 ltr). Abbreviations: *Rev* for revenue, *Exp* for Expenditure. For an explanation of the *Filename*, see Section VII-9.

VII-6 The Long-Run Database

Data (Sources)

All data for the years **1764-1794** is from the *General Bilanzen* (StABE B VII 2179). For the remainder, I have used the following documents:

Account	Archive Shelf Mark
Deutsch-Standesrechnung, DSR (1700-1796)	StABE B VII 581-679
Welsch-Standesrechnung, WSR (1700-77; 1778-97)	StABE B VII 762-837; ACV Bp 4
Ausländische Gelder/Fonds, AUS (1710-1796)	StABE B VII 2396-2473 and 2389
Salzdirektion, SDI (1700-1797)	StABE B V 481-578
Schatzgewölbe [Cash Reserve] (1750-1790)	StABE B VII 2520a
Kornherr, KOR (1760-1796)	StABE B VI 261-285

Table VII-4: Accounts included in Long-Run Database

Factual Categorisation of Long-run Data

The re-classification of categories from the *General-Bilanzen* followed the list below. I have used a modernised German spelling for the original categories.

Revenue:

Taxation: *Umgeld; Zölle und Geleit; Abgaben im Kaufhaus; Abzug im Ausland angelegte Fonds; Steuern und Tribut; Audienz-, Naturalisations- und Legitimationsgeld; Abgabe auf fremdem Wein; Bussen; Lehesempfangsgeld; Habitantengeld; Konfiskationen; Badisches Jahrgeld; Fiskal- und verschiedene Einnahmen;*

Entrepreneurial Returns: *Post-Regal; Pfrund-Tax Geld; Marechaussee-Anlagen; Buchdruckerei-Zins; Städt. Weinschenk; Gewinn der Pulver-Handlung; Realer Profit Salzdirektion (auf Handlungs-Kapital); Fabrikation (abzüglich Pensionen und Gratifikationen); Profit; Zinsen auf Kapital; Ertrag auswärtiger Geldanlage; Current Revenue from Salt Trade Account (see Section VII-16).*

Arrears from Bailiffs: *Amtsrestanzen; Restanzen.*

Other Current Revenue: *Recognitionen; vermischte Einnahmen; Verschiedenes.*

Loans: *Ablosungen; An Alten Restanzen; Einnahmen aus Malacridanischen Effecten.*

Divestments: *Verkauftes; verkaufte Häuser; Weinverkauf; Getreideverkauf; Gebäudeverkauf.*

Salt Inventory Reduction: = Reduction in Salt Inventory (see Section VII-16).

Cash Reserve Withdrawals: *Aus dem Schatzgewölbe.*

For **Salt Transactions (Current, Profit, Inventory)**, see Section VII-16.

[see expenditure overleaf]

Expenditure:

Personnel Cost: *Odrinari Pensionen; Pensionen für Zoll-Commissen; Verdienste; Bezahlte Wein-Pensionen; Zehrungen; Tücher Ehrfarb; Ammen-Lohn, Arzt-Lohn; Handwerk; Scharfrichter; Extra-Pensionen.*

Military Expenditure: *Land-Major und militärische Unkosten; Beiträge an Garnison Aarburg, Stadtwacht und Zeughaus; Ausgaben für Luzernische und Neuenburger Unruhen; geliefertes Pulver (an Zeughaus); Musterungen; Militärische Unkosten.*

Other Public Consumption: *Strassen-Arbeit (Stadt und Region); Kriminalkosten; Neue Gebäude und Gebäudereparationen; Bibliothek; Ausbesserung der Staats-Schaubühne (Stadttheater); Wein: lesen und keltern; Reben Herstellung; Beiträge an Strassen-Cassa, Bau-Amt, Strassen-Reparation / Zoll-Kassa, an Obrigkeitl. Holz-Entreprise, an Pferdezücht-Kommission; Indemisationen; Unterhalt Salzwerke, Pensionen; Gebäudereparatur und Entlohnung Salpeterleute; Gesandtschaften; Reitlöhne; Gemeine Ausgaben (Zehrungen, Tücher, Gemäldesammlung etc.); Vermischte Ausgaben; Current expenditure from Salt Trade Account (see Section VII-16).*

Passive Arrears to Bailiffs: *bezahlte Restanzen (Passivrestanzen).*

Transfers: *Brandsteuern und andere Steuern; Badenkuren; Proselmel; Almosen; Stiftungen, Pfarrern, Studenten; Pfrund-Verbesserungen; zurückgegebene Löber; Beitrag an Amt Oron, an Welsche Predicaturen, an Gross-Almosen-Direktion, an Exulantenkammer.*

Loans: *Angewandte Kapitalien; Gültbriefe.*

Investments: *Erkauft und Angewendet; Erkaufte Gebäud; zugekaufte Wohnungen; Verlust an verkauften Häusern; Gelieferte Gelder für die Ankauf Fremder Frucht; Getreide-Ankauf; Lehenskauf; Erkauftes.*

Salt Inventory Increase: = Difference in Salt Inventory (see Section VII-16).

Cash Reserve Deposits: *Lieferung ins Schatzgewölbe.*

For Salt Transactions (Current, Inventory), see Section VII-16.

VII-7 Additional Graphs and Analyses to Chapter III

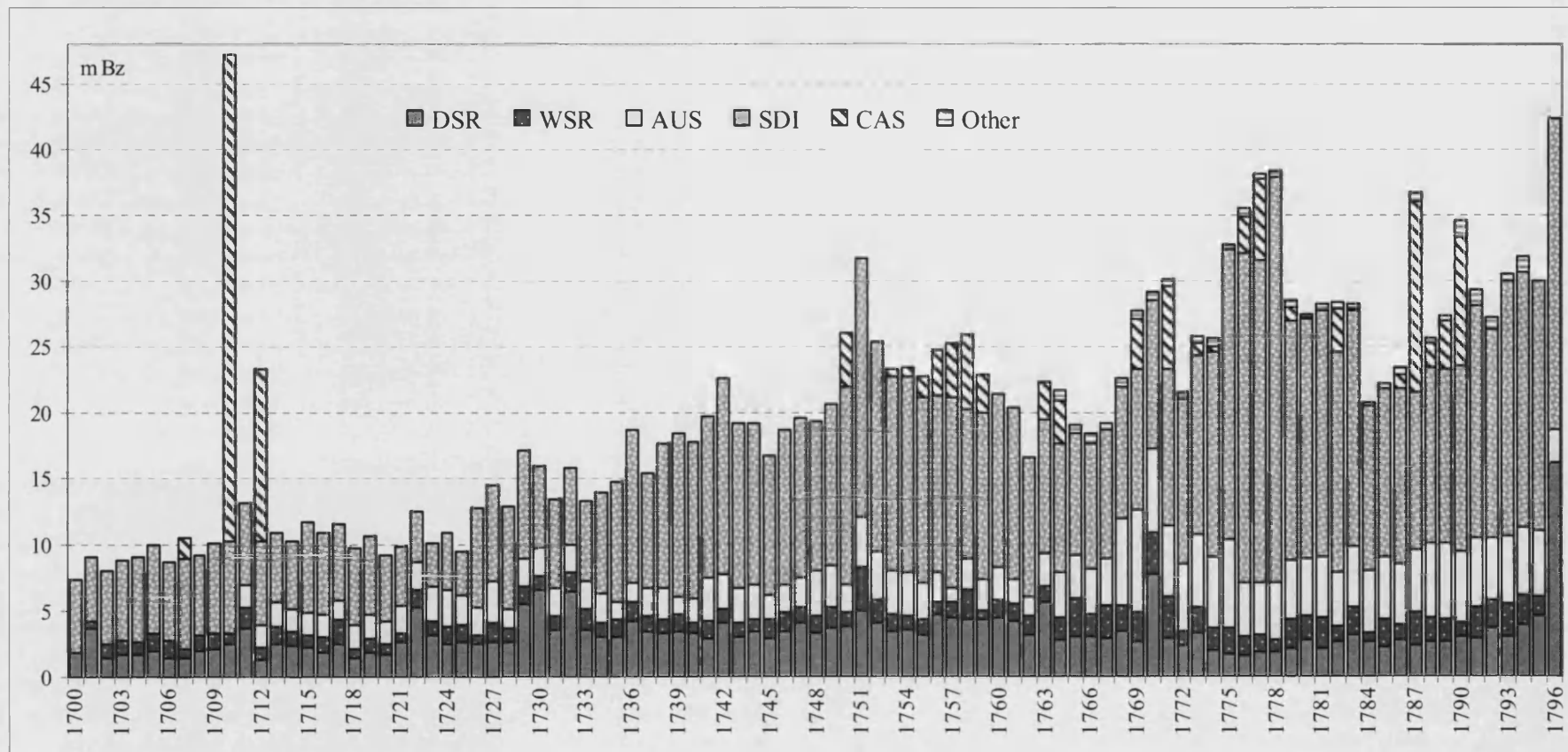


Figure VII-3: Revenue by Account, 1700-1796 (Yearly)

Sources: Long-run Database (see Section VII-6 for details). This figure is the equivalent of Figure III-9.

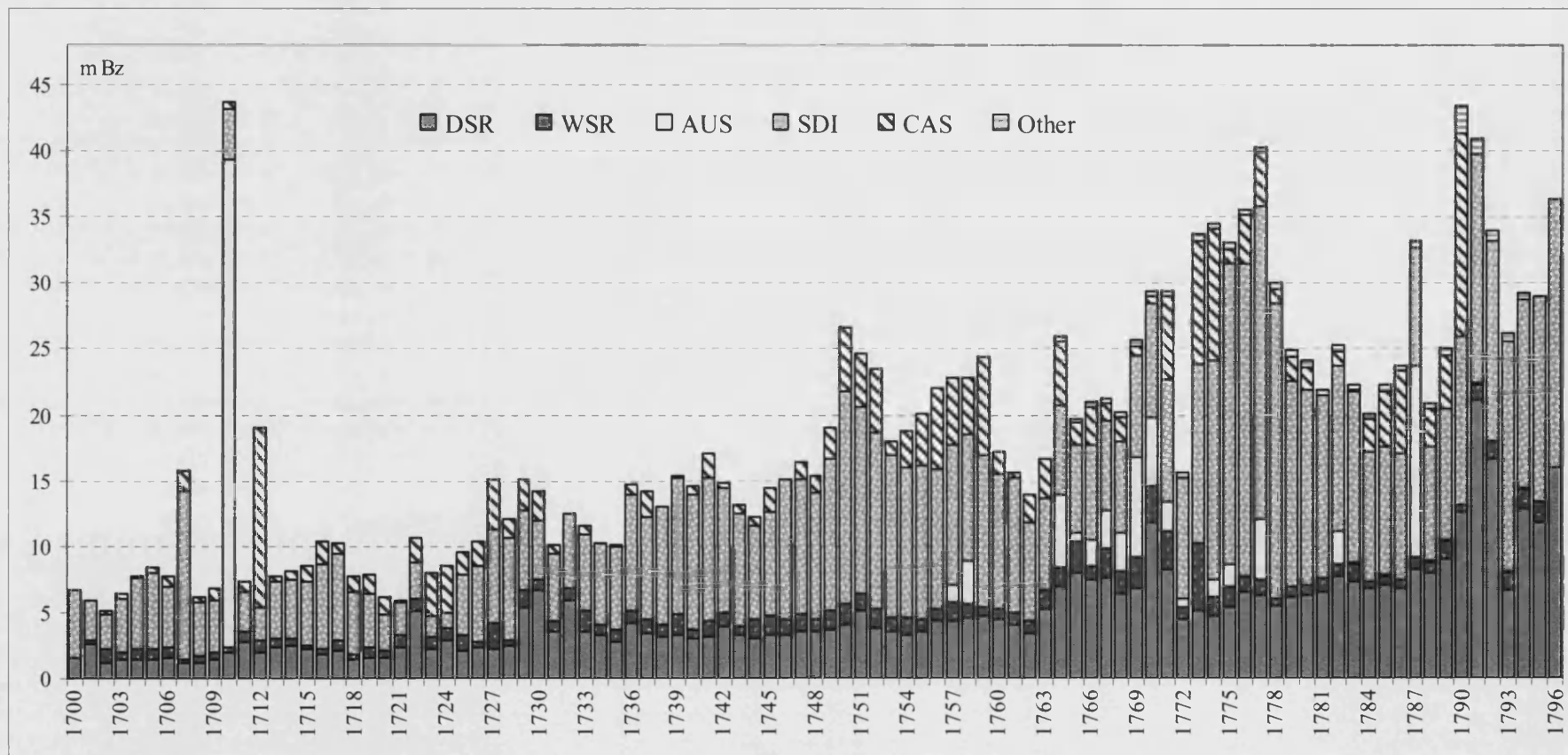


Figure VII-4: Expenditure by Account, 1700-1796 (Yearly)

Sources: Long-run Database (see Section VII-6 for details). This figure is the equivalent of Figure III-10.

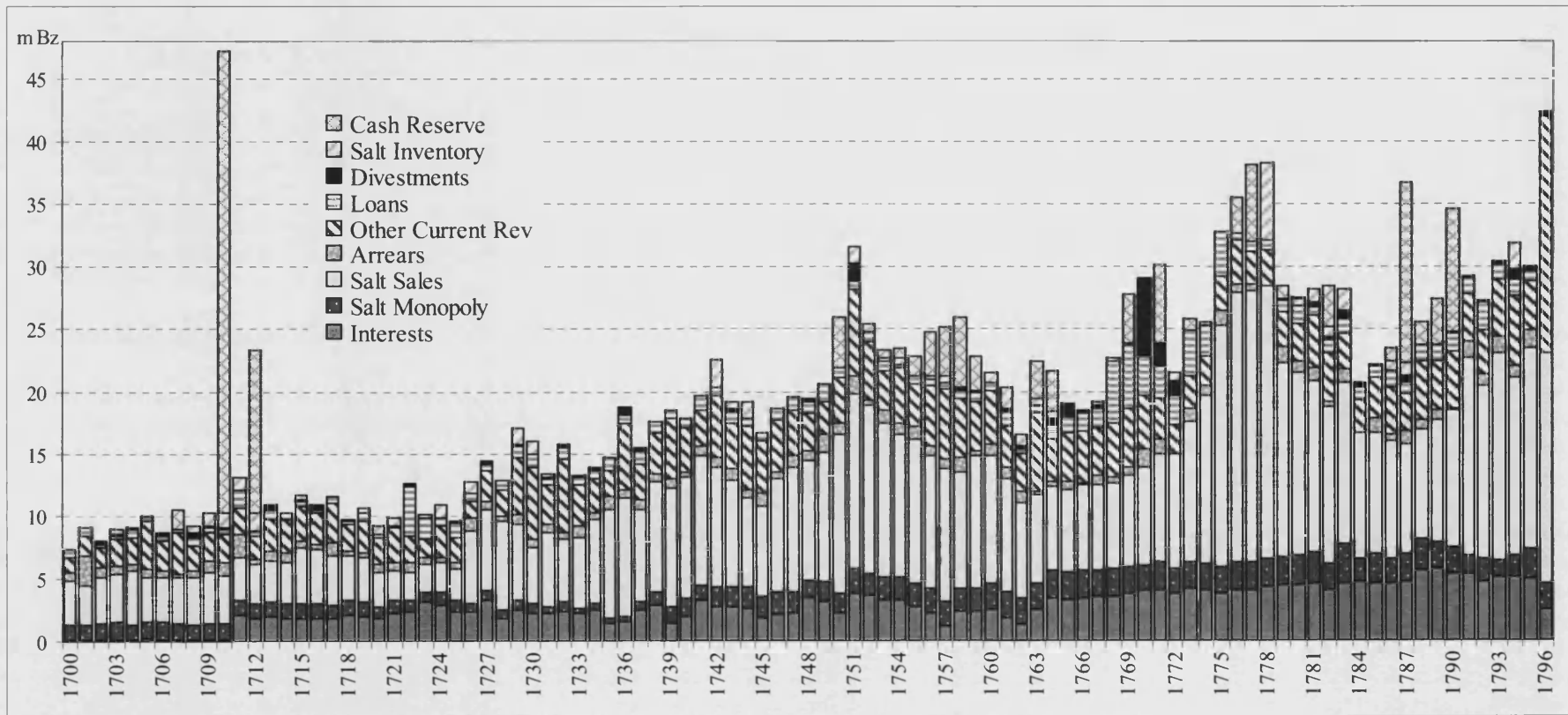


Figure VII-5: Revenue by Category, 1700-1796 (Yearly)

Sources: Long-run Database (see Section VII-6 for details). This figure is the equivalent of Figure III-12.

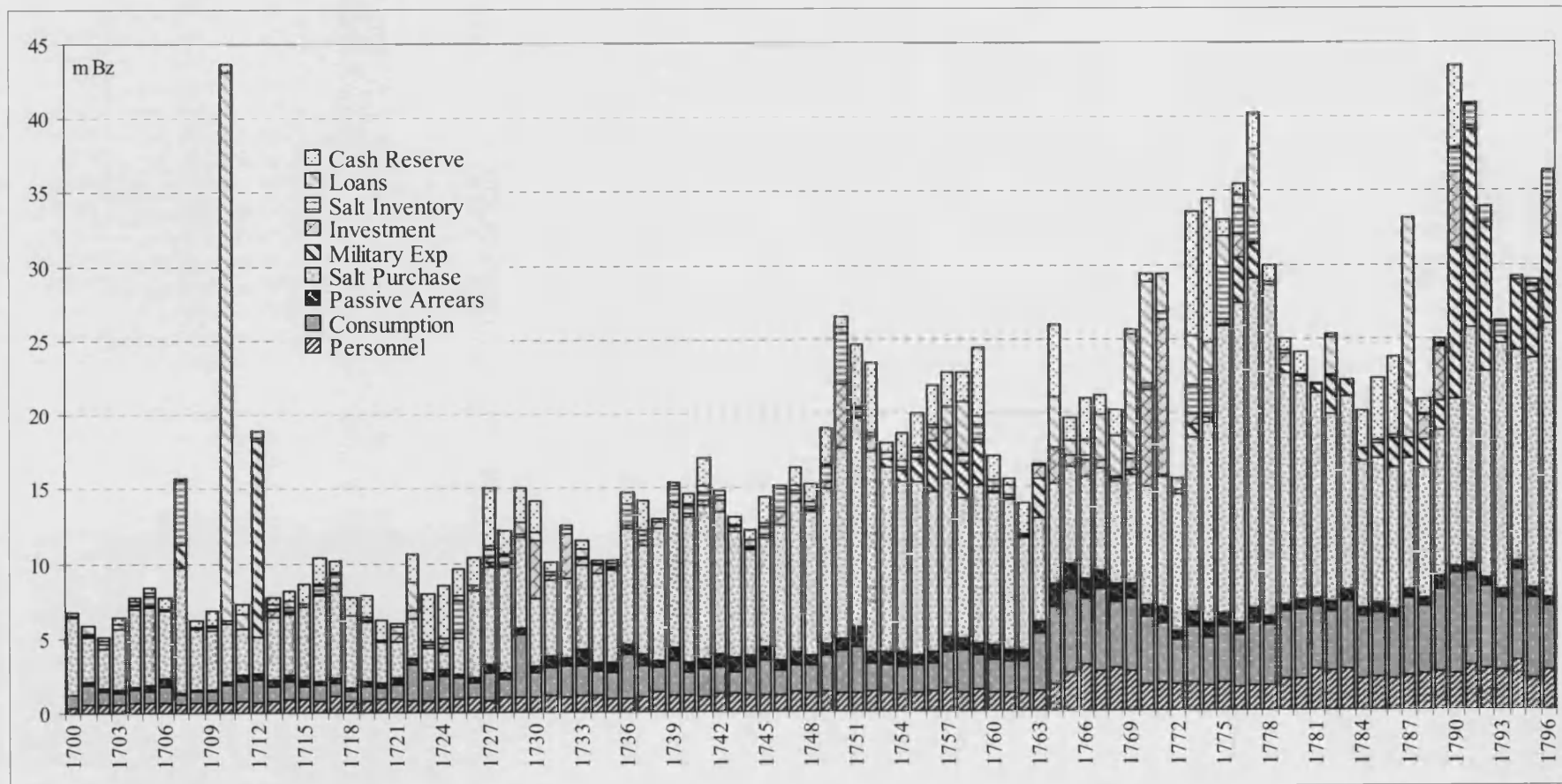


Figure VII-6: Expenditure by Category, 1700-1796 (Yearly)

Sources: Long-run Database (see Section VII-6 for details). This figure is the equivalent of Figure III-13.

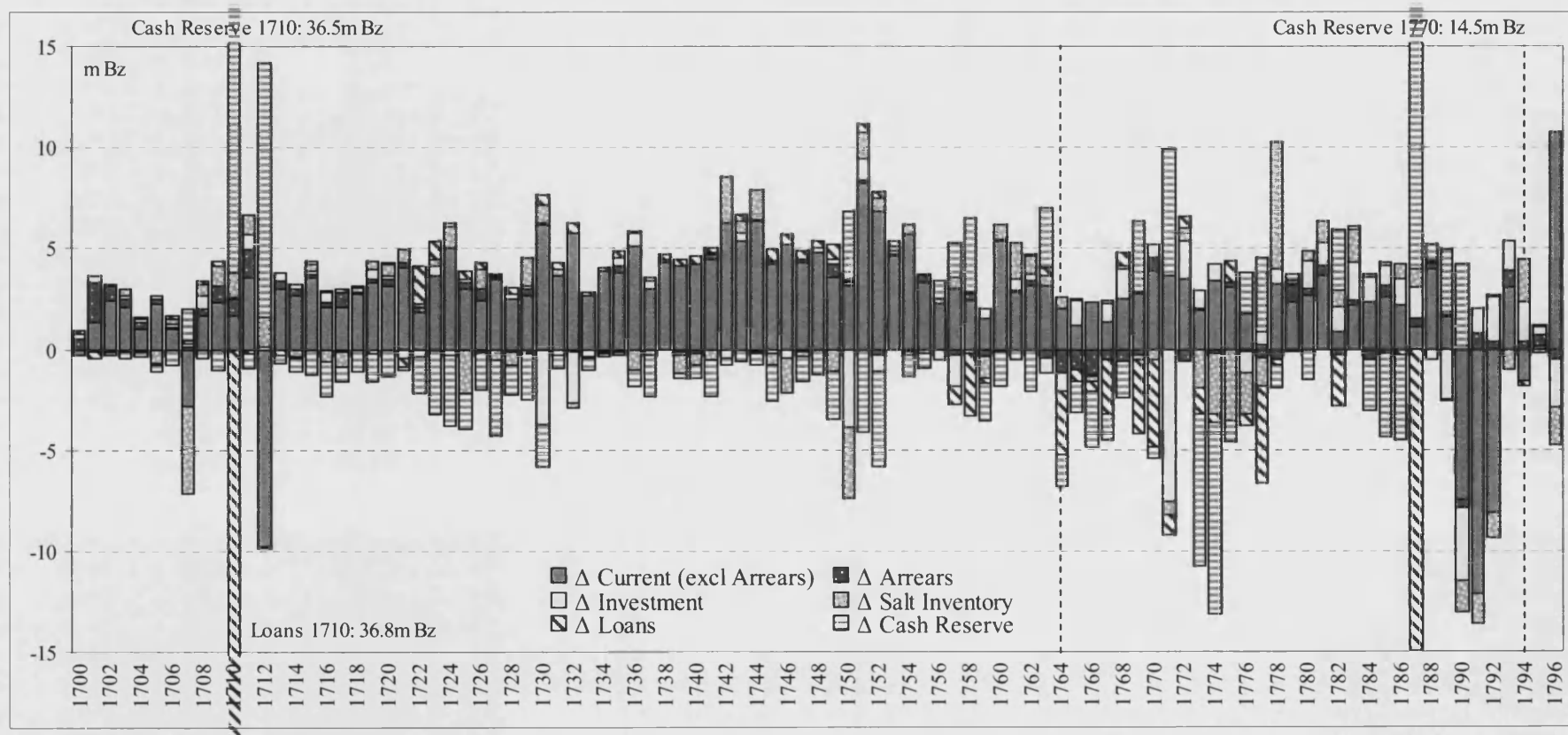


Figure VII-7: Net Contributions by Category, 1700-1796 (Yearly)

Sources: Long-run Database (see Section VII-6 for details). Please note that the graph uses two different scales. The composition of the data changed in 1764 and 1794, hence the vertical lines.

VII-8 Categorisation of the General-Tabellen and Special-Tabellen

The categories of *General-Tabellen* (StABE B VII 2520) were based on the more detailed *Special-Tabellen* (StABE B VII 2521), which are listed below.

Einnahm-Tabelle an Pfenningen

1. Unablösige Lehensgerechtigkeiten,

als: Bodenzinse, Ehrschätze, Löber, Todtfälle, Herrschaftszinsen, Ewige Anerkennnisse, Tagwnergelder, Erdeinschlags-Concessionen, Ehfede-Zinsen u.

2. Zehnden, Domainen, Pachtzinsen;

dahin gehören: Abtrag von Sömmerungen, Waldungen, Fischetzen und Zinstragender Gebäude

3. Zinsen von ablösigen Capitalien

(nach einer Durchschnitt-Rechnung des verschiedenen Zunsfuss von den im letzten Jahr des Decenniums sich vorfindenden Capitalien)

4. Lands-Abgaben und Telle

4.1 Marechaussée

4.2 Tavernengeld

4.3 Bottengeld

4.4 Ohmgeld

4.5 Abzug

4.6 Feuerstattgeld

4.7 Brüksommer, Zoll, Geleit

4.8 Trattengeld

5. Judicatur-Gelder

5.1 Bussen, Gefangenschaft

5.2 Betreibungs-Botten

5.3 Konfiskationen

6. Dem Fisco zufallende Obrigkeitliche Gefälle

An Naturalien [Durchschnitt von 10 Jahren]

An Getreid

1. Lehensgerechtigkeiten

2. Zehnden, Domainen und Pachtzinse

3. Landsabgaben und Telle

An Wein

1. Lehensgerechtigkeiten

2. Zehnden, Domainen und Pachtzinse

3. Landsabgaben und Telle

I have classified the categories as follows: 1, = Rents; 2 = Tithes; 3 = Interests; 4, 5 and 6 = Duties and Taxes – Transactions in grain and wine: 1 = Rents; 2 = Tithes; 3 = Duties and Taxes

In addition to these categories, the *General-Tabellen* also included *Strassengelder u. Zölle* (which I classified as Duties and Taxes), *Bergwerk u. Münzstätten* (=Entrepreneurial Returns), *Grosse Salzhandlung* (= Entrepreneurial), *Pulver und Salpeterhandlung* (= Entrepreneurial), *Holz, Torf und Manufaktur-Verkauf* (= Entrepreneurial), *Von Gemein Eydgenössischen Ämtern* (=Rents).

[Expenditure discussed overleaf]

The headings for Expenditure in the *General-Tabellen* were:

Ausgaben-Tabelle an Pfenningen

1. Besoldungen, Amts-Beneficium und Pensionen

2. Gratifikationen

2.1 Ordinaria

2.2 Extraordinaria

3. Militair-Anstalten

3.1 Schiess- und Zihlgelder

3.2 Musterungsplätze, Tambour-Majoren, Einquartierungen

4. Armen-Anstalten

4.1 Almosen, Steuern, Proselmel, Mütschen, Abendbrot

4.2 Verpflegung von Pfründern, Säuglingen oder Ammenkindern, Aerzet-Lohn, Badenfahrten, Tischgelder, Begräbniskosten

4.3 Brand- und Hochgewitter-Steuern

5. Gebäude und Bausachen

5.1 Neue Gebäude

5.21 Reparationen: Schlösser und Dependenzen, Ist alle ihre Rural- und Oekonomie-Gebäude

5.22 Reparationen: Oeffentliche Gebäude, als: Kornhäuser, Zeughäuser, Gefangenschaften, Officialen-Wohnungen, Wachthäuser

5.23 Reparationen: Landschreiberey und Dependenzen

5.24 Reparationen: Pfarrhäuser und Dependenzen

5.25 Reparationen: Chor und Thürme der Krichen

5.3 Baumaterialien in Vorrat

6. Oeffentliche Polizey- und Administrations-Anstalten

6.1 Marechaussee und Patrouilleurs, Betteljagden

6.2 Sanitäts-Anstalten

6.3 Strassen und Brücken

6.4 Schwellenunterhaltung, Räumung der Wuhren, Rünsen und Flüsse

6.5 Brandanstalten

6.6 Geheime Ratsausgaben

6.7 Speer- und Extra-Polizeianstalten

6.8 Schiess- und Weidgelder zu Ausrottung schädlicher Tiere

7. Gefangenschaft- und Criminal-Unkosten

8. Unterricht und Religions-Anstalten

8.1 Nachtmahlwein, Schulpfennige und Bücher

9. Cameral-Ausgaben

9.1 Getreid- und Weinbesorgung

9.2 Zehnd-Schatzung- und Verleihungskösten, Bodenzinsträger-Löhne

9.3 Steuern an Fuhungen

9.4 Forstwesen

9.5 Dominal-Unkosten, als: Einfristung, Brunnen- und Wasserleitungen, Holzaufmacher-Löhne, Erndt- und Herbstkosten, Obrigkeitliches Werkzeug, Schiff und Gschirr

10. Ankauf neuer Domainen, Lehensrechteiten und Liegenschaften

11. Zehrgelder, Mahlzeiten, Gesandtschaften

12. Amtshuldigungen, Installationen, Ritt- und Bottenlöhne, Prozsunkosten, Planimetrationen, Marchungen, Publikationen, Schreibmaterialien und kleine Ausgaben

[continued overleaf]

[Categories of expenditure in the *General-Tabellen*, continued]

An Naturalien [Durchschnitt von 10 Jahren]

An Getreid

1. **Besoldungen und Pensionen**
2. **Gratifikationen**
3. **Militair-Anstalten. Als Mustungs-Haber und Fourrage**
4. **Brandsteuern und Almosen**
5. **Getreidebesorgungs-Kosten, als Abgang, Kastenschweinung, Amts-Beneficium in Natura**

An Wein

1. **Besoldungen und Pensionen**
2. **Gratifikationen**
 - 2.1 Ordinaria
 - 2.2 Extraordinaria
3. **Weinbesorgungs-Kosten, als Abgang und Amts-Beneficium in Natura**

I have classified these categories as follows:

Monetary transactions: 1 and 2 = Personnel Cost; 3 = Military; 4 = Transfers; 5-12 = Consumption

Grain transactions: 1 and 2 = Personnel Cost; 3 = Military; 4 = Transfers; 5 = Consumption

Wine transactions: 1 and 2 = Personnel Cost; 3 = Consumption.

The *General-Tabellen* included the additional categories *Bergwerk zu Küttigen u. Mühletal* (classified as Consumption), *Geheime Raths Ausgaben* (= Consumption) and *Gemein Eydgenössische Ämter Ausgaben* (= Consumption).

VII-9 Data Selection

Sampling

I have collected information on all accounts of the Bernese state for which the financial year ended between 1 January and 31 December 1732 or 1782. If the period was spilt between two ledgers – which was the case during an office handover – then both accounts were selected.⁸²² If the records of an account finishing in 1732 were missing or incomplete, those of the following or previous year were selected, depending on availability.

Section VII-9 contains a detailed list of accounts that were included in the database. Selection criteria included a regional balance, for which the canton was divided into its five main geographical regions: Argovia, Vaud, Oberland, Oberraargau/Emmental and Seeland. In addition, accounts from institutions of the city and surrounding areas constitute the category *Bern* (or, *Institutions*). For each region, I have randomly selected five accounts, of which at least one was former monastic institution, which had a distinctly different financial structure.⁸²³ Table VII-5 shows what proportion of net transactions the database covers for each region as a percentage of total revenue.

Region	Selection	1732		1782		Weighting Factor	
		Revenue	Expenditure	Revenue	Expenditure	1732	1782
Argovia	5/7	73.68%	75.32%	87.33%	82.92%	1.3410	1.1693
OberAG	5/11	39.81%	44.65%	40.72%	47.33%	2.3710	2.2798
Oberland	5/10	68.75%	68.43%	84.51%	81.49%	1.4583	1.2083
Seeland	5/9	57.38%	51.67%	54.08%	53.42%	1.8400	1.8599
Vaud	5/14	70.00%	67.71%	67.88%	71.65%	1.4514	1.4325
Institutions	15/34*	84.23%	86.84%	63.50%	62.52%	1.1686	1.5862
Total (D)	40/83	70.86%	71.86%	65.70%	65.94%		

*) some only existed in either year: 13/19 (1732), 15/28 (1782)

Table VII-5: Amount of Transactions Covered by Database and Weighting Factors (D-Type Accounts Only)

Source: Extended Database, net transactions including grain sales⁸²⁴ – The row *Selection* shows the number of accounts selected (usually 5) out of all counties in this region. All other rows show the amount of net transactions covered by the sample database. All transactions were converted into Batzen as specified in Section VII-13. The *weighting factor* was calculated as the inverse relationship of the sample size to the total (revenue and expenditure added) for each region.

Regional differences in the coverage are considerable. For the *Oberraargau and Emmental* regions, the database covers less than half, for *Seeland* slightly more than half of the government's transactions; *Oberland* and *Argovia* are well included, as are *Institutions* within the city. Their coverage is smaller in 1782 because of an increase in absolute number. In order to compare the figures of the D-Type accounts sample with A- and B-Types, I have weighted all D-Type transactions by the factor shown in

⁸²² See Section VII-5 for details.

⁸²³ Former monasteries were used as asylums or hospitals and fulfilled social duties (mainly poverty relief).

⁸²⁴ I could not exclude grain sales because their amount is unknown for summary accounts.

Table VII-5 (column *Weighting Factor*). This factor was calculated for each region as the inverse relationship of transactions in the database to total transactions.⁸²⁵

Net Transactions

All transactions that were only made for accounting purposes inflate revenue and expenditure unnecessarily for an analysis of fiscal redistribution. Although such transactions can contain information that is relevant in other contexts, they have to be excluded from my database.⁸²⁶ The most important exclusions are arrears, transfers (both between and within accounts) and grain sales.

The reasons for excluding **arrears** from net transactions follow from their characteristic as an officeholder's debt to the state, which did not increase government revenue (see Section VII-5). The amount of arrears was recorded both in the *Standesrechnungen* (as revenue) and in the bailiff accounts (as expenditure), and therefore cancelled each other out. An inclusion in my analysis would therefore only inflate figures for revenue and expenditure. As explained in Section III-1, the overall difference between revenue and expenditure (budget surplus) should equal the change in the government's claims towards officeholders, which have the function of *retained earnings*. The exclusion of inventory and closing balances for accounts using double-entry bookkeeping follows the same logic.

Similar arguments apply to **transfer payments between accounts**. These range from *assignments* to the *Standesrechnungen* worth several hundred thousand crowns to puny contributions for poverty relief that were transferred to bailiff accounts by government chambers. These figures could safely be excluded from an analysis of net transactions since they were recorded in both the sender and recipient account and did not contribute to the net financial position of the state.⁸²⁷

In addition to payments from one account to another, I also had to exclude **transactions within the same account**, which were mostly related to the handling of the office inventory. This refers to the issues discussed in the *Restanzen* system (Section VII-5). The inventory arrears which every officeholder included in his ledger did not constitute net revenue for the state, and therefore had to be deducted from total revenue. I have also excluded inventory transactions in kind for those entrepreneurial accounts that used double-entry bookkeeping. On the other hand, information from arrears was used to calculate overall error quotas for the database, which are remarkably low (see Section VII-11). Arrears could also be used to determine changes in the public inventory over the sample year. If the opening balances are compared to the closing balances and arrears, the difference shows by how much the public inventory has increased or decreased.

Grain sales by the government are a special type of transfer within the same account. The bailiffs recorded how much grain they sold: the proceeds counted as revenue in cash, while the grain sold was listed as expenditure in kind. These transactions contain important information about which currencies were used in Bernese accounts,

⁸²⁵ Revenue and expenditure were added for this purpose.

⁸²⁶ The opposite situation is true for transactions for the militia army, which we know occurred but were not recorded in the accounts (see Section IV-5).

⁸²⁷ Transfer payments to and from C-Type accounts (which were not included in the database) were classified as revenue and expenditure. Otherwise all transactions recorded in these accounts would have been excluded from the analysis.

and about how monetised state finance was. However, if all transactions are converted into monetary units, grain sales only represent a transfer from one currency (grain) to another (money); overall state revenue did not increase by selling grain. They were therefore excluded from the database. Revenue and expenditure from grain sales – which per definition should be equal in monetary values – accounted for 5.32% of total revenue in 1732 and 7.60% in 1782.⁸²⁸ When compared to the net grain income in litres, 29.3% of grain was sold in 1732 and 24% in 1782.⁸²⁹ Table VII-19 shows the amount of grain sold in litres for each type of grain separately.

The same applies to **wine sales**, which were also recorded twice, as monetary revenue and expenditure in kind. However, it seems that the recording of wine sales was less accurate: the overall sum of sales recorded as inventory reduction does not match the monetary income. On several occasions officials sold wine without registering the transaction in kind. This is because in some counties, the wine inventory was kept separately and was not included in the bailiff's regular accounts. The overall differences are relatively small, however. Overall, wine sales accounted for 1.03% of net revenue in 1732 and for 0.86% in 1782. When measured in litres, the Bernese state sold 40% of its net revenue in wine in 1732 and 29% in 1782 (see Table VII-14 for a regional breakdown).

The situation for **salt sales** is different, since salt was not used as a currency of account the way grain and wine were. This is because the government did not have any direct revenue that accrued in salt, except for the relatively small domestic salt production. The state therefore had to buy salt in monetary units. Other than grain sales, salt sales were not counter-booked by inventory adjustments in kind.⁸³⁰ In other words, salt trade was a commercial activity by the state, while grain sales were only an accounting adjustment that generated no net income. Accordingly, all proceeds from salt sales had to be included in an analysis of net transactions by the state. I have divided the government's proceeds from salt sales into the three components current trade, inventory change and monopoly profit, which is discussed in detail in section VII-16.

To obtain the net revenue of **summary accounts**, arrears of the current and previous year were subtracted from total revenue. What remained unspecified, compared to the net transactions of the database, are transfer payments to other accounts. From the database it seems that these were not very important: net transfers between accounts only represented 1.61% of total net transactions.⁸³¹

⁸²⁸ Source: Database. *Total revenue* excludes transfer payments. I had to include grain sales for the weighting factor of accounts because the amount of grain sales in summary accounts is unknown.

⁸²⁹ These figures should only be considered rough estimates, however, since grain litres were simply added across all types of grain.

⁸³⁰ In reality, the salt accounts included inventory lists in salt and money, but only the latter were used for accounting purposes.

⁸³¹ *Net transfers* are defined as transfers between accounts, excluding transfers within the same account, such as previous arrears (which make up the largest part of transfers in the database). The exact figures (for D-Type accounts only) are 1.06% (1732) and 2.39% (1782) for revenue and 2.38% (1732) and 0.08% (1782) for total expenditure.

Filenames

The filenames for accounts included in the database consist of several attributes.

- a) Three letters describing the account/office (see next list of abbreviations overleaf); capital letters were used for accounts included in the database, small letters for those from the extended database.
- b) 3 digits to identify the year (leaving the first 1 out, i.e. 732 for 1782)
- c) if necessary one additional digit to signify if there were more than one account in the same year.

As an example, the filename AAR7322 stands for the second account for the county of Aarberg in 1732.

Types of Bernese Accounts

For the distinction in A-B-C and D-Types see Section III-3.

A-TYPES: Deutsch-Standesrechnung (DSR), Welsch-Standesrechnung (WSR).

B-TYPES: Ausländische Kapitalien (AUS), Salzproduktion La Roche (ROC), Salzdirektion (SDI), Pluverrechnung (PUL).

C-TYPES: *Integrated in DSR:* Abzugrechnung, Burgerkammer, Chorschreiber, Chorweibel, Collegio Insulano, Freiweibel, Grossweibel, Kaufhaus (later in General Customs account), Staatsschreiber, Stadt-Physicus, Werkmeister.

D₁-TYPES: District / Bailiff Accounts

Argovia: Aarburg (ABU), Biberstein (BIB), Kastelen (kas), Koenigsfelden (KOE), Lenzburg (LEN), Schenkenberg (sbg), Zofingen (ZOF).

Oberaargau / Emmental: Aarwangen (ARW), Bipp (bip), Brandis (BRA), Burgdorf (bur), Fraubrunnen (fra), Hettiswly (het), Landshut (lan), Signau (SIG), Sumiswald (sum), Torberg (TOR), Wangen (WAN).

Oberland: Frutigen (FRU), Hasli (has), Interlaken (INT), Interlaknerhaus Thun (ITH), Niedersimmental (nsi), Oberhofen (obe), Obersimmental (osi), Saanen (saa), Thun (THU), Unterseen (UNT).

Seeland: Aarberg (AAR), Buchsee (buc), Büren (bue), Erlach (ERL), Friensiberg (FRE), Gottstatt (got), St. Johannsen (joh), Laupen (LAU), Nidau (NID).

Vaud: Aigle (aig)⁸³², Aubonne (aub), Avenches (ave), Bonmont (bon), Lausanne (LSN), Morges (mor), Moudon (MOU), Nyon (NYO), Oron (oro), Payerne (pay), Romainmôtier (ROM), Vevey (vev), Villeneuve (vil), Yverdon (YVE).

D₂-TYPES: Public Institutions

In Bern (excluding Landgerichte): Büchsen-Almosen (alb), Stadt-Almosen (als), Bauherr von Burgern (BHB), Böspfennig (BPF), Frienisberghaus Bern (frb), Grosses Spital (GSP), Grossweibel (gwr), Interlaknerhaus Bern (INB), St. Johannserhaus Bern (JOB), Köniz (koz), Mushafen (MUS), Schallen- und Arbeitshaus (sah), Schenkenberg (sbg), Schulsäckel (SLS), Stift (STI), Stadtwacht (stw), Umgeld (UMG).

⁸³² Aigle (AIG) was accountable to the Deutsch-Standesrechnung (DSR), although it was French-speaking.

Other public institutions: Armengut Pays de Gex (apg), Eisenbergwerk Küttingen (eis), Exulantenkammer (exk), Garnison Aarburg (gar), Kornherr (KOR), Landes-Oekonomiekommission (lak), Oberländische Holz-Entreprise (ohe), Silber (sil), Strassen (str), Deutsch-Weinschenk (WED), Welsch-Weinschenk (WEW), Zeughaus (ZEU), Ziegelproduktion (zie), Deutsche Zolldirektion (ZOD), Welsche Zolldirektion (ZOW).

Excluded:

Condominions with other Swiss states: Murten, Grandson/Echallens, Baden, Frauenfeld, Thurgau, Rheintal, Mendrisio.

Landgerichte: Konolfingen (kon), Seftigen (sef), Sternenberg (ste), Zollikofen (zol).

Unknown accounts or lack of records: The following accounts were mentioned in eighteenth-century lists but records are not available. Some of them may not have existed for 1732 or 1782, or were integrated into other accounts: Commissariats-Rechnung, Gross-Almosen, Holz und Torf, Illuminationsrechnung, Kanzlei, Kirchmeyer, Kommerzienrat, Lizenz-Gelder, Landsassen und Fündel, Münzwardein, Münz-Fabrikation, Oberhofen Stiftsamman, Pferdezuchtkommission, Sanitätsrechnung, Stadtbach, Toleranz-Gelder, Torfrechnung, Waisenhaus.

Account Abbreviations

AAR	Aarberg	LSN	Lausanne
ABU	Aarburg	MOR	Morges (Morsee)
AIG	Aigle (Ählen)	MOU	Moudon (Lucens, Milden)
ALB	Büchsen-Almosen	MUS	Mushafen
ALS	Handwerk- und Stadtalmosen	NID	Nidau
APG	Armengut Pays de Gex	NSI	Nieder-Simmental (Wimmis)
ARW	Aarwangen	NYO	Nyon (Neus)
AUB	Aubonne	ORO	Oron
AUS	Ausländische Kapitalien	OHE	Oberländische Holzentreprise
AVE	Avenches (Wiflisburg)	OBE	Oberhofen
BHB	Bauherr von Burgern	OSI	Ober-Simmental (Blankenburg, Zweisimmen)
BIB	Biberstein	PAY	Payerne
BIP	Bipp	PUL	Pulver-Rechnung
BON	Bonmont	ROC	La Roche (Salzwerk)
BPF	Böspfennig	ROM	Romainmôtier
BRA	Brandis	SAA	Saanen
BUC	Buchsee (Münchenbuchsee)	SAH	Schallen- und Arbeitshaus
BUE	Büren	SBG	Schenkenberg
BUR	Burgdorf	SDI	Salzdirektion
DSR	Detusch-Standesrechnung	SIG	Signau
EIS	Eisenbergwerk Küttingen	SIL	Silberhandlung
ERL	Erlach	SLS	Schulsäckel
EXK	Exulantenkammer	STI	Stift (Chorherrenstift)
FRA	Fraubrunnen	STR	Strassenrechnung
FRB	Frienisberhaus Bern	STW	Stadtwacht
FRE	Frienisberg	SUM	Sumiswald
FRU	Frutigen	THU	Thun
GAR	Garnison Aarburg	TOR	Thorberg
GOT	Gottstatt	TRA	Trachselwald
GWR	Grossweibel-Rechnung	UMG	Umgeld
GSP	Grosser Spital	UNT	Unterseen
HAS	Hasli	VEV	Vevey (Vivis)
HET	Hettiswil	VIL	Villeneuve (Neuenstadt)
INB	Interlaknerhaus Bern	WAN	Wangen [= Wangen an der Aare]
INT	Interlaken	WED	Deutsch-Weinschenk
ITH	Interlaknerhaus Thun	WEW	Welsch-Weinschenk
JOB	Johannserhaus Bern	WSR	Welsch-Standesrechnung
JOH	St. Johannsen	YVE	Yverdon (Ifferten)
KAS	Kastelen (Castelen)	ZIE	Ziegelrechnung
KOE	Königsfelden	ZEU	Zeughaus
KOR	Kornherr	ZOD	Deutsche Zolldirektion
KOZ	Köniz	ZOF	Zofingen
LAK	Lands-Almosen-Kommission	ZOW	Welsche Zolldirektion
LAN	Landshut		
LAU	Laupen		
LEN	Lenzburg		

See also list of accounts on the previous page

Accounts Included in the Database and Summary Accounts: Details

Account	Type	Region	weight	ltr wine	ltr grain	from	till	Reference
AAR7321	D1	SEE	1.8400	1.67	14.00	15/01/1731	16/11/1731	StABE B VII 853
AAR7322	D1	SEE	1.8400	1.67	14.00	16/11/1731	04/02/1732	StABE B VII 853
ABU7321	D1	AG	1.3410	1.67	26.03	13/03/1731	29/09/1731	StAAG Bd. 31
ABU7322	D1	AG	1.3410	1.67	26.03	29/09/1731	18/03/1732	StAAG Bd. 32
ARW7321	D1	OAE	2.3710	1.67	14.00	01/05/1731	01/11/1731	StABE B VII 1261
ARW7322	D1	OAE	2.3710	1.67	14.00	01/05/1731	01/05/1732	StABE B VII 883
AUS732	B	BE	1.0000	1.67	14.00	01/03/1731	01/03/1732	StABE B VII 1261
BHB7321	D2	BE	1.1686	1.67	14.00	03/03/1731	01/09/1731	StABE B X 47
BHB7322	D2	BE	1.1686	1.67	14.00	01/09/1731	10/03/1732	StABE B X 48
BIB732	D1	AG	1.3410	1.67	14.00	30/01/1731	05/02/1732	StAAG Bd. 489
BPF732	D2	BE	1.1686	1.33	22.52	12/05/1731	12/05/1732	StABE B VIII 570
BRA732	D1	OAE	2.3710	1.67	14.00	31/01/1731	14/02/1732	StABE B VII 1104
DSR732	A	BE	1.0000	1.67	14.00	26/12/1731	26/12/1732	StABE B VII 613
ERL732	D1	SEE	1.8400	1.67	14.00	24/01/1731	13/02/1732	StABE B VII 1265
FRE732	D1	SEE	1.8400	1.67	14.00	22/01/1731	11/02/1732	StABE B VII 1363
FRU732	D1	OBE	1.4583	1.67	14.00	08/02/1731	27/02/1732	StABE B VII 1393
GSP732	D2	BE	1.1686	1.67	14.00	01/01/1732	31/12/1732	BBB VA BSB 3.3 RG I 18
INB732	D2	BE	1.1686	1.67	14.00	22/01/1731	12/02/1732	StABE B VII 935
INT732	D1	OBE	1.4583	1.67	14.00	05/03/1731	17/03/1732	StABE B VII 1487
ITH732	D1	OBE	1.4583	1.66	14.00	08/05/1731	08/05/1732	StABE B VII 2025
JOB732	D2	BE	1.1686	1.76	14.00	01/02/1731	21/02/1732	StABE B VII 962
KOE732	D1	AG	1.3410	1.67	14.00	08/03/1731	01/04/1732	StAAG Bd. 489
KOR732	D2	BE	1.1686	1.67	14.00	01/01/1732	31/12/1732	StABE B VI 250
LAU732	D1	SEE	1.8400	1.42	22.12	01/02/1731	20/02/1732	StABE B VII 1595
LEN732	D1	AG	1.3410	1.67	14.00	28/02/1731	27/03/1732	StAAG Bd. 842
LSN7321	D1	VD	1.4514	1.56	22.52	25/03/1731	01/01/1732	ACV BP 32/32
LSN7322	D1	VD	1.4514	1.16	13.70	01/01/1732	05/04/1732	ACV BP 32/33
MOU732	D1	VD	1.4514	1.16	13.70	16/02/1731	16/02/1732	ACV BP 34/29
MUS733	D2	BE	1.1686	1.41	11.73	01/03/1732	01/03/1733	StABE B III 1158
NID732	D1	SEE	1.8400	1.67	14.00	17/01/1731	06/02/1732	StABE B VII 1632
NYO732	D1	VD	1.4514	1.67	14.00	25/03/1731	13/04/1732	ACV BP 35/25
PUL732	B	BE	1.0000	1.34	17.18	01/11/1731	31/10/1732	StABE B II 546
ROC732	B	BE	1.0000	1.67	14.00	01/07/1731	01/07/1732	StABE B V 782
ROM732	D1	VD	1.4514	1.67	16.36	11/02/1731	11/02/1732	ACV BP 40/35
SDI732	B	BE	1.0000	2.18	14.00	24/06/1731	24/06/1732	StABE B V 513
SIG732	D1	OAE	2.3710	1.67	14.00	16/01/1731	05/02/1732	StABE B VII 1858
SLS732	D2	BE	1.1686	1.67	14.00	01/01/1731	31/12/1732	StABE B III 1100
STI732	D2	BE	1.1686	1.67	14.00	01/01/1732	31/12/1732	StABE B VII 1000
THU732	D1	OBE	1.4583	1.67	14.00	29/09/1731	29/09/1732	StABE B VII 2025
TOR732	D1	OAE	2.3710	1.67	14.00	01/05/1731	01/05/1732	StABE B VII 1979
TRA732	D1	OAE	2.3710	1.67	14.00	01/03/1731	12/03/1732	StABE B VII 2067
UMG732	D2	BE	1.1686	1.67	14.00	05/05/1731	05/05/1732	StABE B VIII 501
UNT732	D1	OBE	1.4583	1.67	14.00	08/02/1731	18/03/1732	StABE B VII 2099
WED732	D2	BE	1.1686	1.67	14.00	01/09/1731	01/09/1732	StABE B VIII 630
WEW732	D2	BE	1.1686	1.67	14.00	25/03/1731	13/04/1732	ACV BK 41/24
WSR732	A	BE	1.0000	1.67	14.00	25/12/1731	25/12/1732	StABE B VII 793
YVE732	D1	VD	1.4514	1.35	14.00	06/03/1731	06/03/1732	ACV BP 42/33
ZEU732	D2	BE	1.1686	1.67	14.00	01/09/1731	31/08/1732	StABE B II 750
ZOF732	D1	AG	1.3410	1.67	14.00	14/02/1731	06/03/1732	StAAG Bd. 1675

Table VII-6: Accounts included in Database: Details [continued on next page]

See comments on page 326.

Account	Region	weight	ltr wine	ltr grain	from	till	Reference	
AAR782	D1	SEE	1.8599	1.67	14.00	01/01/1782	01/01/1783	StABE B VII 862
ABU782	D1	AG	1.1693	1.67	26.03	26/02/1781	25/02/1782	StAAG Bd. 38
ARW782	D1	OAE	2.2798	1.67	14.00	08/03/1781	28/02/1782	StABE B VII 890
AUS782	B	BE	1.0000	1.67	14.00	01/03/1781	01/03/1782	StABE B VII 2449
BDR782	D2	BE	1.5862	1.67	26.03	01/05/1781	01/05/1782	StABE B V 203
BIB782	D1	AG	1.1693	1.33	22.52	01/03/1781	01/03/1782	StAAG Bd. 251
BPF782	D2	BE	1.5862	1.67	14.00	07/04/1781	30/03/1782	StABE B VIII 573A
BPFAU782	D2	BE	1.5862	1.67	14.00	01/05/1781	01/05/1781	StABE B VII 610
BPFIN782	D2	BE	1.5862	1.67	14.00	31/12/1781	01/01/1782	StABE B VIII 589
BRA782	D1	OAE	2.2798	1.67	14.00	01/01/1781	31/12/1781	StABE B VII 1109
DSR782	A	BE	1.0000	1.67	14.00	25/12/1781	25/12/1782	StABE B VII 664
ERL782	D1	SEE	1.8599	1.67	14.00	19/03/1781	07/03/1782	StABE B VII 1271
FRE782	D1	SEE	1.8599	1.67	14.00	01/01/1782	31/12/1782	StABE B VII 1370
FRU7821	D1	OBE	1.2083	1.67	14.00	01/01/1782	30/09/1782	StABE B VII 1397
FRU7822	D1	OBE	1.2083	1.67	14.00	28/10/1782	31/12/1782	StABE B VII 1398
GSP782	D2	BE	1.5862	1.67	14.00	01/01/1782	31/12/1782	BBB VA BSB 3.3 RG I 68
INB7821	D2	BE	1.5862	1.67	14.00	01/01/1782	01/07/1782	StABE B VII 941
INB7822	D2	BE	1.5862	1.67	14.00	01/07/1782	31/12/1782	StABE B VII 942
INT782	D1	OBE	1.2083	1.66	14.00	08/02/1781	06/02/1782	StABE B VII 1495
ITH782	D1	OBE	1.2083	1.76	14.00	01/01/1782	01/01/1783	StABE B VII 2036
JOB782	D2	BE	1.5862	1.67	14.00	01/01/1782	31/12/1782	StABE B VII 967
KOE782	D1	AG	1.1693	1.42	22.12	01/01/1782	31/12/1782	StAAG Bd. 498
KOR782	D2	BE	1.5862	1.67	14.00	01/01/1782	01/01/1782	StABE B VI 271a
LAU782	D1	SEE	1.8599	1.67	14.00	01/01/1782	01/01/1783	StABE B VII 1602
LEN782	D1	AG	1.1693	1.56	22.52	04/04/1781	20/03/1782	StAAG Bd. 849
LSN7821	D1	VD	1.4325	1.16	13.70	09/03/1781	28/10/1781	ACV BP 32/40
LSN7822	D1	VD	1.4325	1.16	13.70	28/10/1781	08/03/1782	ACV BP 32/41
MOU7821	D1	VD	1.4325	1.41	11.73	09/02/1781	27/10/1781	ACV BP 34/37
MOU7822	D1	VD	1.4325	1.41	11.73	27/10/1781	25/01/1782	ACV BP 34/38
MUS782	D2	BE	1.5862	1.67	14.00	14/02/1781	14/02/1782	StABE B III 1163
NID782	D1	SEE	1.8599	1.67	14.00	25/01/1781	24/01/1782	StABE B VII 1639
NYO782	D1	VD	1.4325	1.34	17.18	06/04/1781	22/03/1782	ACV BP 35/33
PUL782	B	BE	1.0000	1.67	14.00	31/12/1781	31/12/1782	StABE B II, 555
ROC782	B	BE	1.0000	1.67	14.00	01/07/1781	01/07/1782	StABE B V 831
ROM782	D1	VD	1.4325	2.18	16.36	01/02/1781	31/01/1782	ACV BP 40/44
SDI782	B	BE	1.0000	1.67	14.00	24/06/1781	24/06/1782	StABE B V 563a
SIG7821	D1	OAE	2.2798	1.67	14.00	01/01/1782	28/10/1782	StABE B VII 1864
SIG7822	D1	OAE	2.2798	1.67	26.03	28/10/1782	31/12/1782	StABE B VII 1865
SLS782	D2	BE	1.5862	1.67	14.00	01/01/1781	01/01/1782	StABE B III 1108
STI782	D2	BE	1.5862	1.67	14.00	19/02/1782	23/02/1782	StABE B VII 1021
THU782	D1	OBE	1.2083	1.67	14.00	01/01/1782	01/01/1783	StABE B VII 1261
TOR782	D1	OAE	2.2798	1.67	14.00	01/01/1782	01/01/1783	StABE B VII 1987
TRA7821	D1	OAE	2.2798	1.67	14.00	01/02/1781	28/10/1781	StABE B VII 2075
TRA7822	D1	OAE	2.2798	1.67	14.00	28/10/1781	21/01/1782	StABE B VII 2076
UMG782	D2	BE	1.5862	1.67	14.00	01/04/1781	01/04/1782	StABE B VIII 511
UNT782	D1	OBE	1.2083	1.67	14.00	31/12/1781	31/12/1782	StABE B VII 2102
WED782	D2	BE	1.5862	1.67	14.00	01/09/1781	01/09/1782	StABE B VIII 636
YVE782	D1	VD	1.4325	1.67	14.00	10/01/1782	31/12/1782	ACV BP 42/42
ZEU782	D2	BE	1.5862	1.59	12.83	01/01/1782	01/01/1782	StABE B II 796
ZOD782	D2	BE	1.5862	1.59	12.83	01/01/1782	31/12/1782	StABE B VIII 176
ZOF7821	D1	AG	1.1693	1.67	14.00	07/03/1781	30/09/1781	StAAG Bd. 1682
ZOF7822	D1	AG	1.1693	1.67	26.03	01/10/1781	07/03/1782	StAAG Bd. 1683
ZOW782	D2	AG	1.1693	1.67	14.00	24/06/1781	24/06/1782	StABE B VIII 220

Table VII-6: Accounts included in Database: Details

See comments on page 326.

Account	Reg.	ltr (w)	ltr (g)	Reference	Account	Reg.	ltr (w)	ltr (g)	Reference
aig7321	VD	1.43	22.52	ACVBp 25/11	aig782	VD	1.43	18.55	ACVBp 25/21
aig7322	VD	1.43	22.52	ACVBp 25/12	apg782	VD	1.43	17.18	[in NYO782]
alb732	BE	1.67	14.00	StABE B XII 173	aub7821	VD	1.50	14.51	ACVBp 26/13
als732	BE	1.67	14.00	StABE B XII 164	aub7822	VD	1.50	14.51	ACVBp 26/14
apg732	VD	1.35	22.52	[in NYO732]	ave782	VD	1.57	15.95	ACVBp 27/43
aub732	VD	1.50	14.51	ACVBp 26/5	bip782	OAE	1.67	13.24	StABE B VII 1080
ave732	VD	1.57	15.95	ACVBp 27/35	bon782	VD	1.35	15.95	ACVBp 28/31
bip732	OAE	1.67	13.24	StABE B VII 1074	buc782	SEE	1.67	14.00	StABE B VII 1145
bon732	VD	1.35	22.52	ACVBp 28/23	bue782	SEE	1.67	14.00	StABE B VII 1183
buc732	SEE	1.67	14.00	StABE B VII 1136	bur782	OAE	1.67	14.00	StABE B VII 1219
bue732	SEE	1.67	14.00	StABE B VII 1176	eis782	BE	1.67	14.00	StABE B V 960a
bur732	OAE	1.67	13.60	StABE B VII 1214	exk782	BE	1.67	14.00	StABE B XII 283
fra732	OAE	1.67	14.00	StABE B VII 1314	fra782	OAE	1.67	14.00	StABE B VII 1321
frb732	BE	1.67	14.00	StABE B VII 909	frb782	BE	1.67	14.00	StABE B VII 914
gar7321	AG	1.67	14.00	StABE B II 173	gar782	AG	1.67	14.00	StABE B II 176
gar7322	AG	1.67	14.00	StABE B II 173	got782	SEE	1.67	14.00	StABE B VII 1429
got732	SEE	1.67	14.00	StABE B VII 1424	gwr782	BE	1.67	14.00	StABE B VII 2235
has732	OBE	1.67	14.00	StABE B VII 1682	has782	OBE	1.67	14.00	StABE B VII 1683
het732	OAE	1.67	14.00	StABE B VII 1454	het782	OAE	1.67	14.00	StABE B VII 1456
joh732	SEE	1.67	14.00	StABE B VII 1751	joh782	SEE	1.67	14.00	StABE B VII 1762
kas733	AG	1.33	22.52	StAAGBd. 1513	kan782	BE	1.67	14.00	StABE B VII 2248
lan732	AG	1.67	14.00	StABE B VII 1555	kas7821	AG	1.33	22.52	StAAGBd. 1518
mor732	VD	1.61	22.52	ACVBp 33/31	kas7822	AG	1.33	22.52	StAAGBd. 1519
nsi732	OBE	1.67	14.00	StABE B VII 1885	koz782	BE	1.67	14.00	StABE B VII 1534
obe732	OBE	1.67	14.00	StABE B VII 1691	lak782	BE	1.67	14.00	StABE B XII 189
oro732	VD	1.35	22.52	ACVBp 36/33	lan782	OAE	1.67	14.00	StABE B VII 1562
osi732	OBE	1.67	14.00	StABE B VII 1916	mor782	VD	1.61	16.40	ACVBp 33/40
saa7321	OBE	1.67	14.00	StABE B VII 1712	nsi782	OBE	1.67	14.00	StABE B VII 1890
saa7322	OBE	1.67	14.00	StABE B VII 1712	obe782	OBE	1.67	14.00	StABE B VII 1694
sah732	BE	1.67	14.00	StABE B IX 1314	ohe782	BE	1.67	14.00	StABE B VI 960
sbg7321	AG	1.33	22.52	StAAGBd. 1137	oro782	VD	1.35	13.70	ACVBp 36/41
sbg7322	AG	1.33	22.52	StAAGBd. 1137	osi782	OBE	1.67	14.00	StABE B VII 1923
sil732	BE	1.67	14.00	StABE B VII 5341	saa782	OBE	1.67	14.00	StABE B VII 1718
stw732	BE	1.67	14.00	StABE B II 649	sah782	BE	1.67	14.00	StABE B IX 1323
sum732	OAE	1.67	14.00	StABE B VII 1942	sbg782	AG	1.33	22.52	StAAG 1144
wan732	OAE	1.67	14.00	StABE B VII 2123	sil782	BE	1.67	14.00	StABE B VII 5517
					str782	BE	1.67	14	StABE B X 115
					stw782	BE	1.67	14	StABE B II 655
					sum782	OAE	1.67	14	StABE B VII 1948
					wan782	OAE	1.67	14	StABE B VII 2130
					zie782	BE	1.67	14	StABE B X 68

Table VII-6: Accounts included in Database: Details for Summary Accounts

Source: Database and Extended Database. *Weight* is the weighting factor in the database (see Section IV-2), *ltr wine* is the volume content of the major wine unit, *ltr grain* the equivalent for grain (see Section VII-13 for details). For account abbreviations, see page 324.

VII-10 Comparing Data for 1732 and 1782 with the Long-run Database

Comparing the results for the two sample years 1732 and 1782 is difficult for several reasons. First, the sample size is not identical. The accounts for the *General Bilanzen* only include all D-Type accounts through their arrears only, but not with all revenue and expenditure. Second, the timing of the sample might not be consistent. For the database, I have defined the accounting years to cover all accounts that finished within the calendar year; this was not always the same for the accounts in the *General Bilanzen*. For example, on 20 December 1782 the sum of 100,000 crowns (2.5m Bz) was taken from the cash reserve to be invested in Denmark. This transaction was recorded in the account for foreign funds (AUS) for 1782/83, which ran from 1 March 1782 to 1 March 1783. It was therefore not included in the sample. Third, some transactions change in nature when the sample size is not identical. Notably payments between accounts (*assignments*) change their character with the sample size: If the corresponding account is also part of the sample, then the transfer has to be excluded to avoid double counting; if the corresponding account is not part of the sample, then the payment counts as revenue (or expenditure). And finally, the summary categories of the *General Bilanzen* can mask transactions that were only made for accounting purposes, such as transfers or opening balances.

If in spite of these differences an absolute budget surplus is calculated for 1732 and 1782, the figures from the *General Bilanzen* are higher than those from the database. For 1732, the budget surplus from the *General Bilanzen* was 3.34m Bz, compared to 2.04m when calculated from the database sample. The corresponding figures for 1782 are 3.10m Bz (*Bilanzen*) and 1.98m Bz (database).

VII-11 Error Quotas of the Database

Some of the records in the database can be used for control purposes, such as page sums, overall account sums or arrears. Page and account totals (*summarum* and *summa summarum*) have been used to assure that all records from a page, and all pages of an account, were included. Arrears could be used to check the overall accuracy of the data with the simple formula Revenue = Expenditure + Arrears. If the difference (R – E + A) is expressed as a share of revenue, this is a rough indicator of the error quota in the database. Table VII-7 shows the error quotas of accounts in the database and for summary accounts.

	Database		Summary Accounts	
	1732	1782	1732	1782
Number of Accounts	49	55	36	41
Total Revenue in Bz	49,141,705	83,391,282	6,505,128	10,160,926
Total Expenditure in Bz	33,428,988	49,694,030	2,985,649	5,506,005
Arrears (Positive) in Bz	16,097,008	34,112,147	3,495,529	4,614,296
Passive Arrears (Negative) in Bz	370,655	477,836		
Difference in Bz	-13,636	62,940	23,950	40,626
<i>Difference in % of Revenue</i>	-0.03%	0.08%	0.37%	0.40%
Absolute Difference in Bz	253,690	148,765	29,267	52,744
<i>Absolute Difference in % of Revenue</i>	0.52%	0.18%	0.45%	0.52%

Table VII-7: Error Quotas of Database

Source: Database (all transactions). Bz = Bernese Batzen. The *Difference* is calculated as (Revenue + Passive Arrears) – (Expenditure + Arrears); *Absoulte Difference* ignores the sign of the value for *Difference*. It is shown as the sum of all differences for each single account. For summary accounts, *Arrears* and *Passive Arrears* have been added (the value can be negative).

The overall error quotas of -0.03% (1732) and 0.08% (1782) in the database are very low; they are slightly higher for summary accounts. Even if the absolute value of errors for each single account is considered – which means that negative errors in one account do not cover positive errors in others – the quotas remain low, around 0.5%. These figures include conversion and rounding errors as well as the contemporary inaccuracies in determining outstanding arrears.

VII-12 Data Categorisation

To categorise data from primary sources, I have used the custom-made software *Schnupper-Logic*, programmed as macros to Microsoft Word by Stephan Hagnauer.⁸³³ Documents were first transcribed entirely in the archives as word files, then categorised on the computer. The underlying classification scheme ('accounting scheme') is specified in Table VII-8 in German. The categories are in line with the analytical framework explained in Section III-2 and Section IV-1. They follow methods pioneered by Martin Körner.⁸³⁴ My accounting scheme in Table VII-8 differs from Hagnauer's original marginally. In particular, I have added an asterisk for net transactions.

The software assigns an 'account' (row *Konto*) for each category. These accounts were also used to define categories in my database, which were then related to the analytical framework. The accounts are named after their position in the hierarchy of categories. For certain transactions, the programme suggests a default value for the state function (row *Fkt*) and sector (row *Skt*). Transactions with the value *div* in Table VII-8 were assigned manually.

All transcript files can be found on the website <http://www.befin.hist.unibe.ch>

[see pages overleaf]

Table VII-8: Accounting Scheme for Categorisation (in German)

⁸³³ For details, see Hagnauer (1995). See also Hagnauer (1994); Hagnauer/Bartlome (1998); Bartlome/Hagnauer (2006).

⁸³⁴ Körner (1981).

EV VERBRAUCHS-EINNAHMEN (LAUFEND)	Konto	Fkt	Sekt	Net
S STEUERN				
A AUSGABEN-STEUERN				
S SPEZIELLE AUSGABEN-STEUERN				
B Bospfennig	EV SASB	F	4	*
U Umgeld	EV SASU	F	4	*
Z ZOLLE				
A Ausfuhrzölle, Sortie-, Trattengeld	EV SAZA	F	3H	*
B Brückenzölle	EV SAZB	F	4	*
E Einfuhrzölle	EV SAZE	F	3H	*
G Geleit u. Transitzölle	EV SAZG	F	3H	*
M Marktzölle	EV SAZM	F	4	*
E EINNAHMEN-STEUERN				
Z ZEHNT-ERTRÄGE				
G Getreide	EV SEZG	F	1	*
H Heu	EV SEZH	F	1	*
K Kartoffeln	EV SEZK	F	1	*
W Wein	EV SEZW	F	1	*
X unbestimmt (Werch-, Jungzehnt)	EV SEZX	F	1	*
V VERMÖGENS-STEUERN				
S STAND DES VERMÖGENS				
EV SVS	F	4	*	
V VERKEHR DES VERMÖGENS				
A Abzugsgeld	EV SVVA	F	4	*
E Erbschatz (Erbfälle)	EV SVVE	F	4	*
G Grundbesitz-Erbschatz (Löber)	EV SVVG	F	4	*
E ERTRÄGE (ERWERBSEINKÜNFT)				
B BETRIEBS-, BETEILIGUNGS-ÜBERS.				
EV EB	div	div	*	
<small>(sofern keine eigenen Rechnungen)</small>				
F FINANZVERMÖGENS-ERTRÄGE				
K KAPITAL-ERTRÄGE				
Z Zinsen (aktiv)				
A ablösige Zinserträge	EV EFKZA	F	4	*
X unspezifizierte Zinserträge	EV EFKZX	F	4	*
L LIEGENSCHAFTS-ERTRAG	EV EFL	F	div	*
R RECHNUNGSFEHLER zG. Obrigkeit	EV EFR	F	div	*
W WECHSELGEWINNE	EV EFW	F	3V	*
M MONOPOLGEWINN	EV EM	F	4	*
<small>(z.T. nicht direkt ausgewiesen)</small>				
P PRODUKTIONS-ERTRAG	EV EP	div	div	*
<small>(inkl. Aufnahmegeelder v. Pfrundern)</small>				
S SALZVERKAUF (LAUFEND)	EV ES	F	4	*
G GEBÜHREN				
A AMTS- u. VERWALTUNGS- GEBÜHREN				
E EINWOHNERKONTROLLE				
B Burgrechtsaufnahme	EV GAEB	V	4	*
E Einzug	EV GAEE	V	4	*
H Hintersassengeld	EV GAEH	V	4	*
X unbestimmt (Befr. v. unehrl. Geburt)	EV GAEX	V	4	*
R RECHTSPFLEGE				
A Aemterausschlag	EV GARA	J	4	*
B Bussen (inkl. Leistungsbussen)	EV GARB	J	4	*
K Konfiskationen	EV GARK	J	4	*
S Siegelgeld	EV GARS	V	4	*
Z Zeugnis- u. Attest-Gelder	EV GARZ	V	4	*
X unbestimmt (u.a. Appellationsgeld)	EV GARX	J	4	*
B BENUTZUNGS- GEBÜHREN	EV GB	D	div	*
R RECOGNITIONEN und BEITRÄGE				
A AEUSSERE				
B Bündnisgelder	EV RAB	A	3V	*
G Gemeine Herrschaften	EV RAG	A	4	*
K Kriegsgewinne	EV RAK	A	div	*
I INNERE				
B Bodenzinsen				
H Hußhofstattzinsen	EV RIBH	F	4	*
P Pfennigzinsen, unablösige ewige	EV RIBP	F	1	*
X unspezifizierte Bodenzinsen	EV RIBX	F	1	*
E Ehhaften (Tavernen etc)	EV RIE	F	div	*
F Fischenzen	EV RIF	F	1	*
G Geschenke, Legate	EV RIG	F	4	*
H Holzhaber, Holzgeld	EV RIH	F	4	*
L Lehenszinsen (Ehrschatz v. Zehnden)	EV RIL	F	4	*
M Marechausegelder	EV RIM	F	4	*
S br. Sommer	EV RIS	F	4	*
V Vogtsteuern (Landsteuer, Wachtgeld)	EV RIV	F	4	*
W Wynnänni	EV RIW	F	4	*
S STORNO AUSGABEN				
P bei Passation durch Vennerkammer	EV RSP	F	div	*

EI INVESTITIONS-EINNAHMEN	Konto	Fkt	Sekt	Net
D DARLEHENS- UND BETEILIGUNGS-RÜCKFLÜSSE				
B Beteiligungs-Rückflüsse	EI DB	F	div	*
D Darlehens-Rückflüsse (ohne Restanzen)	EI DD	F	div	*
R Restanzen-z. G.-Obrigkeit-Rückflüsse	EI DR	F	3V	*
I INVESTITIONSGÜTER-VERÄUSSERUNG				
I IMMOBILIEN-VERKAUFSERLÖSE				
G Grundstücks-Verkäufe	EI IIG	F	div	*
H Hochbauten-Verkäufe	EI IHH	F	div	*
K Konglomerats-Verkäufe	EI IIK	F	div	*
X übrige Immobilien-Rechts-Verkäufe	EI IIX	F	div	*
M MOBILIEN-VERKAUFSERLÖSE				
B Bau-Material und Holz	EI IMB	F	div	*
F Fleischwaren	EI IMF	F	div	*
G Getreide, Spreu	EI IMG	div	div	*
K Kulturgüter	EI IMK	div	div	*
M Milchprodukte	EI IMM	F	div	*
R Rüstungsgüter	EI IMR	L	div	*
V Vieh	EI IMV	div	div	*
W Wein	EI IMW	div	div	*
R RECHTS-VERKAUFSERLÖSE (übrige)	EI IR	F	div	*
SL SALZ: LAGERAUFLÖSUNG (in Geld)	EI ISL	F	4	*
L LAGER-EINGANG <small>(so im Ausgaben gegenverrechnet)</small>				
G Getreide-Käufe (in Getreidewährung)	EI LG	div	div	*
T Tuch-Käufe (in Lager)	EI LT	div	div	*
W Wein-Käufe (in Weinwährung)	EI LW	F	div	*
S SCHULDEN-AUFNAHME				
EI S	F	div	*	
U UEBERTRAGUNGEN (ohne Erträge)				
E Eingemessen von letzter Rechnung	EI UE(P)	F	3V	*
N von NEBEN-Ebene	EI UN	F	3V	*
O von OBER-Ebene	EI UO	F	3V	*
U von UNTER-Ebene	EI UU	F	3V	*

EINNAHMEN NACH STAATS-FUNKTION		
E EINNAHMEN für		Fkt
A Auswärtige Beziehungen		EA
B Bildung		EB
D Domänen und Produktion		ED
F Finanzen und Steuern		EF
G Gesundheit		EG
J Justiz und Polizei		EJ
K Kultur		EK
L Landesverteidigung		EL
R Religion		ER
S Soziale Wohlfahrt		ES
U Umwelt, Raum und Verkehr		EU
V Verwaltung allgemein		EV
W Wirtschafts-Politik und Versorgung		EW

SUMMEN UND RESTANZEN			
S SUMMA der			
E EINNAHMEN pro			
S Seite	SES	SF	S4
R Rechnung	SER	SF	S4
A AUSGABEN pro			
S Seite	SAS	SF	S4
R Rechnung	SAR	SF	S4
R RESTANZ			
O ZU GUNSTEN der Obrigkeit			
E Exklusive Altrestanz	ROE	RF	R3V
I Inklusive Altrestanz	ROI	RF	R3V
U ZU UNGUNSTEN der Obrigkeit			
E Exklusive Altrestanz	RUE	RF	R3V
I Inklusive Altrestanz	RUI	RF	R3V
V VORJAHRES-RESTANZ			
O ZU GUNSTEN der Obrigkeit			
E Exklusive Altrestanz	VOE	VF	V3V
I Inklusive Altrestanz	VOI	VF	V3V
U ZU UNGUNSTEN der Obrigkeit			
E Exklusive Altrestanz	VUE	VF	V3V
I Inklusive Altrestanz	VUI	VF	V3V

AV VERBRAUCHS-AUSGABEN (LAUFEND)	Konto	Fkt	Skt	Net
P PERSONAL-AUFWAND				
B BESOLDUNGEN des Etat-Personals				
G Grundbesoldungen	AV PBG	div	3V	*
V Verbesserungen	AV PBV	div	3V	*
G GRATIFIKATIONEN für das Etat-Personal				
G Gutjahr-Gelder	AV PGG	div	3V	*
M Mahlzeiten, Umtrunke	AV PGM	div	3V	*
T Trinkgelder, -getreide (Ergetzlichkeit)	AV PGT(P)	div	3V	*
H HONORARE-ad-hoc für Etat-Personal				
AV PH	div	3V	*	
S SOZIAL-LEISTUNGEN für das Etat-Personal				
A Alters-Versorgung	AV PSA	div	3V	*
H Hinterbliebenen-Versorgung	AV PSH	div	3V	*
T TRUPPEN-SOLD				
AV PT	L	3V	*	
V VERGÜTUNGEN für Gemeinwerker				
F Fuhrdienste	AV PVF	div	3F	*
R fRondienste	AV PVR	div	2R	*
X un spezifiziert	AV PVX	div	div	*
S SACH-AUFWAND				
L LEISTUNGEN DRITTER für				
H HANDEL				
AV SLH	div	3H	*	
N NACHRICHTEN-ÜBERMITTLUNG				
AV SLN	div	3N	*	
P PRODUKTION				
L Löhne	AV SLPL	D	div	*
V Verpflegung	AV SLPV	D	div	*
S STRAFVOLLZUG				
AV SLS	J	3div	*	
T TRANSPORTE				
AV SLT	div	3S	*	
U UNTERHALT der				
I IMMOBILIEN				
G Grundstücks-Unterhalt	AV SLUIG	div	2div	*
H Hochbau-Unterhalt	AV SLUIH	div	2div	*
T Tiefbau-Unterhalt inkl Brücken	AV SLUIT	U	2div	*
W Wasserbau-Unterhalt	AV SLUIW	U	2div	*
M MOBILIEN				
G Getreide-Unterhalt	AV SLUMG	F	div	*
M Mobiliar-Unterhalt	AV SLUMM	div	2div	*
R Rüstungsgüter-Unterhalt	AV SLUMR	L	2div	*
S Salz-Unterhalt	AV SLUMS	div	2div	*
W Wein-Unterhalt (ohne Herbst)	AV SLUMW	V	div	*
W WEITERE DIENSTLEISTUNGEN				
AV SLW	div	3D	*	
M MOBILIEN (laufend)				
B Bau-Material (laufend)	AV SMB	div	div	*
D Dienstbekleidung	AV SMD	div	2T	*
F Futter-, Saat- u. Dünger-Mittel	AV SMF	div	1	*
G Geräte u. Fahrzeuge-Anschaffung	AV SMG	div	2div	*
H Heizungs- u. Beleuchtungs-Material	AV SMH	V	div	*
K Kanzlei-Material	AV SMK	V	2div	*
M Mobiliar (laufend)	AV SMM	div	2div	*
N Nahrungs-Mittel (oh. Lohn Fron Grati.)	AV SMN	div	div	*
R Rüstungs-Material (laufend)	AV SMR	L	2div	*
S Salz (laufend)	AV SMS	F	div	*
P PACHT- UND MIETZINSE				
I Immobilien-Miete	AV SPI	div	div	*
M Mobilen-Miete	AV SPM	div	div	*
S SPESEN-ENTSCHÄDIGUNGEN				
R Reise-Spesen	AV SSR	div	div	*
V Verpflegung (oh. Lohn, Fron, Grati)	AV SSV	div	div	*
X un spezifizierte Spesen	AV SSX	div	div	*
T TRANSFERAUSGABEN				
B BEITRÄGE				
AV TB	div	3V	*	
F FREMDANTEILE AN EINKOMMEN				
AV TF	F	div	*	
N NACHLÄSSE				
R Recognitions-Nachlass	AV TNR	div	div	*
S Steuer-Nachlass (Zehnten)	AV TNS	F	1	*
Z Zinsen- und Schulden-Nachlass	AV TNZ	div	4	*
S SUBVENTIONEN				
B Brandgeschädigte	AV TSB	S	4	*
F Fremde	AV TSF	S	4	*
K Kranke, Invalide u. Alte	AV TSK	div	4	*
S Studenten (bern.) und Lehrkinder	AV TSS	B	4	*
W Wittwen u. Waisen (ohne Etat-Angeh.)	AV TSW	S	div	*
W WERTBERICHTIGUNGEN				
E Einnahmen-Storno	AV TWE(P)	F	div	*
G Getreide-Abgang (Kastenschweingung)	AV TWG(P)	F	3V	*
R Rechnungsfehler z.L. Obrigkeit	AV TWR	F	3V	*
W Wechsel-Verluste	AV TWW	F	3V	*
Z ZINSDIENST	AV TZ	F	4	*

AI INVESTITIONS-AUSGABEN	Konto	Fkt	Skt	Net
D DARLEHEN UND BETEILIGUNGEN				
B Beteiligungen				
AI DB	F	div	*	
D Darlehenssprächung				
AI DD	F	div	*	
I INVESTITIONSGÜTER-BESCHAFFUNG				
B BAUVORHABEN (ohne Käufe)				
H Hochbau-Vorhaben (ohne Unterhalt)	AI IBH	div	div	*
T Tiefbau-Vorhaben (ohne Unterhalt)	AI IBT	U	div	*
W Wasserbau-Vorhaben (ohne Unterhalt)	AI IBW	U	div	*
I IMMOBILIEN-KÄUFE				
G Grundstücks-Käufe	AI IIG	div	div	*
H Hochbauten-Käufe (ohne Bauvorhaben)	AI IHH	div	div	*
K Konglomerats-Käufe	AI IIK	F	div	*
T Tiefbauten-Käufe	AI IIT	U	div	*
X übrige Immobilien-Rechts-Käufe	AI IIX	div	div	*
M MOBILIEN-KÄUFE (In Vorrat)				
B Bau-Material	AI IMB	F	div	*
G Getreide und Früchte	AI IMG	div	div	*
K Kulturgüter	AI IMK	K	div	*
R Rüstungsgüter	AI IMR	L	div	*
T Textilien (in Vorrat)	AI IMT	F	div	*
V Vieh	AI IMV	div	div	*
W Wein	AI IMW	F	div	*
R RECHTS-KÄUFE (übrige)				
AI IR	div	div	*	
SL LAGER-ÄUFFNUNG SALZ (in Geld)				
AI ISL	F	4	*	
L LAGER-AUSGANG (so im Einnahmen gegenverrechnet)				
G Getreideverkäufe (in Getreidewährung)	AI LG	div	div	*
T Tuch-Verkäufe (vom Lager)	AI LT	div	div	*
W Wein-Verkäufe (in Weinwährung)	AI LW	F	div	*
S SCHULDEN-TILGUNG				
R Restanzen-z.L.-Obrigkeit tilgen	AI SR	F	div	*
S übrige Schulden tilgen	AI SS	F	div	*
U UEBERTRAGUNGEN (der Investitionsrechnung)				
E Eingemessen zur nächsten Rechnung	AI UE(P)	F	3V	*
N zur NEBEN-Ebene	AI UN	F	3V	*
O zur OBER-Ebene	AI UO	F	3V	*
U zur UNTER-Ebene	AI UU	F	3V	*

EINKOMMEN NACH STAATS-FUNKTION

E EINKOMMEN für	Fkt
A Auswärtige Beziehungen	EA
B Bildung	EB
D Domänen und Produktion	ED
F Finanzen und Steuern	EF
G Gesundheit	EG
J Justiz und Polizei	EJ
K Kultur	EK
L Landesverteidigung	EL
R Religion	ER
S Soziale Wohlfahrt	ES
U Umwelt, Raum und Verkehr	EU
V Verwaltung allgemein	EV
W Wirtschafts-Politik und Versorgung	EW

SUMMEN UND RESTANZEN

S SUMMA der				
E EINKOMMEN pro				
S Seite	SES	SF	S4	
R Rechnung	SER	SF	S4	
A AUSGABEN pro				
S Seite	SAS	SF	S4	
R Rechnung	SAR	SF	S4	
R RESTANZ				
O ZU GUNSTEN der Obrigkeit				
E Exklusive Altrestanz	ROE	RF	R3V	
I Inklusive Altrestanz	ROI	RF	R3V	
U ZU UNGUNSTEN der Obrigkeit				
E Exklusive Altrestanz	RUE	RF	R3V	
I Inklusive Altrestanz	RUI	RF	R3V	

VII-13 Measurements and Conversions

This section will discuss the prices used to convert all transactions into a single accounting currency, the Bernese Batzen. I will start with monetary units and subsequently present measurements for basic foodstuffs as well as conversion prices used to transfer values into Batzen.

Monetary Units

The *Batzen* was an ideal accounting currency with a stable value. It was not minted and the value of a *Batzen* changed relative to circulating coins used for daily transactions.⁸³⁵ The Bernese government used three different accounting currencies with fixed proportions between them (see Figure VII-8). In addition to the Crown-Batzen-Kreuzer system, the Pound-based ‘LSD system’⁸³⁶ dating back to Charlemagne was still in frequent use. In Vaud, the currency was based on the Savoy model using the Light Guilder (*florin petit poid*).⁸³⁷ In Argovia, *forins* were used in combination with Bernese currencies.⁸³⁸

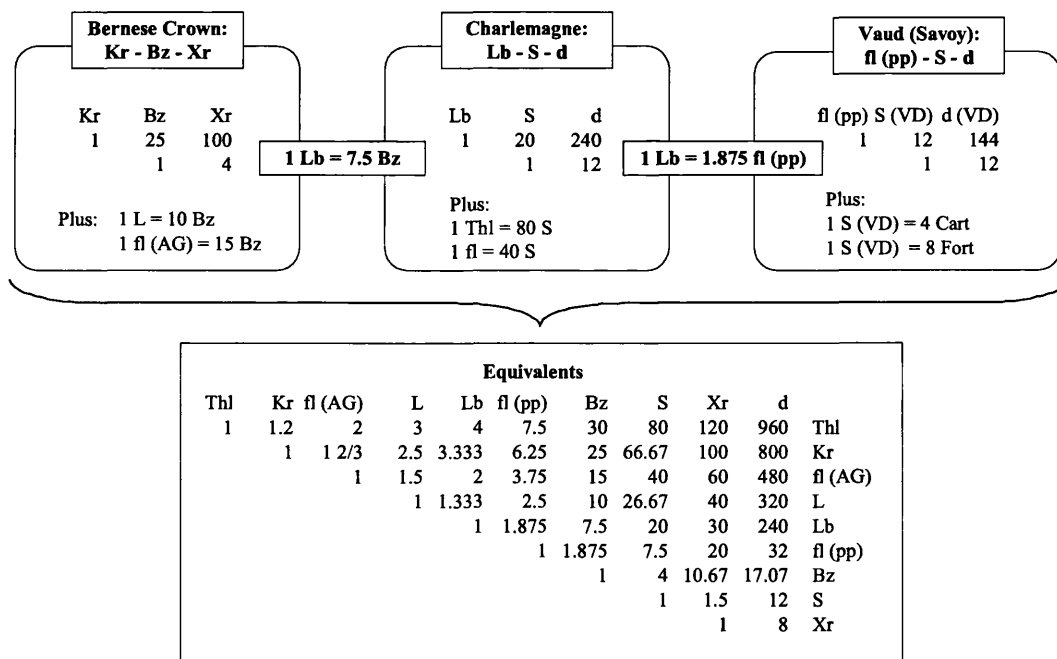


Figure VII-8: The Bernese Currency System: Origins and Equivalents

Based on Furrer (1992); Furrer (1995); Körner/Furrer/Bartlome (2001).

Abbreviations: Thl = Taler; Kr = Krone (Bernese Crown); fl = Gulden or Berner Gulden (Bernese Guilder); fl (AG) = Argovia gulden; L. = Livre Suisse or Schweizer Pfund; Lb [also: BE-Lb] = Pfund or Bern-Pfund

⁸³⁵ For the different monetary systems, see Furrer (1995).

⁸³⁶ LSD standing for Librum (Pound), Solidus (Shilling) and Denarius (Penny).

⁸³⁷ The proportions between the Vaudois system and the Bernese had been fixed in 1590: Furrer (1992): 109-110.

⁸³⁸ One Argovia *florin* (which was different from the *florin petit poid*) held either 40 Bernese Shillings (of 12 d each) or 15 Bernese Batzen (of 4 Kreuzer each).

(Bernese Pound); **fl (pp)** = Florin petit poids (Vaudois Guilder, Light Guilder); **Bz** = Batzen *or* Berner Batzen; **S** = Schilling *or* Solidus; **S (VD)** = Sol Vaudois *or* sol gros; **Xr** = Kreuzer; **d** [also: **Pfg**] = Pfennig *or* Denarius; **d (VD)** = Denier Vaudois.

Although state accounting saw a gradual shift to the Crown system in the eighteenth century, this transition was not comprehensive. In 1773, three years after the first *Deutsch-Standesrechnung* was issued in Crowns, the Great Council discussed about switching back to the Pound. As a result of such discussions, it was finally decided to make the Crown the standard currency for all bailiff accounts which had a connection to the *Deutsch-Standesrechnung*.⁸³⁹ But even after 1773, some bailiffs kept recording parts of their ledgers in Pounds and only converted the overall sum into Crowns. Others apparently did not adopt the new currency at all.

The value of these ideal units of account can be determined in two ways: relative to the purchasing power in terms of goods or respective to other currencies. For the latter, we can analyse the value of 'heavy' foreign coins like the *Reichstaler* or the *Ecu Blanc*, whose bullion content was fixed and stable.⁸⁴⁰ Based on their exchange rates in Bern, the ideal bullion content of Bernese Batzen was calculated for Figure VII-9.

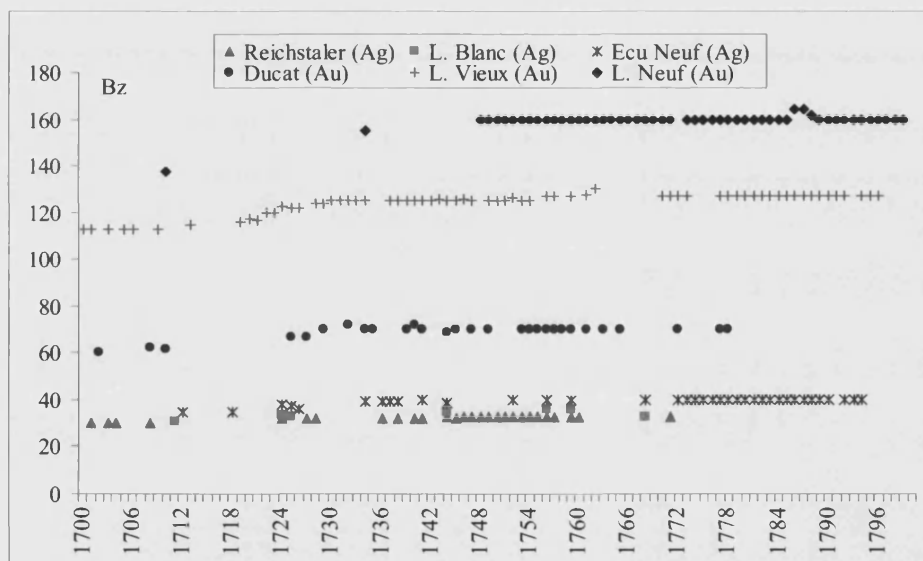


Figure VII-9: Ideal Bullion Content of the Bernese Batzen, Based on Exchange Rate of Silver and Gold Coins

Sources: Exchange rates from Körner/Furrer/Bartlome (2001); bullion content of coins from Schrötter (1930). Abbreviations: *Au* = gold and *Ag* = silver.

While the results for gold coins are consistent, using the *Reichstaler* gives a considerably higher silver content for the Bernese Batzen than the French coins. This is probably because the *Speciestaler* on which Bernese exchange rates are based were minted coins whose silver content was not identical with that of the original

⁸³⁹ Leuenberger-Binggeli (1999): 178.

⁸⁴⁰ In practice, most international transactions were not made in cash, but via bill of exchange: see Section V-1.

Reichstaler.⁸⁴¹ Using the French *Louis Blanc* and the *Ecu Neuf* as a currency of reference is more reliable.⁸⁴² Overall, the Bernese currencies of account were relatively stable throughout the eighteenth century, with some depreciation in the earlier part of the period. This stands in marked contrast to previous centuries, where currency devaluations were frequent.⁸⁴³ As a proxy, the silver content of 1 *Batzen* was 0.7 g of fine silver or 0.05 g of fine gold.

The conversion of foreign currencies for overseas investments was based on parity rates, as discussed in Section V-1.

Measurements for Grain and Other Basic Foodstuffs

The measurements for basic foodstuffs in Bern were only partly unified. Numerous local units coexisted. Therefore, the administration had to consider a plethora of different weights, volumes and capacity measures. This was further complicated by the fact that those systems were all non-decimal, which made adding and comparing sums difficult. Also, the same unit by name did not necessarily contain an equal amount wherever it was used. For example, the Bernese grain *Mäss* contained 14 litres.⁸⁴⁴ It was used within most of the German-speaking parts of the canton, except for the county of Bipp, where grain was measured in *Solothurn Mäss* containing 13.2 litres. In Vaud, almost every county had its grain measure, which in spite of their similar names differed significantly. Argovia, too, had measurements of its own. This is an indication for how fragmented the Bernese economy remained in the eighteenth century, even when it came to the most important staple of the time.

One *Mütt* (*mt*) consisted of 12 *Mäss* (*ms*), each measuring 4 *Imi* (*im*). In daily life the *Mäss* was the most important measure and prices were expressed in Batzen per *Mäss* (Bz/ms). In Argovia, one *Malter* (*mlt*) contained four (Argovia-) *Mütt* (*mt*) of four Quarters (*Fiertel*) or 16 *Vierling*.⁸⁴⁵ In Vaud, the mayor measure was the *Muid*, a French version of the German word *Mütt*. For sub-divisions of the *Muid*, counties would use either twelve *coupes* of four *quarterons* each; or a system with twelve *coupes* of two *bichets* each. Sometimes the *sac* was used, of which 3 made one *Muid* (see Figure VII-10).⁸⁴⁶

⁸⁴¹ Other explanations are devaluations of the *Reichstaler*, or a risk premium that was applied for these coins in Bern.

⁸⁴² I thank Norbert Furrer for advice in how to calculate these values.

⁸⁴³ The same can be observed for Lucerne: See Körner (1981).

⁸⁴⁴ Early modern grain was measured by volume, not weight.

⁸⁴⁵ One *Vierling* consisted of 9 (Argovia-) *Imi*. See Ebener (1999): 220 for more details on Argovia measures.

⁸⁴⁶ For details on the Vaud systems: Monbaron (1992). See Table VII-9 for which system the counties used.

Bern			Argovia				Vaud					
Mütt	Mäss	Imi	Malter	Mütt	Fiertel	Vierling	Muid	Coupe	Bichet	Muid	Coupe	Q'ron
1	12	48	1	4	16	64	1	12	24	1	12	48
	1	4		1	4	16		1	2		1	4
					1	4						
1 BE-Mütt = 168.1 ltr			Content of Mütt differs by County				Plus: 1 Muid = 3 Sac Content of Muid differs by County					

Figure VII-10: Grain Equivalents in Bern, Argovia and Vaud

Abbreviation: *Q'ron* = Quarteron. For the litre content of *Mütt* and *Muid* per county, see Table VII-9.

Mütt or *Muid* did not always contain the same volume. Only for the core Bernese territory did the *Mütt* contain the same amount (168.1 ltr). In Argovia and Vaud, the content of each unit varied from county to county. Table VII-9 gives a list of grain content per *Mütt* in litres, based on data from Christian Pfister and Patrick Monbaron.

Bern	<i>Mütt</i> in litres	Vaud	<i>Muid</i> in litres	Sub-unit used
Regular Mütt	168.1	Lausanne	163.0	Quarteron
Great Mütt (<i>grosses Bernmütt</i>)	174.8	Aigle	224.2	Bichet
Bipp (Solothurn Mütt)	158.9	Vevey, Villeneuve	210.2	Quarteron
Burgdorf, Aarwangen, Wangen, Landshut	163.0	Nyon, Bonmont	206.2	Quarteron
		Morges	196.9	Quarteron
		Romainmôtier	196.6	Bichet
Argovia	<i>Mütt</i> in litres	Avenches	189.2	Bichet
Brugg (Königsfelden)	88.5	Aubonne	174.2	Quarteron
Aarau, Lenzburg, Biberstein, Schenkenberg	90.1	Orbe	171.2	Quarteron
Zofingen, Aarburg	104.1	Payerne	168.1	Bichet*
		Yverdon	154.5	Quarteron
		Moudon	140.1	Quarteron**

Table VII-9: Litre Content of Mütt/Muid by County

Sources: For Bern and Argovia: Pfister, C. (1975): table 24. For Vaud: Monbaron (1992): fig. 20. See also Tuor (1977) and Dubler (1975). Abbreviation: *Q'ron* for Quarteron. Pfister's data for Argovia are in Malter (divided by four); Monbaron's figures are calculated from his relative figures for local *Muid* to *Bern Mütt*. The *great Mütt* (*grosses Mütt*) was used in Bern itself, Thun, Oberhofen, the Seeland, and in the Emmental, except for Signau.

*) Payerne used a variation of the regular *Bichet* system, with one *Muid* containing $2\frac{2}{3}$ *Sacs*.

***) In Moudon, one *Muid* contained 4 *Sacs*.

The most commonly used types of grain were spelt, wheat and oats. While spelt (*Dinkel*) was the basic breadstuff for the German-speaking parts of the canton, wheat was more common in Vaud. Dehusked spelt was called *Kernen*, a term occasionally used to describe wheat as well. *Kernen* was more valuable because of its higher density (weight per volume) than spelt. It was also more nutritious.⁸⁴⁷ Oat was cultivated mainly for animal consumption. In addition to these main types of grain, there were various mixed grains, such as *Mischelkorn*, which consisted of two thirds of rye and a third of wheat, or *Paschi/Baschi* (barley, peas and oats). *Mühle Korn* – literally translated as mill corn to describe whatever was left over at the mill –

⁸⁴⁷ For a conversion of different grain types into nutritional values, see Flückiger Strebel (2002): Table 45.

described a varying mix of wheat, spelt, rye and barley.⁸⁴⁸ We can convert all these grain types into weight equivalents by using data on their relative weight.⁸⁴⁹ From there, nutritional values could be established based on relative calorie content.⁸⁵⁰

In the eighteenth century, potatoes had been slowly adapted to complement the Bernese diet, especially of the poor. The nutrition value per acre of potatoes was roughly four times that of grain. In addition, the climatic prerequisites were slightly different, which made it suitable for crop diversification.⁸⁵¹ Since potato harvests were not liable to tithes, potatoes are conspicuously absent from Bernese accounts. On the other hand, the lack of potato tax records also means that exact figures about cultivation are unknown. Christian Pfister estimates that a fifth of all calories consumed in the canton came from potatoes.⁸⁵² Grain was easier to store, transport and sell.

Wine was measured and consumed in Bernese *Mass* of 1.67 litres. To trade and calculate larger amounts, barrels (*Fass*) of 600 *Mass* (=1,002 litres) were used.⁸⁵³ In between, the *Saum* contained 100 *Mass*. In Vaud, the basic unit was the *pot*, of which 30 constituted a *sétier*, and 480 a *char* (16 *sétiers* to one *char*).⁸⁵⁴ As with cereals, the content of a *Mass* varied according to location (see Table VII-10). Other liquids, particularly oil, were measured in the same units, but their weight could differ from the local wine measure.

Bern	<i>Mass</i> in litres	Argovia	<i>Mass</i> in litres	Vaud	<i>Pot</i> in litres
Bernmass	1.67	Aarau	1.44	Aigle	1.43
Biel	1.61	Brugg	1.54	Aubonne	1.49
Büren	1.55-1.57	Lenzburg	1.57	Avenches	1.56
Burgdorf	1.59	Zofingen	1.54	Lausanne	1.17
Erlach	1.90			Morges	1.61
Frutigen, Nieder-				Moudon	1.44
simmental	1.88			Nyon	1.33
Obersimmental	1.87-1.92			Orbe	1.70
Saanen	2.76-2.79			Payerne	1.55
Thun	1.76			Romainmôtier	2.17
Unterseen	1.66			Vevey	1.54
				Villeneuve	1.71
				Yverdon	1.58

Table VII-10: Mass/Pot in Litres by County (Wine only)

Source: Tuor (1977): 98-99 and Dubler (1975): 44-46.

The main problem with wine transactions is that the quality of the product was usually not recorded but could vary considerably. Often the records did not even state

⁸⁴⁸ Flückiger Strebel (2002): 321.

⁸⁴⁹ Christian Pfister and other authors converted all grain into hundredweights (*Doppelzentner*), each equivalent to 100kg of wheat: Pfister, C. (1975): table 24.

⁸⁵⁰ See Pfister, C. (1975): table 24; Küng (1993): 453 and Flückiger Strebel (2002): table 45.

⁸⁵¹ Pfister, C. (1978): 232-235.

⁸⁵² Pfister, C. (1995): 204. This is significantly less than previous authors had estimated.

⁸⁵³ Such barrels were mainly used for transport; storage barrels were larger: Tuor (1977): 80.

⁸⁵⁴ See also Dubler (1975): 42-46.

if white or red wine was transacted, although bailiffs were inhibited by oath to mix red with white wine.⁸⁵⁵

Salt was a basic foodstuff, a crucial ingredient for dairy and cattle farming, as well as an important source of revenue for the state. Bern had little domestic salt production and depended to a large extent on imports from France and Austria (see Section III-5). Salt was traded by weight for which numerous different local units coexisted. They matter little for this study, because the Bernese salt accounts contained transactions in a variety of foreign weights and measures, which were all converted into Bernese *Centner* (hundredweights) of 100 pounds.⁸⁵⁶ Since 1711, the weight of the pound was pegged to the Parisian market weight of 489.51 g.⁸⁵⁷

Most other foodstuffs were also measured by weight. The Bernese pound used for these differed slightly from that for salt; it measured 520 grams. Sub-units of the pound were *Lot* (32 per pound), ounces (16 per pound) and *Quentchen* (128 per pound).⁸⁵⁸ Wood and hay were measured in *Klafter* of six cubic *Schuh* that measured 5.4 m³. One *Schuh* contained 10 *Zoll*.⁸⁵⁹

Price Conversions

For monetary units, the conversion is straightforward. Table VII-11 shows the Batzen value of all units based on the equivalents discussed above. I have also included proxy values for fine silver and gold.

	Currency Conversion (in Bz)										Proxy Value	
	Lb	S	d	Kr	Bz	Xr	fl (AG)	fl (pp)	S (VD)	d (VD)	Silver	Gold
in Bz	0.133	0.375	32	0.04	1	0.25	15	0.25	3	36	0.7g	0.05g

Table VII-11: Currency Conversion to Bernese *Batzen*

Based on Table VII-11 and Figure VII-9.

For transactions in kind, I have used a weighted annual price for each good, calculated from transactions in the same ledger whenever they were available. Prices that referred to inferior quality goods were excluded, as were prices that were obvious outliers.

The Bernese state did not collect cereal prices systematically. Most price data is from grain sales by bailiffs, for which I have used averages weighted by the amount of grain sold. This data takes account of regional price differences, as well as local

⁸⁵⁵ StABE B VII 25: §20. Exceptions are ROM and NYO, where white and red wine were accounted for separately.

⁸⁵⁶ For example, foreign weights used were Austrian *Fass* of 16 ounces each or French *Minots*. For an overview: Guggisberg (1933): 67-71.

⁸⁵⁷ Quoted in Tuor (1977): 86. See also Guggisberg (1933): 70-71.

⁸⁵⁸ Tuor (1977): 84 and Dubler (1975): 51. Some counties used a different weight for the pound (e.g. 496 g in Burgdorf). But because there were hardly any transactions measured by weight, I assume that the Bernese pound of 520g was used throughout the canton. The Vaud *Livre* weighted between 503g (Yverdon) and 572 (Vevey): Dubler (1975): 51-53.

⁸⁵⁹ Tuor (1977): 37, 51-61 (listing local deviations from the Bernese measure).

measurements. If an office did not sell any grain of a specific kind, and hence did not record a price, I have used a regional average, calculated in Batzen per litre. For regions with fewer than two price observations, I have used a weighted price for the whole canton instead. All conversions used are shown in Table VII-12 and Table VII-13 as weighted averages in Batzen per litre. The results are consistent with the findings of Hans-Anton Ebener and Erika Flückiger Strebel, who based their research to a large extent on similar sources, covering few years in the 1730s and 1780s.⁸⁶⁰ We can also compare price data for 1732 and 1782 with other price series.

Christian Pfister has collected monthly prices for wheat in the city of Bern between 1755 and 1798, based on the official bulletin *Avis-Blättlein* and the journal of the Economic Society of Bern, the *Abhandlungen und Beobachtungen*.⁸⁶¹ A contemporary document providing monthly prices for the town of Nidau from 1739 to 1785 has been edited by Erika Flückiger Strebel.⁸⁶² For Lausanne, Patrick Monbaron has collected yearly price data for the whole Bernese period (1536-1798), with monthly figures available for 1735-1739, 1743-1747 and 1780-1782.⁸⁶³ Unfortunately, grain prices for Argovia are only available on a yearly basis from 1565 to 1770. They have been collected as five-year moving averages by Willy Pfister, based on government accounts.⁸⁶⁴ I have further added a series of grain prices from bailiff accounts in Aarberg and Nidau counties.

For all these series, I have calculated the ratio of prices in the database to several moving averages in Figure VII-11. Data for 1732 is scarcer than for 1782.

	Wheat Argovia 1700-70 Bz/mt	Wheat Lausanne 1700-96 fl/qt	Wheat Bern 1755-97 Bz/ms	Wheat Nidau(m) 1738-85 Bz/ms	Wheat Nidau(b) 1738-85 Bz/ms	Wheat Aarberg 1700-97 Bz/ms	Spelt Aarberg 1700-97 Bz/ms	Oats Aarberg 1700-97 Bz/ms	Mill Aarberg 1700-97 Bz/ms	Rye Aarberg 1700-97 Bz/ms
Price 1732	60.000	35.318				12.492	3.882	3.400	8.197	7.516
3yMA (1732)	0.994	1.139					0.920	1.014		
5yMA (1732)	0.987	1.202						1.016		
7yMA (1732)	1.000	1.242						0.908		
9yMA (1732)	0.994	1.260						0.959		
nearMA (1732)						1.058	0.879		1.054	1.060
Geomean	0.846	1.004				0.831	0.671	0.766	0.863	0.832
N	71	96				52	59	92	70	59
Price 1782		50.229	19.000	19.730	16.205	16.000	6.899	5.806	10.000	
3yMA (1782)		1.065	1.081	1.105	0.993	0.999	0.978	1.007	1.012	
5yMA (1782)		1.105	1.121	1.149	1.013	1.259	1.017	1.017	1.018	
7yMA (1782)		1.255	1.283	1.294	1.151	1.359	1.137	1.186	1.143	
9yMA (1782)		1.255	1.283			1.359	1.137	1.186	1.143	
Geomean		1.428	1.070	1.248	1.131	1.065	1.193	1.307	1.053	
N		96	43	46	45	52	59	92	70	

Figure VII-11: Grain Prices of 1732 and 1782 compared to Moving Average

⁸⁶⁰ Ebener (1994): 205-219 [for 1730-32 and 1780-82]; Flückiger Strebel (2002): Table 47 [for 1731-33 and 1781-83].

⁸⁶¹ Pfister, C. (1975): Table 28.1.

⁸⁶² The document is entitled *Früchten-Register des Kornmarkts zu Nidau: Auffuhr und Preise* (StABE B VI 219). See Flückiger Strebel (2002): Table 48.

⁸⁶³ Patrick R. Monbaron (Lausanne), unpublished data. I thank Mr Monbaron for providing me with this material.

⁸⁶⁴ Pfister, W. (1940): esp. 258-264.

Sources: Pfister, W. (1940): 237-264 [Argovia]; unpublished transcripts by Patrick Monbaron [Lausanne]; Pfister, C. (1975): Table 28.1 [Bern]; Flückiger Strebel (2002): Table 48 [Nidau (m)]; StABE B VII 1633-1640 [Nidau (b)], StABE B VII 851-872 [Aarberg series]. Abbreviations: *Bz* = Batzen; *mt* = Mütt; *fl* = Florin (petit poids); *ms* = Mass; *Nidau(m)* is the market price, *Nidau(b)* the bailiff's price (see Section III-6). The Aarberg figures are from bailiff accounts. I have replaced missing values for Aarberg in 1732 with three-year moving averages for wheat, mill and rye (shown in *italics*); *3yMA (1732)* stands for the ratio of the price of 1732 to the three-year moving average for 1732; *nearMA* is for the ratio of the 1732 price to an average price over the nearest nine-year period where no values are missing; *Geomean* is for the ratio of the 1732 to the mean for the whole series; *N* for the number of years used for calculating the mean.

The overall impression is that while there were local differences and yearly fluctuations, both 1732 and 1782 were average price years. Given the high price volatility for grain in general, they are as representative as sample years can get for the eighteenth century.

Wine prices were more difficult to establish. On one hand the quality of the product is quite likely to differ significantly between different places, but quality measures were usually not recorded. In addition, prices are scarcer and less reliable. I have therefore converted all wine sold into litres and calculated a price in *Bz* per litre. As can be seen from Table VII-14, the price differences are considerable. To control for outliers while still respecting local price differences, I have used the following conversion method. For accounts with a wine price, I have calculated the average of the price recorded in the account and the overall weighted average price.⁸⁶⁵ All other wine transactions were converted using the overall weighted average for the whole canton.⁸⁶⁶

Numerous other conversions for transactions in kind were made based on prices given in the accounts. In some cases, these transactions were puny and only covered the odd tin of oil that a bailiff got as a tithe. There was also significant trading in salt recorded in specialised accounts, which was quantitatively important. The salt ledgers included reliable figures on prices used by the government that the government itself used for converting all transactions into Bernese currency (see Section VII-16).

Detailed Assumptions for Price Conversion

I Grain Types

The following grain types have been added, based on the combined used in contemporary accounts:

Orgeon = Barley (ERL782)

Kernen = Wheat (numerous, e.g. FRE782)

Corn = Spelt (ABU732)

Fassmuss = Kernel; Stucke = Kernel; Corn = Spelt (KOE732 and KOE782)

Kernel = Wheat (AAR7322)

Haber und Mischelkorn = Mischel (INT732 and INT782)

Linsen = *Erbsen* = Peas (assumption)

Reiterkorn = (Oats + Spelt)/2 (various)⁸⁶⁷

⁸⁶⁵ This is show in row *conv.* in Table VII-14.

⁸⁶⁶ Table VII-20 shows how much wine sold in each account (in litres).

⁸⁶⁷ For ROM, oats only.

The **conversions** of different types of grain into standard **weight** (g, kg, tonnes) and **calories** (kcal) follow the data from Flückiger Strebel (2002) [based on Pfister, C. (1975): Table 24 and Küng (1993): 453].

II Other Goods

For the following goods, the medium weighted price of all accounts where a price was recorded has been calculated and used for conversion.

Good	Year	Price	Sources (price)
Oil	1732	7 Bz/Mass	BHB7321
<i>Ziger</i>	1732:	1 Bz/lb	FRE732, TRA732
	1782:	1 Bz/lb	FRE782, INT782
Cheese	1732	1.44 Bz/lb	INT732, YVE732, TOR732, GSP732, FRE732
	1782	1.72 Bz/lb	INT782, TRA7822, TOR782, ROM782, KOE782, GSP782, FRE782
Butter	1732	2.23 Bz/lb	TOR732, MUS733, KOE732, GSP732, FRE732
	1782	3.20 Bz/lb	TOR782, INT782, KOE782, GSP782, FRE782

For the conversions of summary accounts – for which grain sales were not recorded separately – I have used prices for the same region from the database. If the database contained no price information, I have used weighted averages for the whole canton instead.

Prices for Conversions of Grain to Bz

	Spelt	Oats	Wheat	Rye	Corn	Mischel	Barley	Wiki	Mill	Paschi	Reiter	Peas	Millet	Lentils
AAR	0.291	0.246	0.735	0.521		0.599			0.543					
ABU		0.201		0.372	0.288	0.892								
ARW	0.282	0.185		0.420					0.286					
BHB	0.380	0.238	0.696	0.643		0.667			0.476	0.607				
BIP		0.201	0.620	0.372	0.288									
BRA	0.300	0.219		0.466					0.493		0.259			
ERL		0.414	0.724			0.593	0.417							
FRE	0.364	0.231	0.867	0.505		0.540	0.417		0.543	0.550	0.297	0.483	0.571	
GSP	0.444	0.240	0.925	0.537		0.668	0.417		0.476			0.483	0.571	0.483
INB	0.263	0.223	1.076	0.547										
INT	0.272	0.200	0.806			0.588	0.417							
ITH	0.272	0.200		0.434										
JOB	0.326	0.221	0.676	0.547			0.417					0.483		
KOE	0.230	0.201	0.618	0.363		0.335	0.494					0.483	0.571	
KOR	0.366	0.224		0.512			0.494	0.476						
LAU	0.317	0.251		0.466		0.599	0.417		0.543	0.550	0.284			
LEN	0.224	0.201	0.605	0.394								0.483		0.362
LSN		0.249	0.863			0.530	0.417					0.483		
MOU		0.255	0.800	0.485										
MUS	0.366	0.223	0.779	0.518			0.417					0.786		
NID	0.317	0.244	0.714	0.561		0.714				0.322	0.281			
NYO		0.254	1.026			0.543								
ROM		0.174	0.857			0.568	0.387				0.174			
SIG	0.377	0.251	0.929	0.571				0.376						
STI	0.391	0.224	0.893	0.512		0.720								
THU	0.272	0.263	0.929						0.536					
TOR	0.298	0.228	0.714	0.502			0.371	0.464	0.376		0.263		0.571	
TRA	0.365	0.195	0.776	0.429			0.429		0.429				0.571	
YVE		0.221	0.741			0.477	0.324							
ZOF	0.261	0.201	0.743	0.551				0.528						
all	0.281	0.239	0.730	0.434	0.288	0.588	0.417	0.494	0.498	0.550	0.260	0.483	0.571	0.483
kg/ltr	0.405	0.550	0.780	0.735		0.758	0.550		0.711	0.627		0.780	0.780	
kcal/ltr	880	1975	2551	1977		2139	1606		2136	2010		2449	2761	

Table VII-12: Grain Conversion for 1732 in Bz/ltr

See comments to Table VII-13 on the following page.

	Spelt	Oats	Wheat	Rye	Corn	Mischel	Barley	Wiki	Mill	Paschi	Reiter	Peas	Millet	Lentils
AAR	0.493	0.411	1.143	0.725		0.892			0.714					
ABU		0.343	0.982	0.715	0.396									
ARW	0.389	0.294		0.521					0.268					
BIB	0.375	0.355	0.977	0.603										
BRA	0.457	0.360		0.668					0.608		0.395			
ERL		0.393	0.942	0.725		0.823	0.664							
FRE	0.500	0.435	1.242	0.756		0.964	0.606		0.714	0.557	0.395	1.143	0.803	
GSP	0.605	0.311	1.326	0.845		0.929	0.606		0.636			1.143	0.821	<u>1.143</u>
INB	0.535	0.376												
INT	0.438	0.393	1.178				0.606				0.395			
ITH	0.438	0.393		0.715										
JOB	0.539	0.395		0.857			0.606					1.143		
KOE	0.436	0.316	1.020	0.675			0.679	0.955				1.143		
KOR	0.500	0.366	1.101	0.807			0.606							
LAU	0.496	0.405		0.714			0.619		0.714	0.595	0.395			
LEN	0.385	0.369	0.933	0.567										
LSN		0.415	1.125	0.781		0.890	0.591							
MOU		0.426	1.194	0.741										
MUS	0.500	0.385	1.071	0.807			0.606					1.143		
NID	0.452	0.384	1.030	0.660		0.714								
NYO		0.400	1.164			0.820								
ROM		0.324	1.114			0.781	0.553							
SIG	0.565	0.393	1.357	0.668					0.608					
STI	0.476	0.366	1.101	0.627		0.893								
THU	0.580	0.393												
TOR	0.552	0.335	1.260	0.734			0.657	0.955	0.981				0.787	
TRA	0.355	0.328	1.071	0.519			0.487		0.589					
YVE		0.390	1.408	0.760		1.080	0.657							
ZOF	0.364	0.313	0.999	0.650										
all	0.438	0.376	1.200	0.715	0.396	0.822	0.606	0.955	0.636	0.557	0.395	1.143	0.803	1.143
kg/ltr	0.405	0.550	0.780	0.735		0.758	0.550		0.711	0.627		0.780	0.780	
kcal/ltr	880	1975	2551	1977		2139	1606		2136	2010		2449	2761	
stable	0.359	0.308	0.965	0.575	0.342	0.705	0.512	0.724	0.567	0.554	0.328	0.813	0.687	0.813

Table VII-13: Grain Conversions for 1782 in Bz/ltr

Source: Database. For account abbreviations, see page 324. For grain, where the English title is not self-explanatory: *Wheat* stands for *Weizen* and *Kernen*; *Mischel* for *Mischelkorn*, *Mill* for *Mühlekorn*, *Reiter* for *Reiterkorn*, *Corn* for *Korn*. Bold numbers are prices from the same account, italics are regional weighted averages, normal numbers are cantonal weighted averages. Underlined prices are based on the assumptions discussed on page 340. The table only shows conversions that were actually used in the database.

Data on weight (*kg/ltr*) and nutritional value (*kcal/ltr*) is from Flückiger Strebel (2002): table 45, which is based on Pfister, C. (1975): table 24 and Küng (1993): 453. I have calculated the nutritional value for spelt indirectly, via the value for wheat, after correcting for weight loss when de-husking. For the conversion of grain without explicit reference, I have used the values for Mill (for *Corn* and *Reiter*), *Paschi* (for *Wiki*), and *Peas* (for *Lentils*) respectively.

Conversions of Wine into Bz

Wine Prices (1)					Wine Prices (2)				
1732					1782				
Account	ltr/ms	sold (ltr)	Bz/ltr	conv.	Account	ltr/ms	sold (ltr)	Bz/ltr	conv.
BIB732	1.33	3,990.0	0.19	0.09	AAR782	1.67	133.6	0.60	0.73
DSR732	1.67	131,679.5	0.60	0.30	DSR782	1.67	352,663.9	0.71	0.78
GSP732	1.67	47,030.5	0.71	0.35	GSP782	1.67	10,404.1	1.19	1.02
INT732	1.66	33.2	1.25	0.63	KOE782	1.42	35,944.5	0.91	0.88
KOE732	1.42	142.0	2.11	1.06	LEN782	1.56	3,861.0	0.80	0.83
LSN7322	1.16	255.2	1.72	0.86	LSN7821	1.16	639.5	2.03	1.44
MOU732	1.41	183.3	1.06	0.53	MOU7821	1.41	407.2	2.23	1.54
NYO732	1.34	100.5	2.13	1.06	ROM782	2.18	678.0	0.58	0.72
WED732	1.67	153,110.6	0.60	0.30	TRA7821	1.67	23,964.5	1.35	1.10
WEW732	1.35	113,161.1	1.93	0.97	WED782	1.67	1,085.5	0.30	0.58
WSR732	1.35	2,430.0	0.56	0.28	WEW782	1.35	4,657.5	0.55	0.70
all		452,115.9	0.94	0.47	WSR782	1.35	366,795.0	0.95	0.90
					all		801,234.3	0.85	0.85

Table VII-14: Wine Prices, 1732 and 1782

Source: database, local measures as in Table VII-10. For account abbreviations, see page 324.

Abbreviations: *ltr* = litre, *ms* = Mass, *sold (ltr)* = Amount of wine sold at a known price, in litres.

conv. = conversion price used. This was calculated as the mean of the recorded price in an account and the overall weighted price. Please note that some of the wine prices – particularly those in DSR and WSR – are only recorded price conversions, not wine sales.

Conversion Prices for Summary Accounts (in Bz/ltr)

1732	Spelt	Oats	Wheat	Rye	Corn	Mischel	Barley	Wiki	Mill	Paschi	Reiter	Peas	Millet	Lentils	Wine
AG	<i>0.239</i>	<i>0.201</i>	<i>0.620</i>	<i>0.372</i>	0.288	0.588	0.417	0.494	0.498	0.550	<u>0.288</u>	0.362	<i>0.571</i>	0.483	0.940
BE	<i>0.366</i>	<i>0.228</i>	<i>0.848</i>	<i>0.547</i>	0.288	<i>0.668</i>	0.417	0.494	<i>0.476</i>	0.550	<u>0.288</u>	0.362	<i>0.571</i>	0.483	0.940
OAE	<i>0.298</i>	<i>0.200</i>	<i>0.776</i>	<i>0.466</i>	0.288	0.588	0.417	<i>0.494</i>	<i>0.376</i>	0.550	<u>0.288</u>	0.362	<i>0.571</i>	0.483	0.940
OBE	0.281	<i>0.263</i>	<i>0.929</i>	0.434	0.288	0.588	0.417	0.494	<i>0.536</i>	0.550	<u>0.288</u>	0.362	<i>0.571</i>	0.483	0.940
SEE	<i>0.317</i>	<i>0.251</i>	<i>0.806</i>	<i>0.521</i>	0.288	<i>0.599</i>	0.417	0.494	<i>0.543</i>	0.550	<u>0.288</u>	0.362	<i>0.571</i>	0.483	0.940
VD	0.281	<i>0.254</i>	0.676	<i>0.485</i>	0.288	<i>0.543</i>	0.417	0.494	0.498	0.550	<u>0.288</u>	0.362	<i>0.571</i>	0.483	0.940
1782															
AG	<i>0.384</i>	<i>0.343</i>	<i>0.982</i>	<i>0.650</i>	<i>0.396</i>	0.822	0.606	0.955	0.636	0.557	0.395	<u>0.501</u>	<i>0.821</i>	1.143	0.855
BE	<i>0.500</i>	<i>0.343</i>	<i>1.326</i>	<i>0.807</i>	0.396	<i>0.900</i>	0.606	0.955	0.636	0.557	0.395	<u>0.501</u>	0.803	1.143	0.855
OAE	0.438	<i>0.324</i>	<i>1.260</i>	<i>0.668</i>	0.396	0.822	<i>0.619</i>	<i>0.955</i>	<i>0.608</i>	0.557	0.395	<u>0.501</u>	<i>0.787</i>	<i>1.143</i>	0.855
OBE	<i>0.454</i>	<i>0.393</i>	1.178	0.715	0.396	0.822	0.606	0.955	0.636	0.557	0.395	<u>0.501</u>	0.803	1.143	0.855
SEE	<i>0.500</i>	<i>0.411</i>	<i>1.224</i>	<i>0.725</i>	0.396	<i>0.821</i>	<i>0.664</i>	0.955	<i>0.714</i>	<i>0.557</i>	<i>0.395</i>	<u>0.501</u>	0.803	1.143	0.855
VD	0.438	<i>0.400</i>	1.178	<i>0.760</i>	0.396	<i>0.820</i>	<i>0.591</i>	0.955	0.636	0.557	0.395	<u>0.501</u>	0.803	1.143	0.855

Table VII-15: Conversion Prices for Summary Accounts (in Bz/ltr)

All prices are in Bz/ltr. Source: Database (see Table VII-12 and Table VII-13 for details). Italics are regional weighted averages; normal numbers are cantonal weighted averages. Underlined prices are based on assumptions (see page 340 for details).

Abbreviations:

AG	Argovia
BE	Bern
OAE	Oberaargau/Emmental
OBE	Oberland
SEE	Seeland
VD	Vaud

VII-14 Different Ways of Measuring Inflation

This section presents details on how I calculated the different inflation rates in Table IV-3. I will first discuss monetary inflation, then wage data and price information for tiles. The difference in price between 1732 and 1782 is the overall inflation rate for this period. Annual inflation rates are calculated with the formula

$$i = (V_{1782}/V_{1732})^{(1/n)} - 1$$

where i is the inflation rate, V_{1782} is the value of a good in 1782, V_{1732} its value in 1732 and n the number of years (50). As discussed in Section VII-13, the Bernese currency was very stable in its theoretical bullion content (i.e. its exchange rate to bullion). Table VII-16 shows the ideal bullion content of the Batzen for the value nearest to 1732 or 1782 respectively. There was no monetary inflation in terms of fine silver or gold; the Batzen even appreciated slightly in value between the two sample years.

	Silver				Gold			
	R'Taler	L. Blanc	Ecu Neuf	Basket	Ducat	L. Vieux	L. Neuf	Basket
1732 (nearest)	0.812	0.719	0.682	0.738	0.049	0.049	0.047	0.048
1782 (nearest)	0.787	0.719	0.665	0.724	0.051	0.048	0.046	0.048
change	-3.03%	0.00%	-2.50%	-1.88%	2.86%	-1.57%	-3.13%	-0.58%

Table VII-16: Ideal Bullion Content of the Bernese *Batzen* based on Exchange Rates, 1732 and 1782

See Figure VII-9 for explanation. I have used the value for the year nearest to 1732. *R'Thaler* stands for Reichstaler, *Basket* stands for the mean of all three values.

Another way of considering how much government revenue increased over time is to consider inflation in terms of real wages or purchasing power. The problem here is that reliable data on Bernese wages is rare. Hans-Anton Ebener has collected daily wages for construction workers from accounts of numerous counties.⁸⁶⁸ Based on his figures, I have calculated average daily wages for skilled and unskilled construction workers in the 1730s and 1780s (see Table VII-17). As a caveat, the basis for this calculation is narrow and Ebener did not use weighted averages for his figures. An additional problem is that construction workers' salaries might not be representative for an early modern economy, where most of the workforce was active in the primary sector. Given the lack of wage data for agriculture, the construction worker series is best – and only – alternative.

⁸⁶⁸ His county sample is similar to mine.

	1730s		1780s		change
	wage	N	wage	N	
Skilled	6.46	47	8.09	38	25.3%
Unskilled	5.54	34	6.65	15	20.1%
mean	6.00		7.37		22.9%

Table VII-17: Daily Wages of Construction Workers in Bz, from Bernese Accounts, 1730s and 1780s

Based on Ebener (1999): Tables 5.2 and 5.3. His figures are not weighted by the number of days employed. *N* stands for the number of observations in Ebener's sample; *mean* is the arithmetic mean between the skilled and unskilled wage (using total numbers would give a spurious result, because the share of unskilled workers is smaller in the 1782 sample).

Table VII-17 shows the prevalence of wage inflation, although it was lower than the increase in grain prices. On an annual basis, wages increased by 0.41% over the period. We can use this wage data to correct for changes in purchasing power by using the arithmetic mean of all wage increases from Ebener's sample.

Finally, inflation can be measured in terms of a specific non-agricultural good that is unlikely to change over time. Norbert Furrer has used tiles for this purpose when analysing monetary inflation for Fribourg.⁸⁶⁹ From Ebener's figures on expenditure for construction materials, I have collected price information for tiles.⁸⁷⁰ Within this sample, the state bought 1,000 tiles in the 1730s at a weighted average price of 0.1305 per tile. With an average price of 0.1518 for 1,100 tiles purchased in the 1780s, inflation was 16.30% over fifty years. This is equal to a yearly inflation rate of 0.30%.

⁸⁶⁹ Furrer (1995).

⁸⁷⁰ Ebener (1999): Tables 6.1 and 6.2 (186-191).

VII-15 Database Queries

Revenue, Expenditure and Profit Rate by Account

1732 Account	Revenue		Expenditure		Arrears		Profit- rate
	gross	net	gross	net	to state	from s.	
AAR7321	165'295	2'183	137'430	19'365	26'875	704	} 0.7%
AAR7322	154'143	49'555	35'527	32'029	119'333		
ABU7321	76'160	769	71'306	27'929	8'612	4'057	} -3.4%
ABU7322	101'035	66'730	42'797	41'875	58'377		
ARW7321	351'547	7'710	291'083	31'088	61'456	2'007	} 32.6%
ARW7322	279'759	70'857	22'962	21'861	252'788		
AUS732	4'682'664	4'033'965	4'148'773	4'148'734	518'891		-2.8%
BHB7321	425'690	523	279'537	166'547	145'500		} -176.5%
BHB7322	615'257	176'231	398'600	322'142	215'452		
BIB732	34'620	27'419	34'081	17'163	488		37.4%
BPF732	31'474	31'474	11'614	8'013	19'859		74.5%
BRA732	172'787	27'646	47'049	22'829	124'389		17.4%
DSR732	6'741'634	4'819'776	5'930'987	5'040'978	810'648		-4.6%
ERL732	216'225	52'484	128'414	88'379	101'534	15'943	-68.4%
FRE732	743'385	182'354	202'457	157'342	640'222	8'016	13.7%
FRU732	8'482	5'328	6'961	6'960	2'025		-30.6%
GSP732	2'106'214	899'328	1'117'054	845'877	999'469	1'280	5.9%
INB732	180'080	62'793	108'235	71'261	78'088	7'612	-13.5%
INT732	161'664	63'805	175'808	162'289	24'725	41'755	-154.4%
ITH732	172'844	86'138	95'606	40'030	84'848	7'100	53.5%
JOB732	177'748	47'602	61'999	45'509	116'488		4.4%
KOE732	1'092'434	370'053	691'215	457'309	414'090	11'339	-23.6%
KOR732	310'722	249'119	244'530	200'326	64'610		19.6%
LAU732	24'905	20'235	60'880	53'995		36'074	-166.8%
LEN732	867'272	199'039	200'496	79'972	666'290		59.8%
LSN7321	514'781	185'068	391'262	248'886	122'320		} 15.6%
LSN7322	488'836	463'746	299'506	298'595	238'978	50'515	
MOU732	437'722	191'833	230'331	160'819	207'087	5'189	16.2%
MUS733	160'423	83'728	114'775	109'769	50'081		-31.1%
NID732	336'898	69'486	79'586	36'971	256'200		46.8%
NYO732	137'843	89'283	79'382	75'930	57'128		15.0%
PUL732	849'809	514'397	884'080	475'740		34'271	7.5%
ROC732	4'428'485	1'346'803	4'262'617	817'218	168'250		39.3%
ROM732	1'099'494	220'650	575'952	210'914	545'858		4.4%
SDI732	14'379'190	5'711'165	8'362'390	3'777'577	6'016'959		33.9%
SIG732	28'001	21'269	46'526	42'022	1'897	20'883	-97.6%

Table VII-18: Revenue, Expenditure and Profit Rate by Account (Database) [1/3]

See comment on page 350

1732 Account	Revenue		Expenditure		Arrears		Profit- rate
	gross	net	gross	net	to state	from s.	
SLS732	164,078	52,719	45,585	38,083	119,171		27.8%
STI732	526,817	325,894	526,379	414,763	65,505	61,569	-27.3%
THU732	203,780	70,532	131,885	88,186	70,516		-25.0%
TOR732	399,843	146,686	229,456	206,068	225,535	58,599	-40.5%
TRA732	140,983	86,284	92,385	72,182	49,055		16.3%
UMG732	68,171	68,171	69,198	69,199		1,031	-1.5%
UNT732	4,433	4,433	5,098	5,097		1,200	-15.0%
WED732	613,436	132,840	381,243	174,609	232,943	1,513	-31.4%
WEW732	1,045,742	202,514	359,382	97,225	686,788		52.0%
WSR732	1,579,626	1,140,119	1,004,524	748,505	575,102		34.3%
YVE732	685,086	204,041	254,024	160,808	422,101		21.2%
ZEU732	331,371	84,282	196,602	196,601	74,123		-133.3%
ZOF732	622,818	174,238	261,419	161,126	356,354		7.5%
Total	49,141,705	23,143,297	33,428,988	20,796,693	16,097,008	370,655	10.1%

1782 Account	Revenue		Expenditure		Arrears		Profit- rate
	gross	net	gross	net	to state	from s.	
AAR782	313,679	81,435	95,527	60,660	215,750		25.5%
ABU782	169,403	82,509	101,884	93,391	78,005	13,200	-13.2%
ARW782	510,289	109,957	143,803	90,993	363,998		17.2%
AUS782	7,465,558	5,113,864	5,140,813	2,070,453	2,367,639		59.5%
BDR782	16,765		47,976	47,974		31,211	n/a
BIB782	146,394	36,263	55,028	43,038	90,875	925	-18.7%
BPF782	31,478	31,479	14,171	9,823	17,307		68.8%
BPF782	32,103	32,103	3,450	3,450	28,653		89.3%
BPFIN782	38,755	38,753	3,769	3,762	34,986		90.3%
BRA782	261,493	52,795	65,471	33,586	193,910		36.4%
DSR782	9,788,332	2,457,811	9,193,262	6,697,617	595,063		-172.5%
ERL782	284,828	75,071	114,916	58,748	172,794	4,450	21.7%
FRE782	1,018,761	233,230	287,892	206,060	728,481		11.6%
FRU7821	3,362	3,364	12,735	12,735		11,500	-96.2%
FRU7822	5,163	5,158	4,767	3,984		1,250	
GSP782	2,237,358	960,573	1,314,344	1,151,258	922,178		-19.9%
INB7821	207,486	420	179,289	34,960	26,250		4.1%
INB7822	193,441	81,788	43,878	43,869	152,563	5,975	
INT782	160,107	49,076	222,817	213,408	10,552	76,777	-334.9%
ITH782	288,006	151,221	167,826	70,285	124,671	6,475	53.5%
JOB782	333,799	92,406	98,638	65,331	233,495		29.3%
KOE782	1,691,867	518,431	716,322	505,910	972,924		2.4%

Table VII-18: Revenue, Expenditure and Profit Rate by Account (Database) [2/3]

See comment on page 350.

1782 Account	Revenue		Expenditure		Arrears		Profit- rate
	gross	net	gross	net	to state	from s.	
KOR782	3,926,171	331,742	735,951	143,198	3,191,507		56.8%
LAU782	59,122	31,666	79,054	62,867	8,766	30,750	-98.5%
LEN782	1,219,994	298,515	315,157	177,219	901,992		40.6%
LSN7821	1,203,001	348,679	841,513	659,865	361,504		} -19.0%
LSN7822	678,893	613,265	532,989	484,767	221,584	77,384	
MOU7821	579,797	52,824	410,535	146,323	169,260		} 15.6%
MOU7822	399,981	247,420	107,088	107,085	291,632		
MUS782	212,197	93,766	156,880	138,821	76,958	24,325	-48.1%
NID782	488,757	108,791	146,808	72,019	339,288		33.8%
NYO782	307,726	185,050	287,740	238,695	49,979	30,044	-29.0%
PUL782	1,076,852	655,896	594,099	449,116	482,753		31.5%
ROC782	1,873,832	647,513	1,558,168	1,032,941	315,625		-59.5%
ROM782	2,222,963	468,012	1,057,256	446,640	1,191,057	29,236	4.6%
SDI782	30,669,117	8,304,215	16,903,166	4,242,632	13,765,951		48.9%
SIG7821	13,514	4,988	35,444	29,636		23,750	} -148.8%
SIG7822	17,092	13,882	17,308	17,308	5,766	8,250	
SLS782	33,528	25,904	21,715	21,715	11,813		16.2%
STI782	792,299	498,161	647,421	492,159	143,089		1.2%
THU782	362,631	112,554	148,927	127,079	234,051	22,200	-12.9%
TOR782	895,236	226,276	306,658	232,879	597,424	12,225	-2.9%
TRA7821	112,452	8,331	111,292	33,604		1,250	} -14.7%
TRA7822	130,582	89,318	78,442	78,441	76,824	27,150	
UMG782	183,630	183,536	26,908	26,907	156,722		85.3%
UNT782	8,549	8,549	16,473	16,472		9,750	-92.7%
WED782	694,904	280,394	219,760	84,490	482,185	7,426	69.9%
WEW782	684,089	138,307	80,913	77,624	605,206	2,033	43.9%
WSR782	5,340,936	1,266,422	4,688,408	3,873,243	652,527		-205.8%
YVE782	1,429,474	465,405	614,942	441,126	802,977		5.2%
ZEU782	278,398	82,651	247,980	247,980	30,418		-200.0%
ZOD782	521,404	521,347	129,095	129,099	392,311		75.2%
ZOF7821	627,876	19,631	499,694	100,765	126,250		} 12.3%
ZOF7822	515,299	229,543	117,774	117,775	415,362	20,300	
ZOW782	835,098	835,105	153,825	153,827	681,273		81.6%
Total	83,593,822	27,605,366	49,917,958	26,225,611	34,112,147	477,836	5.0%

Table VII-18: Revenue, Expenditure and Profit Rate by Account (Database)

Source: Database (unweighted).

The *Profit Rate* was calculated as net revenue minus net expenditure, expressed as a share of net revenue. For accounts with a handover during the sample year, the profit was calculated over both ledgers. Please note that the overall profitability shown here is not weighted, nor does it include Summary Accounts. It is therefore different from the figures used in the text, which are more accurate.

Grain Revenue in Litres, 1732 and 1782

Account		All Grain	Spelt	Oats	Wheat	Rye	Corn	Mischel	Barley	Mill Reiter	Peas	Millet	Other	
AAR7321	gross	412'440	291'480	94'080	6'720	15'120				5'040				
	net	0												
	sold	97'468	42'924	47'040	3'808					3'696				
AAR7322	gross	435'071	309'106	95'998	5'264	19'313		1'008		4'382				
	net	138'887	72'562	53'158	4'256	4'193		1'008		3'710				
	sold	6'720				6'720								
ABU7321	gross	194'080		19'158			174'922							
	net	0												
	sold	2'030					2'030							
ABU7322	gross	287'684		72'988	312	1'874	212'509							
	net	162'115		50'498	208	1'354	110'055							
	sold	0												
ARW7321	gross	998'760	770'280	181'440		45'360				1'680				
	net	0												
	sold	222'768	132'720	77'616		9'744				2'688				
ARW7322	gross	997'203	787'931	156'142		49'882				3'248				
	net	258'003	174'899	63'742		16'114				3'248				
	sold	1'344	840	504										
BHB7321	gross	53'424	20'160	16'128	11'760	5'376								
	net	0												
	sold	11'452			11'452									
BHB7322	gross	363'608	104'832	113'204	21'182	26'950		46'466		4'508			46'466	P
	net	340'018	99'624	104'804	21'182	22'750		44'268		3'122			44'268	P
	sold	123'116	19'320	13'440				44'268		1'820			44'268	P
BIB732	gross	43'120		15'232	3'752	1'064	23'072							
	net	43'120		15'232	3'752	1'064	23'072							
	sold	2'093		746	88	42	1'218							
BRA732	gross	510'808	394'030	111'657		2'748				2'352	21			
	net	85'768	54'670	27'657		1'068				2'352	21			
	sold	93'191	40'943	50'568						1'680				
ERL732	gross	295'435		27'986	26'607			215'866	24'976					
	net	86'275		12'026	3'759			56'266	14'224					
	sold	72'408		9'576	5'544			46'536	10'752					
FRE732	gross	1'565'879	1'036'938	342'181	12'873	141'652		5'166	854	1'176	8'400	469	42	16'128
	net	409'227	204'498	138'901	7'161	40'012		2'646	336	1'176	3'360	7	42	11'088
	sold	99'876	24'864	48'972	5'292	18'228		2'520						
GSP732	gross	2'463'517	1'984'556	389'697	16'135	60'704		1'554	5'607	3'024		1'442	686	112
	net	1'204'021	963'116	192'969	16'135	19'376		1'554	5'607	3'024		1'442	686	112
	sold	120'309	14'798	59'080	16'135	15'778		1'554	7'728	3'024		1'708	392	112
INB732	gross	590'030	427'672	162'358										
	net	220'430	152'152	68'278										
	sold	95'886	50'022	45'864										
INT732	gross	223'923	177'814	41'202	2'107			1'428	1'372					
	net	6'944	2'254	1'722	2'016				952					
	sold	0												
ITH732	gross	728'728	329'868	398'692		168								
	net	337'288	212'268	124'852		168								
	sold	0												
JOB732	gross	500'892	403'438	81'088		15'834			504			28		
	net	141'540	100'366	32'368		8'274			504			28		
	sold	58'800	33'600	25'200										
KOE732	gross	1'468'264	830'592	151'984	138'880	297'304			42'000		2'408	56	5'040	W
	net	418'768	160'832	75'824	92'904	73'864			7'840		2'408	56	5'040	W
	sold	16'405	5'362		2'681	7'427			781				154	W
KOR732	gross	786'128	462'658	223'132		87'290				10'920			2'128	W
	net	696'206	462'658	223'132		9'744				672				W
	sold	25'200				25'200								W

Table VII-19: Grain Revenue in Litres, 1732 and 1782 [1/4, continued overleaf]

See comment on page 354.

Account		All Grain	Spelt	Oats	Wheat	Rye	Corn	Mischel	Barley	Mill	Reiter	Peas	Millet	Other	
LAU732	gross	88'181	55'742	20'538		4'159		708	133	2'256	3'030			1'615	P
	net	65'973	34'994	20'538		4'159		708	133	796	3'030			1'615	P
	sold	0													P
LEN732	gross	1'539'496	1'050'896	264'936	111'888	111'104						672			
	net	192'416	94'416	39'816	36'568	20'944						672			
	sold	16'191	7'543	4'953	2'223	1'474									
LSN7321	gross	225'650		158'901	37'023			29'726							
	net	0													
	sold	153'952		127'598	6'694			19'660							
LSN7322	gross	123'725		59'801	43'977			19'742	123			82			
	net	107'203		46'566	40'689			19'742	123			82			
	sold	0													
MOU732	gross	197'571		99'839	44'679	53'053									
	net	82'649		44'765	17'502	20'382									
	sold	53'324		34'147	7'395	11'782									
MUS733	gross	274'585	243'793	25'524	3'941	950			188			188			
	net	148'643	125'171	18'205	3'941	950			188			188			
	sold	15'531		14'780		563						188			
NID732	gross	576'695	28'686	219'163	213'010	18'074		78'890			182			18'690	P
	net	129'479	6'846	49'483	40'474	8'834		15'890			182			7'770	P
	sold	95'480		42'490	31'262	7'140		3'528						11'060	P
NYO732	gross	20'164		4'414	13'510			2'240							
	net	10'084		3'238	5'110			1'736							
	sold	686			686										
ROM732	gross	199'314		51'415	58'246			53'174	34'794		1'685				
	net	75'865		24'937	13'640			18'479	17'125		1'685				
	sold	66'618		29'513	3'845			10'225	23'035						
SIG732	gross	20'776	10'584	7'812	1'092	1'092					196				
	net	11'508	5'544	4'452	840	504					168				
	sold	7'588	4'004	1'568	1'008	1'008									
STI732	gross	1'006'159	575'638	399'665	10'584	15'862		4'410							
	net	704'935	433'510	242'585	10'584	13'846		4'410							
	sold	330'932	171'878	143'248	8'820	5'264		1'722							
THU732	gross	478'387	264'712	190'043	12'404					11'228					
	net	164'731	84'952	67'403	6'188					6'188					
	sold	145'600		133'224	6'188					6'188					
TOR732	gross	1'059'674	775'467	179'172	3'360	76'076		11'424	3'192	623		1'155	9'205		W
	net	350'042	212'667	101'892	3'360	18'284		4'704	3'192	623		1'155	4'165		W
	sold	33'068		10'388	2'520	11'088		5'376					3'696		W
TRA732	gross	269'675	183'470	64'512	812	6'559		11'480	2'506				336		
	net	170'079	87'710	64'512	812	4'095		10'444	2'506						
	sold	59'490	25'557	26'422		1'932		4'718	861						
YVE732	gross	300'139		111'493	142'338			14'088	32'221						
	net	88'291		36'733	36'162			7'872	7'525						
	sold	56'602		25'004	21'641			1'659	8'299						
ZOF732	gross	1'063'328	829'304	217'168	7'840	7'336								1'680	W
	net	315'280	230'328	75'824	5'600	3'528									W
	sold	12'737	9'251	2'961	280	140								105	W
total	gross	20'362'511	12'349'647	4'768'743	950'296	1'064'904	410'503	474'466	165'675	18'053	55'708	82'899	13'942	101'064	
total	net	7'165'785	3'976'036	2'026'111	372'843	293'506	133'127	174'578	69'705	9'205	30'154	64'741	8'902	74'058	
total	sold	2'096'863	583'625	974'901	137'560	123'530	3'248	131'672	60'688	3'955	19'957	55'328	0	59'395	
	sold as % of net	29.3%	14.7%	48.1%	36.9%	42.1%	2.4%	75.4%	87.1%	43.0%	66.2%	85.5%	0.0%	n.a.	

Table VII-19: Grain Revenue in Litres, 1732 and 1782 [2/4, continued overleaf]

See comment on page 354.

Account		All Grain	Spelt	Oats	Wheat	Rye	Corn	Mischel	Barley	Mill	Reiter	Peas	Millet	Other	
AAR782	gross	539'154	361'382	145'842	7'672	15'967		1'876		6'416					
	net	144'354	75'782	55'122	4'312	4'207		1'036		3'896					
	sold	73'486	34'104	35'588	784			826		2'184					
ABU782	gross	379'205		100'268	208	1'666	277'063								
	net	174'089		53'622	208	1'458	118'801								
	sold	1'380		521			859								
ARW782	gross	1'196'895	911'421	223'566		56'931				4'977					
	net	277'732	185'269	73'101		16'114				3'248					
	sold	143'731	95'193	40'229		6'629				1'680					
BIB782	gross	288'346	200'428	58'372	16'755	12'791									
	net	64'497	23'871	25'943	9'999	4'684									
	sold	1'278	321	512	287	158									
BRA782	gross	512'505	411'716	97'356		949				2'352	133				
	net	111'825	75'716	32'676		949				2'352	133				
	sold	74'879	50'904	23'975											
ERL782	gross	306'380		29'246	24'119	168		225'463	27'384						
	net	92'180		12'446	3'959	168		59'143	16'464						
	sold	55'318		8'232	1'656			35'553	9'877						
FRE782	gross	1'691'340	1'119'087	372'043	12'376	153'090		5'362	280	1'176	12'082		11	15'834	P
	net	406'812	205'503	132'475	7'336	40'530		3'346	280	1'176	7'042		11	9'114	P
	sold	159'306	55'048	75'600	3'654	19'796		420		4'788					P
GSP782	gross	2'082'143	1'719'011	303'702	15'610	24'612		1'666	13'321	588		2'821	700	112	L
	net	973'294	785'554	165'277	13'160	5'096		1'666	1'393	392		644		112	L
	sold	162'862	252	140'140	3'234	16'366		1'666		392		112	588	112	L
INB7821	gross	328'440	263'760	64'680											
	net	0													
	sold	58'324	38'878	19'446											
INB7822	gross	382'193	302'421	79'772											
	net	162'953	120'057	42'896											
	sold	0													
INT782	gross	220'490	168'434	47'646	3'024				938		448				
	net	7'466	3'458	606	2'016				938		448				
	sold	0													
ITH782	gross	632'044	440'370	191'506		168									
	net	348'292	238'938	109'186		168									
	sold	14'851		14'851											
JOB782	gross	582'901	467'835	95'312		19'194			518			42			
	net	175'501	123'435	43'232		8'274			518			42			
	sold	52'570	33'768	17'640		1'162									
KOE782	gross	2'303'134	1'290'569	250'044	320'475	384'269			44'063			1'416		12'299	W
	net	662'184	215'360	118'740	164'750	131'216			25'482			1'416		5'220	W
	sold	16'667	6'083	2'306	3'207	4'313			758						W
KOR782	gross	4'252'931	1'385'475	48'720	2'815'208	3'346			182						
	net	479'619	90'255	19'894	367'693	1'596			182						
	sold	0													
LAU782	gross	76'370	37'898	26'516		7'182			28		1'764				
	net	47'530	24'178	14'756		5'502			28		1'764				
	sold	28'560	13'440	11'760		1'680									
LEN782	gross	2'302'175	1'740'796	293'751	127'103	140'525									
	net	401'396	191'420	117'104	65'848	27'024									
	sold	18'309	8'687	5'805	2'584	1'233									
LSN7821	gross	98'311		57'047	22'852	11'508		6'905							
	net	0													
	sold	58'883		40'504	5'278	11'248		1'853							

Table VII-19: Grain Revenue in Litres, 1732 and 1782 [3/4, continued overleaf]

See comment on page 354.

Account		All Grain	Spelt	Oats	Wheat	Rye	Corn	Mischel	Barley	Mill Reiter	Peas	Millet	Other	
LSN7822	gross	135'510		64'952	45'964	13'042		11'443	110					
	net	118'988		51'718	42'676	13'042		11'443	110					
	sold	0												
MOU7821	gross	113'875		55'178	27'730	30'967								
	net	0												
	sold	50'058		28'976	8'293	12'789								
MOU7822	gross	120'948		57'078	31'170	32'700								
	net	77'453		42'087	16'601	18'765								
	sold	0												
MUS782	gross	378'714	328'916	39'438	8'176	1'736			224		224			
	net	161'294	133'672	20'622	4'816	1'736			224		224			
	sold	20'160		16'800	3'360									
NID782	gross	567'207	46'144	178'367	227'045	20'398		95'253						
	net	163'671	22'624	70'847	41'909	10'318		17'973						
	sold	129'248	21'798	64'386	32'340	9'212		1'512						
NYO782	gross	25'461		5'558	17'292			2'611						
	net	13'297		4'321	6'571			2'405						
	sold	928			928									
ROM782	gross	201'903		50'614	63'767			60'737	26'785					
	net	78'810		27'448	15'080			21'865	14'417					
	sold	38'937		15'215	3'190			11'820	8'712					
SIG7821	gross	13'216	6'384	6'160	672									
	net	2'128	1'008	1'120										
	sold	4'204	1'883	1'666	655									
SIG7822	gross	30'351	14'759	12'781	1'562	937				312				
	net	17'857	8'512	6'534	1'562	937				312				
	sold	0												
STI782	gross	1'101'531	681'513	387'265	11'207	17'136		4'410						
	net	745'539	467'985	248'161	11'207	13'776		4'410						
	sold	299'509	155'148	130'746	8'365	3'731		1'519						
THU782	gross	636'591	391'437	245'154										
	net	188'031	110'877	77'154										
	sold	46'288	20'006	26'282										
TOR782	gross	1'425'127	1'120'364	168'228	3'360	113'274		7'189	4'872		1'995	5'845	W	
	net	386'131	224'420	116'400	3'360	30'954		3'829	3'192		1'155	2'821	W	
	sold	124'852	88'200	7'336		21'560		2'856	1'680		700	2'520	W	
TRA7821	gross	204'176	164'640	32'816	336	1'484		3'458	1'442					
	net	0												
	sold	80'836	53'501	21'557		1'481		2'860	1'439					
TRA7822	gross	321'717	231'686	75'754	840	2'975		7'942	2'520					
	net	204'957	125'846	64'834	840	2'975		7'942	2'520					
	sold	0												
YVE782	gross	304'371		95'445	163'849	10'962		12'891	21'224					
	net	109'491		43'197	45'409	5'922		7'515	7'448					
	sold	53'071		20'874	20'160	5'117		1'379	5'541					
ZOF7821	gross	664'888	554'400	103'040	5'488	1'960								
	net	1'568			1'568									
	sold	10'367	8'568	1'652	147									
ZOF7822	gross	1'424'153	1'153'337	257'176	7'497	6'143								
	net	621'076	471'039	136'397	7'497	6'143								
	sold	0												
total	gross	25'844'691	15'514'182	4'320'390	3'981'353	1'086'080	277'063	428'616	153'646	18'144	24'655	18'816	14'427	37'072
total	net	7'420'011	3'924'777	1'927'913	838'375	351'554	118'801	130'801	79'255	8'041	17'088	10'416	9'387	18'569
total	sold	1'778'858	685'782	772'597	98'122	116'474	859	56'548	30'602	2'520	7'375	1'680	4'788	4'312
sold as % of net		24.0%	17.5%	40.1%	11.7%	33.1%	0.7%	43.2%	38.6%	31.3%	43.2%	16.1%	51.0%	n.a.

Table VII-19: Grain Revenue in Litres, 1732 and 1782

Source: Database: *gross* stands for gross revenue (i.e. revenue including inventory arrears), *net* for net revenue, *sold* for the amount of grain sold (which was recorded as an expenditure in grain); the letter after the column *others* describes which grain types the column refers to, with *P* for Paschi, *W* for Wiki, and *L* for Lentils; for account abbreviations, see p. 324; for assumptions on price conversion see Section VII-13.

Wine Revenue in Litres, 1732 and 1782

Account		Wine	Account		Wine	Account		Wine
BIB732	gross	3'731	AAR782	gross		WED782	gross	286'853
	net	3'731		net			net	121'467
	sold	1'253		sold			sold	56'041
FRE732	gross	38'034	FRE782	gross	16'814	WEW782	gross	295'466
	net	7'974		net	4'498		net	60'748
	sold			sold			sold	1'440
GSP732	gross	33'686	GSP782	gross	71'256	YVE782	gross	8'101
	net	10'974		net	16'363		net	8'101
	sold	11'758		sold	2'265		sold	1'906
INT732	gross	10'844	INT782	gross	4'910			
	net	1'545		net				
	sold	10'844		sold				
KOE732	gross	37'511	ITH782	gross	3'633			
	net	17'471		net	509			
	sold	5'994		sold	3'124			
LEN732	gross	585	KOE782	gross	40'032			
	net	585		net	13'371			
	sold			sold				
LSN7322	gross	36'131	LSN7822	gross	37'341			
	net	36'131		net	37'341			
	sold			sold	8'114			
MOU732	gross	3'062	MOU7822	gross	3'469			
	net	3'062		net	3'469			
	sold			sold				
STI732	gross	14'898	NYO782	gross	23'408			
	net	14'898		net	23'408			
	sold			sold				
TOR732	gross	12'586	ROM782	gross	64'502			
	net	7'158		net	64'502			
	sold			sold	41'968			
WED732	gross	163'870	STI782	gross	36'227			
	net	43'237		net	36'227			
	sold	38'278		sold				
WEW732	gross	332'163	TOR782	gross	9'551			
	net	81'538		net	5'376			
	sold	34'996		sold				

Summary for 1732

total	gross	687'101
total	net	228'304
total	sold	92'278
sold as % of net		40.4%

Summary for 1782

total	gross	901'563
total	net	395'380
total	sold	114'858
sold as % of net		29.0%

Table VII-20: Wine Revenue in Litres, 1732 and 1782

Source: Database: *gross* stands for gross revenue, *net* for net revenue, *sold* for the amount of grain sold (which was recorded as an expenditure in wine, see also Table VII-14); for account abbreviations, see p. 324. Please note that the amount of wine sold is not necessarily identical with the amount for which prices were registered (shown in Table VII-14).

Relative Changes in Grain Revenue, 1732-1782 (kg, mcal, Bz and ltr)

	1732 kg	1782 kg	1732 mcal	1782 mcal	1732 Bz	1782 Bz	change kg, mcal	change Bz	change price	1732 stable p	1782 stable p	1732 ltr	1782 ltr
Spelt	2,225,716	2,393,869	4,833,718	5,198,904	1,949,533	2,812,122	7.6%	44.2%	55.6%	1,975,592	2,124,848	5,495,596	5,678,097
Wheat	449,941	825,655	1,471,539	2,700,316	738,403	1,408,806	83.5%	90.8%	57.1%	556,695	1,021,552	576,848	695,196
Oats	1,610,418	1,582,085	5,782,838	5,681,098	777,949	1,302,957	-1.8%	67.5%	64.4%	900,773	884,925	2,928,019	3,179,428
Rye	296,162	357,575	796,616	961,805	235,014	417,330	20.7%	77.6%	64.7%	231,508	279,514	402,942	610,375
Mischel	255,226	220,760	720,698	623,375	276,199	486,552	-13.5%	76.2%	37.5%	237,516	205,442	336,932	482,313
Corn	121,337	84,503	364,369	253,759	52,994	47,048	-30.4%	-11.2%	39.8%	58,376	40,655	170,585	194,740
Barley	51,540	52,349	150,497	152,858	65,199	160,723	1.6%	146.5%	45.3%	47,975	48,727	93,709	125,131
Wiki	6,215	5,253	19,924	16,840	6,233	8,026	-15.5%	28.8%	93.4%	7,178	6,067	9,912	17,864
Paschi	43,543	7,443	139,588	23,859	38,632	6,661	-82.9%	-82.8%	27.7%	38,447	6,572	69,447	68,091
Mill	71,102	36,588	213,515	109,871	54,410	32,498	-48.5%	-40.3%	1.2%	56,654	29,153	99,960	108,738
Peas	10,013	8,154	31,440	25,603	6,962	10,833	-18.6%	55.6%	51.6%	10,434	8,497	12,838	11,107
Reiter	11,201	6,677	33,637	20,051	5,602	3,704	-40.4%	-33.9%	136.8%	5,158	3,074	15,748	12,511
Millet	1,729	909	6,119	3,218	1,285	917	-47.4%	-28.6%	40.5%	1,523	801	2,216	1,970
Lentils	87	87	274	274	54	128	0.0%	137.0%	136.8%	91	91	112	112
all grain	5,154,231	5,581,908	14,564,770	15,771,831	4,208,470	6,698,304	8.3%	59.2%	60.9%	4,127,920	4,659,919	10,214,863	11,185,675

change: 12.9%

Table VII-21: Relative Changes in Grain Revenue, 1732-1782 (kg, mcal, Bz and ltr)

Source: Database and extended database (values including grain sales). *mcal* stands for 1,000 calories (kcal). Nutritional values and weights are calculated with figures from Table VII-12 and Table VII-13, based on Flückiger Strebel (2002): table 45. The column *change price* shows the change in the weighted price for each grain for the canton as a whole (see Table VII-13). The change in *kg* and *mcal* is identical, since they are both based on the same series (grain revenue in litre). *stable p* shows the value in litre converted by the stable price for each grain type (see Table VII-13). The change in price for all grain is expressed as the arithmetic mean of all grain prices.

VII-16 The Categorisation of Salt Transactions

Monopoly Profit, Current and Inventory Transactions

Salt trade was a government monopoly. Although officially it was not taxed, the state made a profit by selling salt more expensively than it was able to purchase it abroad or produce it at home. The salt accounts did calculate the profit on salt trade, but this was only for informative purposes and was not accounted for separately. The government accounts also recorded proceeds from selling salt, alongside expenses for purchasing salt, which included transport and handling cost, as well as maintenance. If salt sales were to be simply classified as inventory transactions, this would be inaccurate. In that case, the purchasing price of salt would be significantly smaller than the price it was sold for, which also had to cover all other expenses. The result would be a distortion towards inventory revenue. I have therefore divided the revenue from salt sales and the expenditure for purchases into three components: monopoly profit, current and inventory transactions. In practice, this meant a deduction for monopoly and inventory change from salt transactions; the remainder was classified as current salt revenue and expenditure.

The profit that the Bernese government stated in its salt accounts was calculated as the difference between all revenue and expenditure for each type of salt. This figure included changes in the salt inventory. For 1732, the profit rate was 19.2%, for 1782 it was 20%. These figures are roughly in line with the overall profit rate for the whole century, which was 21.12%.⁸⁷¹ I deducted salt profit from total revenue for salt sales. Changes in the stock of salt can be calculated from the government salt inventory. They were classified as inventory transactions (as revenue if the inventory was reduced, as expenditure if the stock increased).

Salt Prices

The government converted all salt transactions into Bernese Crowns, but did not use the same price for all conversions. While prices for inventory valuation changed little, there was a major difference between the price that the government paid for salt and what it obtained on the domestic market. The price difference contributed towards the state's monopoly profit from salt trade.

⁸⁷¹ StABE B V 481 – B V 578. The profit was calculated in the accounts as the difference between revenue from grain sales and expenditure (grain purchase, transport and maintenance) for the same year. This excluded changes in inventory, which should be considered to calculate the true profit rate. However, since these changes cancelled each other out over a long time period, this matters little for a long-term analysis. In both 1732 and 1782, inventory changes were not important. I have calculated the profit rate as profits divided by revenue. The figure of 21.12% is the profit rate of all accumulated profits and salt sales. Based on yearly profit rates, the mean profit rate was 21.34%, with a standard deviation of 6.09 (%) and a variability of 28.53%.

Price at...	Bz per Barrel (<i>Fass</i>)			Bz per <i>Centner</i>			
	1732 Burgundy	1732 Bavaria	1732 Tyrolia	1732 Lorraine	1732 Sea-Salt	1732 Roche	
Opening Balance	214.36	326.77	275.00	49.67	53.63		
Inventory	196.83	289.50	329.63		54.89		
Purchase (all)	204.46	289.83	320.88				
Purchase (Salt only)	184.58	129.98	106.32				
Sale	379.28	381.50	414.48	75.44	80.57	68.17	

Price at...	Bz per <i>Centner</i>						
	1782 Burgundy	1782 Bavaria	1782 Tyrolia	1782 Lorraine	1782 Sea-Salt	1782 Roche	1782 Mixed
Opening Balance	44.79	44.01	55.54	47.26	73.44	59.32	54.49
Inventory	47.94	41.35	53.85	46.58	73.44	55.61	54.03
Purchase (all)	47.02	49.20	57.80	50.90			
Purchase (Salt only)	42.21	37.15	33.58	38.10			
Sale	75.18		79.67	75.36		83.82	76.10

Table VII-22: Prices for Different Types of Salt Recorded in Salt Trade Accounts (SDI) 1732 and 1782

Sources: StABE B V 513 (SDI1732) and StABE B V 563a (SDI1782). Prices for *Burgundy*, *Bavaria* and *Tyrolia* in 1732 are per barrel (*Fass*), all others in Bz per *Centner*. *Purchase (all)* is for the total cost of purchase (including transportation and handling), *Purchase (Salt only)* is the price paid for salt alone.

The profitability of the salt trade as a commercial activity (see Figure III-30) should not be confused with the 'profitability' of the salt trade account for the state, which depended to a large extent on changes in the salt inventory. In years when the inventory increased, the state spent more on its salt account. Figure VII-12 shows the distinction between total revenue of the salt account, expenditure, with one series including, the other excluding *assignments*. For revenue, only in 1750 and 1753 did the *Salzdirektion* receive any assignments.

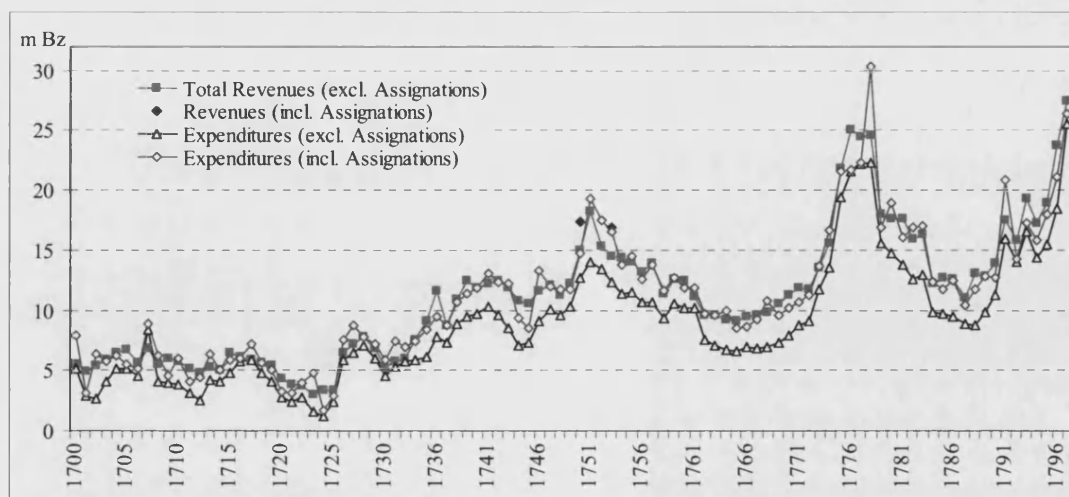


Figure VII-12: Total Revenue and Expenditure (including/excluding Assignations), Salt Trade, 1700-1797

See figure Figure III-27 for details.

VII-17 The Structure of a Bailiff's Account (Aarberg 1782)

Revenue and expenditure of a Bernese account using grain and monetary transactions followed the scheme of Figure VII-13, where the size of each field is purely abstract.

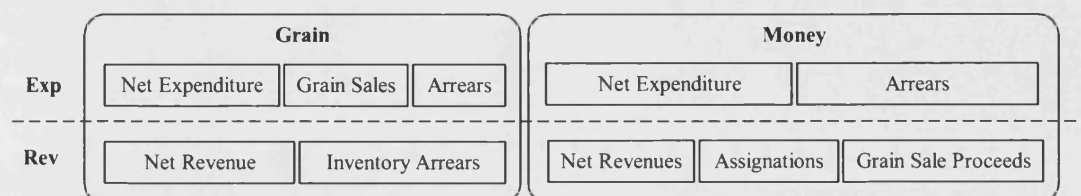


Figure VII-13: Revenue and Expenditure of a Bernese Account (Scheme)

Revenue consisted of inventory arrears in grain (the opening balance), net revenue in both grain and money, assignations (transfers payments from other accounts) and the proceeds from grain sales. Expenditure included grain sales in kind (inventory adjustment), net expenditure in grain and money, as well as arrears in grain and money. The difference between the inventory arrears at the beginning of the period and the final arrears in grain constituted the inventory change. Together with the arrears in money they made up the profit of an office. This figure was identical to the difference between net revenue and net expenditure. For the concrete example of Aarberg bailiff accounts in 1782, the situation is shown in Figure VII-14.⁸⁷²

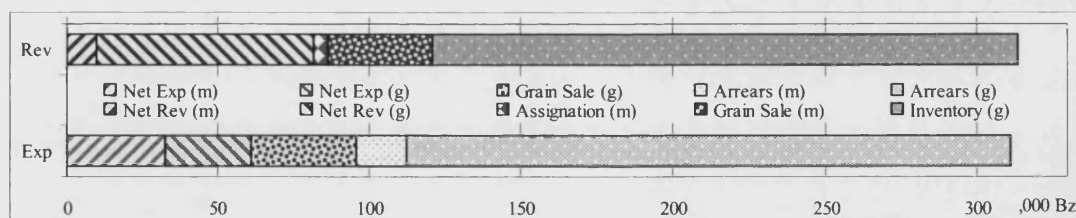


Figure VII-14: Gross and Net Revenue and Expenditure, Aarberg 1782

Source: StABE B VII 862 (database). *Rev* is for revenue, *Exp* for expenditure; (*m*) for transactions recorded in monetary values, (*g*) for transactions recorded in kind as grain. Only striped areas are net transactions.

Only 26.0% of the recorded revenue consisted of net transactions, along with 19.6% of expenditure. Grain sales accounted for 11.1% of transactions, both for revenue and expenditure. The profit rate – net revenue minus net expenditure as a share of net revenue – was a staggering 25.3%. Roughly 30% of this profit had the form of an increase in public granaries; the rest went to the *Deutsch Standesrechnung* as the bailiff's monetary arrears for this year.

⁸⁷² The number of transactions in the database is 237. Of these, 56 are sums, which were only used to check the accuracy of the data. The 181 remaining transactions, recorded net revenue (31), net expenditure (140), grain sales (6), assignations (3) and arrears (1).

VII-18 Functional Breakdown of Revenue and Expenditure

	All Transactions				Current Transactions			
	1732		1782		1732		1782	
	Rev	Exp	Rev	Exp	Rev	Exp	Rev	Exp
Defence	612,894	1,009,816	724,683	3,247,327	0	556,872	0	2,860,871
Foreign Affairs	13,193	110,988	3,767	575,002	13,193	110,988	3,767	575,002
Judiciary and Police	82,218	102,164	82,055	616,618	82,218	102,164	82,055	616,618
Finance and Taxation	19,477,122	10,083,294	25,049,375	11,815,412	12,368,790	2,148,317	19,414,097	3,981,604
General Administration	10,497	2,811,797	40,817	3,396,472	10,497	2,811,797	40,817	3,396,472
Economy	0	3,173,750	4,242,768	2,853,028	3,878,538	3,173,750	3,878,538	2,853,028
Domain and Production	1,277,713	1,493,339	2,022,990	1,533,829	1,277,713	1,484,965	2,022,990	1,533,829
Education	0	578,562	0	844,715	0	578,562	0	844,715
Public Health	0	170,458	824	488,802	0	170,458	824	488,802
Welfare	11,680	1,044,201	50,133	1,779,769	11,680	1,044,201	50,133	1,779,769
Environment and Traffic	0	395,707	0	350,255	0	388,630	0	96,627
Culture	0	1,823	0	100	0	1,823	0	100
Religion	0	1,761,165	0	2,647,663	0	1,721,240	0	2,647,663

Table VII-23: Functional Breakdown of Revenue and Expenditure (Database)

Source: Database. All values are in Batzen (Bz).

VII-19 Comparative Figures on Expenditure

The following figures are from the European State Finance Database and Körner (1995a): 401. Population estimates are from various sources indicated in Table VII-24. Please note that most of the data has high margins of error, which makes these figures rough estimates at best. For the city republics, reliable population estimates were not available.

	Rev	Year	Population	Year	Rev/Cap	Source (population)
BERN	17	1732	317,000	1732	53.63	
BERN	22	1782	388,000	1782	56.70	
Venice	118	1783	2,853,000	c. 1790	41.36	Beloch (1937-1961) : Vol. 3, 365
Milan	7	1700*	125,000	c. 1700	56.00	Bairoch/Batou/Chèvre (1988): 45
	4	1800*	135,000	c. 1800	29.63	Bairoch/Batou/Chèvre (1988): 45
Sicily	27		1,450,000		18.62	calculated from:
			1,240,000	c. 1721		Beloch (1937-1961) : Vol. 3, 365
			1,660,000	c. 1790		Beloch (1937-1961) : Vol. 3, 365
Genoa	27		611,500		44.15	calculated from:
			620,000	c. 1721		Beloch (1937-1961): Vol. 3, 365
			603,000	c. 1790		Beloch (1937-1961) : Vol. 3, 365
Piedmont	45		1,723,500		26.11	calculated from:
			1,100,000	c. 1700		Beloch (1937-1961): Vol. 3, 353
			2,347,000	c. 1790		Beloch (1937-1961) : Vol. 3, 365
Bavaria	41	1700*	1,450,000	1771	28.28	Lee (1975): 316
	73	1800*	1,252,000	1794	58.31	Lee (1975): 316
Lombardy	49	1700*	1,180,000		41.53	Beloch (1937-1961) : Vol. 3, 365
	66	1800*	1,180,000		55.93	Beloch (1937-1961) : Vol. 3, 365
Denmark	86	1700*	777,000	1735	110.68	Helleiner (1967): 46
	360	1800*	926,000	1800	388.77	Helleiner (1967): 46
Prussia	112	1700*	1,340,500		83.55	calculated from:
			1,067,000	1688		Behre (1905): 197-198
			1,614,000	1713		Behre (1905): 197-198
	485	1800*	6,221,000	1800	77.96	Behre (1905): 462 (appendix 5)
Utd Provinces	439	1795	2,047,000	1816	214.46	Mitchell (2003): 6
France	3000	1790s	26,000,000	1789	115.38	Helleiner (1967): 67
Britain	8500	1790s	10,500,000	1801	809.52	Mitchell (2003): 8

*) = Assumption

Table VII-24: Expenditure, Population and Expenditure per Capita for European States

Sources: State Finance Database and Körner (1995a): 401. *Rev* is for Revenue in tonnes of fine silver. The value for *Milan* is for the city only; *Lombardy* is for the territory of the Duchy of Milan under Austrian rule. If no year is indicated for revenue, the assumption is that Körner's figure is for the whole century. If two figures were stated, I assumed the first for the early century (c. 1700) the latter for the late century (c. 1800). Population figures for more than one year were calculated as means.

Structure of Expenditure

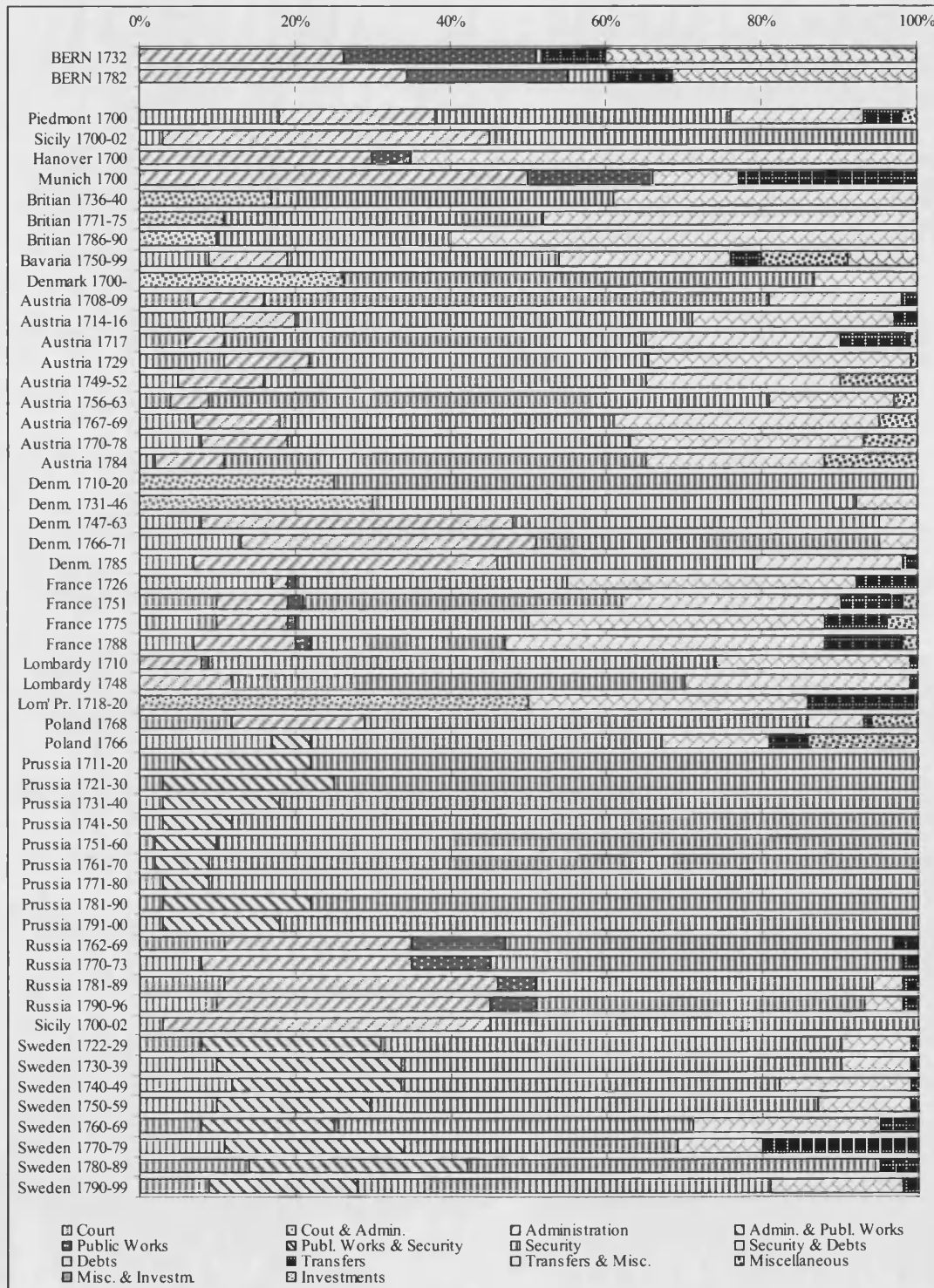


Figure VII-15: Bernese Expenditure Compared to Other European State (Full List) [cont'd overleaf]

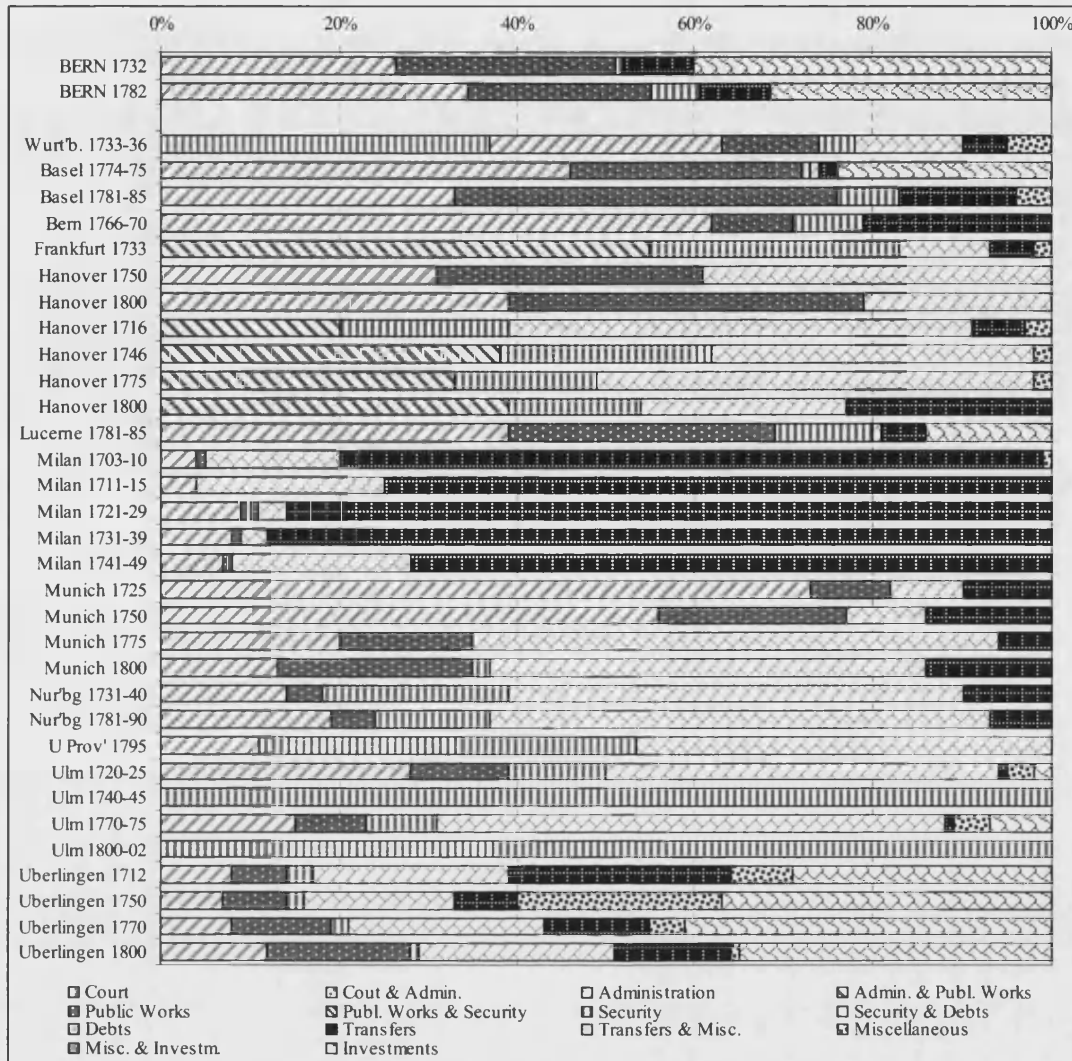


Figure VII-15: Bernese Expenditure Compared to Other European State (Full List)

Sources: ESFDB and Körner (1995a) and Database (for *Bern* figures). This figure contains the complete list of data selected for Figure IV-15. See comments there.

VII-20 Communal Finance

Data on communal finances has not been recorded systematically and has been largely ignored by historiography. Table VII-25 collects some figures available from secondary literature. The sample is not representative.

Commune	Tax (Bz/cap)	Year(s)	Population	Type	Comments
Aarberg	5.00	1772		Small City	1 daily wage of unskilled labourer
Worb (Viertelgemeinde)	6.02	1745-1760	768	Village	Net revenue only (11 accounts)
	7.78	1761-1773	772	Village	Net revenue only (12 accounts)
	6.26	1776-1794	1,221	Village	Net revenue only (16 accounts)
Langnau	6.21	1763	2,894	Village	Poverty relief revenue only
Menziken	6.40	1773/74	1,098	Village	Without poverty relief (?)

Table VII-25: Communal Tax Burden in Bz per Capita (Yearly Figures)

See Table IV-10 in the main text.

Most population estimates are from the Bernhist database (<http://www.bernhist.ch>); see Pfister, C. (1995) for details.

For *Aarberg*, see Bartlome (1999). It was a small city and residence to the bailiff with privileges *vis à vis* of its hinterland. By closing the right to citizenship, it managed to avoid paying poverty relief for many of its inhabitants: only 4 out of 440 citizens qualified as poor in 1764. The city also had its own funds, which covered some 40% of communal revenue in 1772; only 2.5% of revenue came from direct taxes. The average yearly tax burden was equivalent to one day's wage of an unskilled labourer.⁸⁷³

For *Worb*: Holenstein (2005) plus transcripts of his primary sources.⁸⁷⁴ *Worb* was a *Twingherrschaft* owned by the von Graffenried family. For the communal district of *Worb* [*Viertelsgemeinde*], only the net revenue was considered (i.e. revenue from interests on funds was excluded). The tax rate for each *Los* (voting shares in the communal assembly, based on property), was fixed periodically; all non-owners of *Loses* had to pay taxes on their immobile property, residents an additional flat fee. Population estimates are from Bernhist (parish of *Worb*, of which according to H.R. Schmidt half lived in the communal district). If interest payments are included, the respective figures are 6.92 Bz (1745-60); 8.49 Bz (1761-73) and 6.73 Bz (1776-94).

For *Langnau*: Bietenhard (1988). *Langnau* was a village with market right. The data is only on revenue for poverty relief, which was arguably the most important part of communal revenue in this case. Data on population is from Bernhist. For landowners, property was taxed at a rate of 0.05% (per Lb 1,000), mobile property at 0.08%; citizens without landed property paid a rate of 0.22% to cover for the fact that they did not provide any poverty relief in kind. Residents (i.e. non-citizens) paid a rate of 0.24% and an additional flat fee of 75 Bz/year. From the 530 households in *Langnau*,

⁸⁷³ According to Ebener (1999): 178, the daily wage of an unskilled labourer was 5 Bz in the 1780s (5-6 Bz in the 1730s).

⁸⁷⁴ Historisches Archiv Worb, F, 33,2 (Säckelmeisterrechnungen 1770-1791) and HEV Worb B 12-6 und B 12-7 (Säckelmeisterrechnungen 1745-1772 und 1791-1794). Thanks to André Holenstein for letting me use this data.

only 315 paid taxes (340 if we include Bietenhard's error margin). For those households that paid taxes, the yearly average was 38.825 Bz, with averages ranging in the different districts from 33.375 to 47.8 Bz. If non-taxpayers are included, the average household paid 23.075 Bz, with a range per district from 19.475 Bz to 27.65 Bz.

For *Menziken*: Steiner (1956): 171. *Menziken* was a village in the county of Lenzburg (Argovia). Data on communal revenue for 1773/74 contain less than 3% of total expenditure for poverty relief. It is therefore likely that poverty relief was recorded in a separate account. Another possibility is that *Menziken* had little poverty. As a population estimate, I used the average of the figures for 1764 and 1798, assuming a constant distribution between the two districts *Menziken Dorf* and *Menziken Burg*.

VII-21 Appendix to Chapter V

Results of the Holding Period Return (HPR) Regression Analysis

X-Variable: HPR English funds of Bern, 1723-1798

Y-Variable: HPR Virtual Consol (3%-annuities), 1723-1798

	<i>Coefficients</i>	<i>Std Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.0059764	0.0050807	1.1762956	0.2432985
X Variable 1	0.9701984	0.0587158	16.523621	2.251E-26

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.8882768
R Square	0.7890357
Adjusted R Square	0.7861457
Standard Error	0.0423481
Observations	75

Table VII-26: Results of HPR Regression, Bernese Funds in England and Virtual Consols

Consols were perpetual and redeemable (consolidated) annuities. For the time before prices for 3%-Consols are available (1753), I have used a *Virtual Consol* in analogy to Neal, who extrapolated back until 1726 with 3%-Bank annuities, and until 1723 with South Sea annuities: Neal (1990): 127 (note 16); Neal does not use the term *Virtual Consol*.

VII-22 References

A1) Edited Documents

Anonymous [Abraham Stanyan], *An Account of Switzerland. Written in the year 1714*, Edinburgh, 1756.

Gruner, Johann Rudolf, *Deliciae Urbis Bernae. Merckwürdigkeiten der hochlöbl. Stadt Bern. Aus mehrenteils ungedruckten authentischen Schrifften zusammen getragen*, Zürich 1732.

Normann, Gerhard Philipp Heinrich, *Geographisch-statistische Darstellung des Schweizerlandes mit beständiger Rücksicht auf physikalische Beschaffenheit, Produkte, Industrie, Handlung und Staatswirtschaft*, 4 Vols, Hamburg, 1795.

RQBE, *Die Rechtsquellen des Kantons Bern* (part of the series *Sammlung schweizerischer Rechtsquellen*), edited by Hermann Rennefahrt and Anne-Marie Dubler, Aarau, 1937-present.

Steiger, Carl Friedrich, 'Rede über die Errichtung der ausländischen Finanzen des Hohen Standes. Gehalten vor dem Hochlöblichen Äusseren Stand, den 26. Februar 1784 durch Carl Friedr. Steiger', edited in: *Berner Zeitschrift für Geschichte und Heimatkunde* 10 (1952): 26-39.

A2) Historical Databases

Bernhist: <http://www.bernhist.ch>

European State Finance Database, ESFDB: <http://www.le.ac.uk/hi/bon/ESFDB/>.

Interuniversity Consortium for Political and Social Research (ICPSR), Study 1008: <http://webapp.icpsr.umich.edu/cocoon/ICPSR-PRA/01008.xml>.

B) Archival Documents

For a detailed list of government accounts included in my database, see Section VII-9 above

ACV: Archives Cantonales Vaudoises, Lausanne

B m 41	Strassenbau-Generalbilanz
Ba 33	Décrets Romands (DR)
Bp 25-42	Ämterrechnungen (see section VII-9 above for details)
Bp 143	Getreide-Etat über die Welschen Kornkeller, 1771-1796
Bp 146	Etat des Welschen Weins, 1780-1797

BERO: Bank of England Record Office, London

AC27 417-432 Bank Stock Ledgers A-Z (1694-1725)

BL: British Library, London

The Burney Collection Collection of Newspapers

BBB: Burgerbibliothek Bern

Mss. Hist. Helv. Manuscripti Historiae Helveticae

Mhh. XXII.59 Hausbuch Friedrich Karl Ludwig Manuel, 1764-1792
 VA BSB 3.3 RG I 18 (1732) and 68 (1782): Rechnungen Grosses Spital
 ZA Metzger Zunftarchiv Metzger
 (unclassified) Nachlass Wagner/von Ernst (formerly records of Armand von Ernst & Cie, Bern)

PRO: Public Record Office, Kew (U.K.)

SP 96 Secretaries of State, State Papers Foreign, Switzerland
 PRO C 11 Court of Chancery, Six Clerks Office, Pleadings 1714 to 1758

StAAG: Staatsarchiv des Kantons Aargau, Aarau

Bd 31-1687 Ämterrechnungen (see Section VII-9 above for details)

StABE: Staatsarchiv des Kantons Bern

A I 462-465 Polizeibücher (PolB)
 A I 589-494 Instruktionenbücher
 A II 586-950 Ratsmanuale (RM), Vol. 1-364 (1701-1798)
 A III 87-116 Deutsche Missivenbücher
 A IV 215 Instruktionenbücher
 A V 1468 Allgemeine Bedenken (AB)
 A V 1470-1490 Responsa Prudentum (RP)
 B I 2 Manual des Geheimen Rates, Vol. 1
 B I 23 Missivenbuch des Geheimen Rates, Vol. 1
 B I 107 Livre contenant les négociations faites de la part de L.L. E.E. sur le sujet des argents et des anabaptistes, 1708-1714
 B V 2-4 Instruktionenbuch des Kommerzienrates
 B V 21-22 Manual des Kommerzienrates
 B V 481-578 Rechnungen der Salzdirektion
 B VI 228 Auszüge der Amts-Rechnungen Welschen Landts Getreyd Preise, 1772-1792
 B VI 261-285 Kornherr Rechnungen
 B VII 6 Venner-Reglement
 B VII 25 Instruktionen und Eid der Amtleute
 B VII 26 Welsch Amtleuten Eid und Instruktionen
 B VII 27 Abusen-Buch
 B VII 28 Kommissionen-Rödel
 B VII 367-393 Protokolle der Seckelschreiberei
 B VII 581-679 Deutsche Standesrechnungen (1700-1796)
 B VII 762-858 Welsche Standesrechnungen (1700-1796)
 B VII 851-2130 Ämterrechnungen (see Section VII-9 above for details)
 B VII 2179 General-Bilanzen
 B VII 2332 Stadtzinsrodel, 1713-1744
 B VII 2340 Hauptbuch der Stands-Schulden, 1737-98
 B VII 2359 Zinsrodel über die Wertschriften von Ämtern der Stadt und Landschaft
 B VII 2384 Inventarium der Gewölbe-Registratur

B VII 2388a, b, c	Schatzbücher
B VII 2389	Historie der ausländischen Stands Capitalien, 1776
B VII 2396-2473	Rechnungen über die Ausländischen Fonds
B VII 2403	Samuel Zeerleder, Eine Abhandlung über das Wechselhaus Malacrida, mit den Annalen des Law'schen Finanzsystems, Bern 1837 [unpublished manuscript]
B VII 2450	Etat der ausländischen Kapitalien
B VII 2465	Akten der Äusseren Gelder-Verwaltung
B VII 2520	General-Tabellen
B VII 2520a	Bilanz 1750-1770
B VII 2521	Special-Tabellen
B VIII 168-231	Deutsch- und Welsch-Zollrechnungen

StUB: Stadt- und Universitätsbibliothek Bern

H XXII 117 Dokumente zur Malacrida-Krise

C) Publications

- Abel, Wilhelm, *Agrarkrisen und Agrarkonjunktur. Eine Geschichte der Land- und Ernährungswirtschaft Mitteleuropas seit dem hohen Mittelalter*, Hamburg 1966.
- Agena, Carl-August, *Der Amtmann im 17. und 18. Jahrhundert. Ein Beitrag zur Geschichte des Richter- und Beamtentums*, Göttingen 1972.
- Akerlof, George A., 'The Market for "Lemons": Quality Uncertainty and the Market Mechanism', in: *Quarterly Journal of Economics* 84 (1970): 488-500.
- Alesina, Alberto and Spolaore, Enrico, *The Size of Nations*, Cambridge MA 2003.
- Altorfer, Stefan, 'Bulle oder Bär? Der Bernische Staat und die Südseekrise von 1720', in: Béatrice Veyrassat; Hans-Jörg Gilomen and Margrit Müller (eds.), *Globalisierung – Chancen und Risiken. Die Schweiz in der Weltwirtschaft 18.-20. Jahrhundert*, Zürich 2003: 61-86.
- Altorfer, Stefan, *The Canton of Berne as an Investor on the London Capital Market in the 18th Century (LSE Economic History Working Paper 85/04)*, London 2004a.
- Altorfer, Stefan, *How to Make Money during the South Sea Bubble of 1720 - and how to Lose it. The Canton of Berne as an Investor on the 18th Century London Capital Market (Economic History Society Young Researchers Paper)*, London 2004b.
- Altorfer, Stefan, 'Der "Auskauf" von 1677', in: André Holenstein (ed.), *Berns mächtige Zeit. Das 16. und 17. Jahrhundert neu entdeckt*, Bern 2006: 450.
- Altorfer, Stefan, 'Exporting Mercenaries, Money, and Mennonites. The Mission of the Diplomat François-Louis de Pesmes de Saint-Saphorin to the Hague, 1710-1715', in: Maarten Prak and André Holenstein (eds.), *Republics in Early Modern Europe. A Comparison between the Swiss Confederation and the United Provinces (Working Title)* forthcoming.
- Anderson, Perry, *Lineages of the Absolutist State*, London 1974.
- Anonymous [Abraham Stanyan], *An Account of Switzerland. Written in the year 1714*, Edinburgh 1756.
- Ardant, Gabriel, *Théorie sociologique de l'impôt*, 2 Vols, Paris 1965.

- Ardant, Gabriel, *Histoire de l'impôt*, 2 Vols, Paris 1972.
- Ardant, Gabriel, 'Financial Policy and Economic Infrastructure of Modern States and Nations', in: Charles Tilly (ed.), *The Formation of National States in Western Europe*, Princeton 1975: 164-242.
- Ashton, Thomas S., *Economic Fluctuations in England 1700-1800*, Oxford 1959.
- Ashton, Thomas S., *An Economic History of England: The 18th Century*, London 1966.
- Ashworth, William J., *Customs and Excise. Trade, Production, and Consumption in England, 1640-1845*, Oxford 2003.
- Bächtiger, Franz, 'Freiheit-Gleichheit. Zur Devise des letzten bernischen Schultheissenthrons 1785-1832', in: *Jahrbuch des Bernischen Historischen Museums* 53/54 (1973/74): 79-103.
- Baeschlin, Conrad, *Die Blütezeit der Ökonomischen Gesellschaft in Bern, 1759-1766*, Laupen 1913.
- Bairoch, Paul, 'Estimations du revenu national dans les sociétés occidentales pré-industrielles et au XIXe siècle: propositions d'approches indirectes', in: *Revue Economique* 28 (1977): 177-208.
- Bairoch, Paul; Batou, Jean and Chèvre, Pierre (eds.), *La population des villes européennes de 800 à 1850*, Genève 1988.
- Baltzarek, Franz, *Die Geschichte der Wiener Börse. Öffentliche Finanzen und privates Kapital im Spiegel einer österreichischen Wirtschaftsinstitution*, Wien 1973.
- Bartlome, Niklaus, 'Ein Landstädtchen in der Republik Bern', in: *Aarberg. Portrait einer Kleinstadt*, Aarberg 1999.
- Bartlome, Niklaus and Hagnauer, Stephan, 'Finanzierung der Macht', in: André Holenstein (ed.), *Berns mächtige Zeit. Das 16. und 17. Jahrhundert neu entdeckt*, Bern 2006: 69-75.
- Barzel, Yoram, *A Theory of the State: Economic Rights, Legal Rights, and the Scope of the State*, Cambridge 2002.
- Bateman, Victoria, *Market Integration in Early Modern Europe (Economic History Society Young Researchers Paper)* 2006.
- Bean, Richard, 'War and the Birth of the Nation State', in: *Journal of Economic History* 33 (1973): 203-221.
- Beck, Max G., *Das Bernische Zollwesen im XVIII. Jahrhundert*, Bern 1923.
- Beckett, J.V. and Turner, Michael, 'Taxation and Economic Growth in Eighteenth-Century England', in: *Economic History Review* (1990): 377-403.
- Beer, Ellen J. et al. (eds.), *Berns grosse Zeit: das 15. Jahrhundert neu entdeckt*, Bern 1999.
- Behre, Otto, *Geschichte der Statistik in Brandenburg-Preussen bis zur Gründung des Königlichen statistischen Bureaus*, Berlin 1905.
- Bein, Georg Felix, *Die historische Entwicklung der Leinwandweberei im Kanton Bern, mit besonderer Berücksichtigung der Meisterschaftsverbände*, Konstanz 1920.
- Beloch, Karl Julius, *Bevölkerungsgeschichte Italiens*, 3 Vols, Berlin 1937-1961.
- Bély, Lucien (ed.), *Dictionnaire de l'Ancien Régime*, Paris 1996.
- Bergier, Jean-François, *Wirtschaftsgeschichte der Schweiz. Von den Anfängen bis zur Gegenwart*, Zürich 1990.
- Bernegger, Michael, 'Die Schweiz in der Weltwirtschaft: Etappen der Integration im 19. und 20. Jahrhundert', in: Paul Bairoch and Martin Körner (eds.), *Die Schweiz in der Weltwirtschaft*, Genève 1990: 429-464.
- Bernisches Historisches Museum (ed.), *Zeichen der Freiheit: Das Bild der Republik in der Kunst des 16. bis 20. Jahrhunderts (Ausstellungskatalog)*, Bern 1991.

- Bernisches Historisches Museum (ed.), *Zwischen Entsetzen und Frohlocken. Vom Ancien Régime zum Bundesstaat 1798-1848. Ein Museum vermittelt die Überreste dieser bewegten Zeit (Ausstellungskatalog)*, Zürich 1998.
- Bernstein, Peter L., *Against the Gods. The Remarkable Story of Risk*, New York 1996.
- Bietenhard, Benedikt, *Langnau im 18. Jahrhundert. Die Biographie einer ländlichen Kirchgemeinde im bernischen Ancien Régime*, Thun 1988.
- Blastenbrei, Peter, 'Der König und das Geld. Studien zur Finanzpolitik Friedrichs II. von Preussen', in: *Forschungen zur Brandenburgischen und Preussischen Geschichte* 6 (NF) (1996): 55-82.
- Blickle, Peter, *Deutsche Untertanen. Ein Widerspruch*, München 1981.
- Blickle, Peter, 'Communalism, Parliamentarism, Republicanism', in: *Parliaments, Estates, and Representation* 6 (1986): 1-13.
- Blickle, Peter, *Landgemeinde und Stadtgemeinde in Mitteleuropa. Ein struktureller Vergleich*, München 1991.
- Blickle, Peter (ed.), *Resistance, Representation and Community*, Oxford 1997.
- Blickle, Peter, *Kommunalismus. Skizzen einer gesellschaftlichen Organisationsform*, 2 Vols, München 2000.
- Bodmer, Walter, 'Tendenzen der Wirtschaftspolitik der eidgenössischen Orte im Zeitalter des Merkantilismus', in: *Schweizerische Zeitschrift für Geschichte* 1 (1951): 562-598.
- Bodmer, Walter, *Die Entwicklung der Schweizerischen Textilindustrie im Rahmen der übrigen Industrien und Wirtschaftszweige*, Zürich 1960.
- Bodmer, Walter, *Die Wirtschaftspolitik Berns und Freiburgs im 17. und 18. Jahrhundert*, Bern 1973.
- Bonney, Richard, 'Early Modern Theories of State Finance', in: Richard Bonney (ed.), *Economic Systems and State Finance*, Oxford 1995a: 163-229.
- Bonney, Richard (ed.), *Economic Systems and State Finance*, Oxford 1995b.
- Bonney, Richard, 'Revenues', in: Richard Bonney (ed.), *Economic Systems and State Finance*, Oxford 1995c: 423-505.
- Bonney, Richard, 'France, 1494-1815', in: Richard Bonney (ed.), *The Rise of the Fiscal State in Europe, c. 1200-1815*, Oxford 1999a: 123-176.
- Bonney, Richard (ed.), *The Rise of the Fiscal State in Europe, c. 1200-1815*, Oxford 1999b.
- Bonney, Richard and Ormrod, W.M., 'Introduction: Crises, Revolutions and Self-Sustained Growth: Towards a Conceptual Model of Change in Fiscal History', in: W.M. Ormrod; Margaret Bonney and Richard Bonney (eds.), *Crises, Revolutions and Self-Sustained Growth. Essays in European Fiscal History, 1130-1830*, Stamford 1999: 1-21.
- Braddick, Michael J., *State Formation in Early Modern England, c. 1550-1700*, Cambridge 2000.
- Brady, Thomas A. Jr., *Turning Swiss: Cities and Empire, 1450-1550*, Cambridge 1985.
- Brady, Thomas A. Jr., 'The Rise of Merchant Empires, 1400-1700: A European Counterpoint', in: James D. Tracy (ed.), *The Political Economy of Merchant Empires. State Power and World Trade, 1350-1750*, Cambridge 1991: 117-160.
- Brandenberger, Anton, *Ausbruch aus der "Malthusischen Falle". Versorgungslage und Wirtschaftsentwicklung im Staate Bern 1755-1797*, Bern 2004.
- Braudel, Fernand, *Civilisation matérielle, économie et capitalisme, XVe-XVIIIe siècle*, 3 Vols, Paris 1979-1986.
- Braun, Hans, *Die Familie von Wattenwyl*, Murten 2004.

- Braun, Rudolf, 'Taxation, Sociopolitical Structure, and State-Building: Great Britain and Brandenburg-Prussia', in: Charles Tilly (ed.), *The Formation of National States in Western Europe*, Princeton 1975: 243-327.
- Braun, Rudolf, *Das ausgehende Ancien Régime in der Schweiz. Aufriss einer Sozial- und Wirtschaftsgeschichte des 18. Jahrhunderts*, Göttingen 1984.
- Brewer, John, *The Sinews of Power. War, Money and the English State 1688-1783*, London 1989.
- Brunner, Edgar Hans, 'Ist den bernischen Standesherrn eine wirtschaftliche Betätigung untersagt worden? Bemerkungen zu einer oft wiederholten, falschen historischen Tatsache', in: *Berner Zeitschrift für Geschichte und Heimatkunde* 54 (1992): 151-163.
- Bucher, Beatrice, *Abraham Stanyan 1705-1714. Die englische Diplomatie in der Schweiz zur Zeit des spanischen Erbfolgekriegs*, Zürich 1951.
- Bucher, Ernst, 'Die bernischen Landvogteien im Aargau', in: *Argovia* 56 (1944): 1-191.
- Buchholz, Werner, *Öffentliche Finanzen und Finanzverwaltung im entwickelten frühmodernen Staat. 1720-1806*, Köln 1992.
- Buchholz, Werner, *Geschichte der öffentlichen Finanzen in Europa in Spätmittelalter und Neuzeit: Darstellung, Analyse, Bibliographie*, Berlin 1996.
- Büchli, H., 'Solothurnische Finanzzustände im ausgehenden Ancien Régime (ca. 1750-98)', in: *Basler Zeitschrift für Geschichte und Altertumskunde* 15 (1916): 56-116.
- Bullard, Melissa et al., 'Where History and Theory Interact: Frederic C. Lane on the Emergence of Capitalism', in: *Speculum* 79 (2004): 88-119.
- Bundesamt für Statistik (ed.), *Allgemeine Systematik der Wirtschaftszweige*, Bern 1985.
- Calverley, John, *Country Risk Analysis*, London 1985.
- Caminada, Ignaz, *Schultheissenamt Thun 1668-1698. Finanzhistorische Untersuchung (unpublished Lic Phil thesis)*, Bern 1990.
- Capitani, François de, *Die Berner Zunft zum Mittellöwen von der Reformation zur Revolution*, Bern 1985.
- Capitani, François de, 'Beharren und Umsturz (1648-1815)', in: Beatrix Mesmer et al (ed.), *Geschichte der Schweiz und der Schweizer*, Basel 1986: 447-526 (Studienausgabe).
- Capitani, François de, 'Staat und Obrigkeit in Bern zwischen Reformation und Revolution', in: *Berner Zeitschrift für Geschichte und Heimatkunde* 53 (1991): 61-77.
- Capitani, François de, 'Le major Davel', in: François Flouck et al. (eds.), *De l'Ours à la Cocarde. Régime bernois et révolution en pays de Vaud (1536-1798)*, Lausanne 1998: 229-230.
- Cardis Isely, Isabelle, *Les comptes du bailliage de Lausanne. Observations et analyses des années 1631 à 1633, 1681 à 1683, 1731 à 1733, 1781 à 1783 (unpublished Lic Phil thesis)*, Lausanne 1996.
- Carlos, Ann M. and Neal, Larry, 'The Micro-Foundations of the Early London Capital Market: Bank of England Shareholders during and after the South Sea Bubble, 1720-25', in: *Economic History Review* 59 (2006): 498-538.
- Carswell, John, *The South Sea Bubble*, Stroud 2001.
- Carter, Alice Clare, *Getting, Spending and Investing in Early Modern Times. Essays on Dutch, English and Huguenot Economic History*, Assen 1975.
- Chaloupek, Günther; Eigner, Peter and Wagner, Michael, *Wien: Wirtschaftsgeschichte. 1740-1938. Teil 2: Dienstleistungen*, Wien 1991.
- Chancellor, Edward, *Devil Take the Hindmost. A History of Financial Speculation*, New York 1999.

- Chevallaz, Georges André, *Aspects de l'agriculture vaudoise à la fin de l'ancien régime*, Lausanne 1949.
- Christensen, Paul P., 'Fire, motion, and productivity: the proto-energetics of nature and economy in François Quesnay', in: Philip Mirowski (ed.), *Natural Images in Economic Thought. "Markets Read in Tooth & Claw"*, Cambridge 1994: 249-288.
- Clark, Gregory, 'The Political Foundations of Modern Economic Growth: England 1540-1800', in: *Journal of International History* 26 (1996): 563-588.
- Contamine, Philippe (ed.), *War and Competition between States*, Oxford 2000.
- Dale, Richard S.; Johnson, Johnnie E.V. and Tang, Leilei, 'Financial Markets Can Go Mad: Evidence of Irrational Behaviour during the South Sea Bubble', in: *Economic History Review* 58 (2005): 233-271.
- Dellsperger, Rudolf, *Anfänge des Pietismus in der Schweiz: Quellenstudium*, Göttingen 1984.
- Dellsperger, Rudolf, *Der Pietismus in der Schweiz*, Göttingen 1993.
- Denzel, Markus A., 'Die Integration der Schweizer Finanzplätze in das internationale Zahlungsverkehrssystem vom 17. Jahrhundert bis 1914', in: *Schweizerische Zeitschrift für Geschichte* 48 (1998): 177-235.
- Deuchler, Florens and Bernisches Historisches Museum (eds.), *Die Burgunderbeute: Inventar der Beutestücke aus den Schlachten von Grandson, Murten und Nancy, 1476/1477*, Bern 1963.
- Dickson, Peter G.M., *Finance and Government under Maria Teresia 1740-1780*, 2 Vols, Oxford 1987.
- Dickson, Peter G.M., *The Financial Revolution in England. A Study in the Development of Public Credit 1688-1756*, Aldershot 1993.
- Dillen, Johannes Gerard van, 'Effectenkoersen ann de Amsterdamsche Beurs, 1723-1794', in: *Economische-Historische Jaarboek* 17 (1931): 1-46.
- Dixit, Avinash K. and Nalebuff, Barry J., *Thinking Strategically. The Competitive Edge in Business, Politics, and Everyday Life*, New York 1991.
- Downing, Brian, 'Constitutionalism, Warfare, and Political Change in Early Modern Europe', in: *Theory and Society* 17 (1988): 7-56.
- Downing, Brian, *The Military Revolution and Political Change: Origins of Democracy and Autocracy in Early Modern Europe*, Princeton 1992.
- Dubler, Anne-Marie, *Masse und Gewichte im Staat Luzern und in der alten Eidgenossenschaft*, Luzern 1975.
- Duckenfield, Mark; Altorfer, Stefan and Koehler, Benedikt (eds.), *History of Financial Disasters*, 3 Vols., London 2006.
- Ebener, Hans-Anton, 'Bauen kostet Geld. Zur Finanzierung öffentlicher Bauten auf der Landschaft. Landvogteirechnungen als Quellen zur bernischen Wirtschaftsgeschichte', in: Sébastien Guex; Martin Körner and Jakob Tanner (eds.), *Staatsfinanzierung und Sozialkonflikte (14.-20. Jh)*, Zürich 1994: 75-85.
- Ebener, Hans-Anton, *Der Staat als Bauherr im 18. Jahrhundert. Öffentliches Bauen auf der Berner Landschaft*, Stuttgart 1999.
- Elton, Edwin J. and Gruber, Martin J., *Modern Portfolio Theory and Investment Analysis*, New York 1995.
- Epstein, Stephan R., *Freedom and Growth. The Rise of States and Markets in Europe, 1300-1750*, London 2000.
- Epstein, Stephan R., 'The Rise of the West', in: John A. Hall and Ralph Schroeder (eds.), *An Anatomy of Power. The Social Theory of Michael Mann*, Cambridge 2005: 233-262.

- Ertman, Thomas, *Birth of the Leviathan. Building States and Regimes in Medieval and Early Modern Europe*, Cambridge 1997.
- Evans, Peter B.; Rueschemeyer, Dietrich and Skocpol, Theda (eds.), *Bringing the State Back In*, Cambridge 1985.
- Feller, Richard, *Die Schweiz und das Ausland im spanischen Erbfolgekrieg*, Bern 1912.
- Feller, Richard, *Von den Anfängen bis 1516 (Geschichte Berns, Vol. 1)*, Bern 1946.
- Feller, Richard, *Von der Reformation bis zum Bauernkrieg. 1516 bis 1653 (Geschichte Berns, Vol. 2)*, Bern 1953.
- Feller, Richard, *Glaubenskämpfe und Aufklärung. 1653 bis 1790 (Geschichte Berns, Vol. 3)*, Bern 1955.
- Feller, Richard, *Der Untergang des alten Bern. 1789 bis 1798 (Geschichte Berns, Vol. 4)*, Bern 1960.
- Ferguson, Niall, *The House of Rothschild. Money's Prophets 1798-1848*, New York 1998.
- Ferguson, Niall, *The Cash Nexus. Money and Power in the Modern World 1700-2000*, London 2001.
- Fetscherin, Werner, *Beitrag zur Geschichte der Baumwollindustrie im Alten Bern*, Weinfelden 1924.
- Finanzverwaltung des Kantons Bern, *Neues Rechnungsmodell NRM. Ein schweizerisches Modell für den Kanton Bern*, Bern c. 1989.
- Finkelstein, Andrea, *Harmony and the Balance. An Intellectual History of Seventeenth-Century English Economic Thought*, Ann Arbor 2000.
- Fischer, Emanuel Friedrich von, *Rückblicke eines alten Berners*, Bern 1868.
- Fischer, Hans Rudolf von, *Die Politik des Schultheissen Johann Friedrich Willading (1641-1718)*, Bern 1927.
- Flood, Robert P. and Garber, Peter M., *Speculative Bubbles, Speculative Attacks, and Policy Switching*, Cambridge (MAS) 1994.
- Flouck, François et al. (eds.), *De l'Ours à la Cocarde. Régime bernois et révolution en pays de Vaud (1536-1798)*, Lausanne 1998.
- Flückiger, Erika and Radeff, Anne, 'Globale Ökonomie im alten Staat Bern am Ende des Ancien Régime - Eine aussergewöhnliche Quelle', in: *Berner Zeitschrift für Geschichte und Heimatkunde* 62 (2000): 5-40.
- Flückiger Strebel, Erika, *Zwischen Wohlfahrt und Staatsökonomie. Armenfürsorge auf der bernischen Landschaft im 18. Jahrhundert*, Zürich 2002.
- Flückiger Strebel, Erika, 'Die Armenfürsorge Worbs aus finanzieller Perspektive', in: Heinrich Richard Schmidt (ed.), *Worber Geschichte*, Bern 2005: 138-146.
- Fluri, Adolf, 'Kulturgeschichtliche Mitteilungen aus den bernischen Staatsrechnungen des XVIII. Jahrhunderts', in: *Berner Tagblatt* (1917).
- Fluri, Adolf, 'Die Siegel der Stadt Bern', in: *Blätter für bernische Geschichte, Kunst und Altertumskunde* 20 (1924): 257-300.
- Fouquet, Gerhard, 'Gemeindefinanzen und Fürstenstaat in der Frühen Neuzeit: Die Haushaltrechnungen des kurpfälzischen Dorfes Dannstadt (1739-1797)', in: *Zeitschrift für die Geschichte des Oberrheins* 136 (1988): 247-291.
- Fritschy, Wantje, 'A 'Financial History' Revisited: Public Finance in Holland During the Dutch Revolt, 1568-1648', in: *Economic History Review* 56 (2003): 57-89.
- Fuchs, Rudolf, *Die Wiener Stadtbank. Ein Beitrag zur österreichischen Finanzgeschichte des 18. Jahrhunderts*, Frankfurt a.M. 1998.

- Furrer, Norbert, 'La monnaie lausannoise à l'époque moderne', in: *Revue Historique Vaudoise* 100 (1992): 103-128.
- Furrer, Norbert, *Das Münzgeld der Alten Schweiz. Grundriss*, Zürich 1995.
- Gaillard, Charles, *La Conquête du Pays de Vaud Bernois*, Lausanne 1935.
- Gallard, Bertil, *Encyclopédie illustrée du Pays de Vaud*, 12 Vols, Lausanne 1970-87.
- Garber, Peter M., *Famous First Bubbles. The Fundamentals of Early Manias*, Cambridge 2000.
- Geiser, Karl, *Die Verfassung des alten Bern*, Bern 1891.
- Geiser, Karl, *Rückblick auf die Entwicklung der wirtschaftlichen Verhältnisse im Kanton Bern*, Thun 1899.
- Geiser, Karl, 'Bern unter dem Regiment des Patriziates', in: *Archiv des Historischen Vereins des Kantons Bern* 32 (1932): 86-112.
- Gelabert, Juan, 'The Fiscal Burden', in: Richard Bonney (ed.), *Economic Systems and State Finance*, Oxford 1995: 539-576.
- Gerhard, Dietrich, *Old Europe. A Study of Continuity, 1000-1800*, New York 1981.
- Gern, Philippe, *Aspects des relations Franco-Suisses au temps de Louis XVI. Diplomatie - économie - finances*, Neuchâtel 1970.
- Gerschenkron, Alexander, *Economic Backwardness in Historical Perspective*, Cambridge 1962.
- Gilbert, Felix (ed.), *The Historical Essays of Otto Hintze*, New York 1975.
- Gmür, Rudolf, *Der Zehnt im Alten Bern*, Bern 1954.
- Graf-Fuchs, Margret, *Das Gewerbe und sein Recht in der Landschaft Bern bis 1798*, Bern 1940.
- Greif, Avner, 'Contracting, Enforcement, and Efficiency: Economics beyond the Law', in: *Annual World Bank Conference on Development Economics* (1996): 239-265.
- Greif, Avner, 'Commitment, Coercion, and Markets: the Nature and Dynamics of Institutions Supporting Exchange', in: Claude Ménard and Mary Shirley (eds.), *Handbook of New Institutional Economics*, Dordrecht 2005: 727-786.
- Greif, Avner, *Institutions and the Path to the Modern Economy. Lessons from Medieval Trade*, Cambridge 2006.
- Grosjean, Georges, 'Miliz und Kriegsgenügen als Problem im Wehrwesen des alten Bern', in: *Archiv des Historischen Vereins des Kantons Bern* 42 (1953): 127-171.
- Gruner, Johann Rudolf, *Deliciae Urbis Bernae. Merckwürdigkeiten der hochlöbl. Stadt Bern. Aus mehrenteils ungedruckten authentischen Schrifften zusammen getragen*, Zürich 1732.
- Guggisberg, Paul, 'Der bernische Salzhandel', in: *Archiv des Historischen Vereins des Kantons Bern* 32 (1933): 1-83.
- Hagnauer, Stephan, 'Die Auswertung von Textquellen und quantifizierbaren Daten in einem textorientierten Datenverarbeitungskonzept', in: Sébastien Guex; Martin Körner and Jakob Tanner (eds.), *Staatsfinanzierung und Sozialkonflikte (14.-20. Jh)*, Zürich 1994: 87-104.
- Hagnauer, Stephan, *Die Finanzhaushalte der Bernischen Ämter Aarberg, Büren, Erlach und Nidau in den Jahren 1631-1635 und 1681-1685. Elemente zur Geschichte der Bernischen Staatsfinanzen (unpublished Lic Phil thesis)*, Bern 1995.
- Hagnauer, Stephan and Bartlome, Niklaus, 'Vom Quellentext zur Datenbank - ein Konzept zur integrierten Verarbeitung quantitativer und qualitativer Daten', in: *Geschichte und Informatik* 9 (1998): 141-158.

- Hamilton, Earl J., 'Origin and Growth of the National Debt in Western Europe', in: *American Economic Review* 37 (1947): 118-130.
- Haner, F.T. and Ewing, John S., *Country Risk Assessment: Theory and Worldwide Practice*, New York 1985.
- Hart, Marjolein 't, 'The United Provinces, 1579-1806', in: Richard Bonney (ed.), *The Rise of the Fiscal State in Europe, c. 1200-1815*, Oxford 1999: 309-325.
- Hart, Marjolein 't; Jonker, Joost and Zanden, Jan Luiten van (eds.), *A Financial History of the Netherlands*, Cambridge 1997.
- Hart, Oliver, *Firms, Contracts, and Financial Structure*, Oxford 1995.
- Häusler, Fritz, *Die alten Dorfmärkte des Emmentals*, Langnau 1986.
- HBLs, *Historisch-Biographisches Lexikon der Schweiz*, 7 Vols, Neuchâtel 1921-1934.
- Helleiner, Karl F., 'The Population of Europe from the Black Death to the Eve of the Vital Revolution', in: E. E. Rich and C. H. Wilson (eds.), *The Cambridge Economic History of Europe*, Cambridge 1967: 1-95.
- Henning, Friedrich-Wilhelm, 'Die preussische Thesaurierungspolitik im 18. Jahrhundert', in: Ingomar Bog et al. (eds.), *Wirtschaftliche und soziale Strukturen im saekularen Wandel. Festschrift für Wilhelm Abel zum 70. Geburtstag*, Hannover 1974: 399-416.
- Henshall, Nicholas, *The Myth of Absolutism. Change and Continuity in Early European Monarchy*, New York 1992.
- HLS, *Historisches Lexikon der Schweiz [online version]*, 12 Vols, Basel 2002.
- Hocquet, Jean-Claude, 'City-State and Market Economy', in: Richard Bonney (ed.), *Economic Systems and State Finance*, Oxford 1995: 81-100.
- Hocquet, Jean-Claude, 'Venice', in: Richard Bonney (ed.), *The Rise of the Fiscal State in Europe, c. 1200-1815*, Oxford 1999: 381-415.
- Hoffman, Philip T. and Norberg, Kathryn (eds.), *Fiscal Crises, Liberty, and Representative Government, 1450-1789*, Stanford 1994.
- Hoffman, Philip T.; Postel-Vinay, Gilles and Rosenthal, Jean-Laurent, 'Information and Economic History: How the Credit Market in Old Regime Paris Forces Us to Rethink the Transition to Capitalism', in: *American Historical Review* 104 (1999): 69-94.
- Hoffman, Philip T.; Postel-Vinay, Gilles and Rosenthal, Jean-Laurent, *Priceless Markets. The Political Economy of Credit in Paris, 1660-1870*, Chicago 2000.
- Holenstein, André, '"Vermeintliche Freiheiten und Gerechtigkeiten". Struktur- und Kompetenzkonflikte zwischen lokalem Recht und obrigkeitlicher "Policey" im bernischen Territorium des 16./17. Jahrhunderts', in: Heinrich Richard Schmidt; André Holenstein and Andreas Würzler (eds.), *Gemeinde, Reformation, Widerstand. Festschrift für Peter Blickle zum 60. Geburtstag*, Tübingen 1998: 69-84.
- Holenstein, André, 'Politische Partizipation und Repräsentation von Untertanen in der alten Eidgenossenschaft. Städtische Ämteranfragen und ständische Verfassungen im Vergleich', in: Peter Blickle (ed.), *Landschaften und Landstände in Oberschwaben*, Tübingen 2000: 223-249.
- Holenstein, André, 'Der Bauernkrieg von 1653. Ursachen, Verlauf und Folgen einer gescheiterten Revolution', in: *Berner Zeitschrift für Geschichte und Heimatkunde* 66 (2004): 1-43.
- Holenstein, André, 'Die Gemeinde Worb im Ancien Régime - Institutionen und Lebenswelten der lokalen Gesellschaft', in: Heinrich Richard Schmidt (ed.), *Worber Geschichte*, Bern 2005: 262-280.
- Holenstein, André (ed.), *Berns mächtige Zeit. Das 16. und 17. Jahrhundert neu entdeckt*, Bern 2006.

- Hont, Istvar, 'The Rhapsody of Public Debt: David Hume and Voluntary State Bankruptcy', in: Nicholas Phillipson and Quentin Skinner (eds.), *Political Discourse in Early Modern Britain*, Cambridge 1993: 321-348.
- Hoppit, Julian, 'Financial Crises in Eighteenth-Century England', in: *Economic History Review* 39 (1986): 39-58.
- Hoppit, Julian, 'Attitudes to Credit in Britain, 1680-1790', in: *Historical Journal* 33 (1990): 305-322.
- Hubler, Lucienne, *Histoire du pays de Vaud*, Lausanne 1991.
- Hudson, Pat, *History by Numbers. An Introduction to Quantitative Approaches*, London 2000.
- Hume, David, 'Of Public Credit', in: Knud Haakonssen (ed.), *David Hume. Political Essays*, Cambridge 1994: 166-178.
- Im Hof, Ulrich, 'Ancien Régime', in: *Handbuch der Schweizer Geschichte*, Zürich 1977: 675-784.
- Ineichen, Andreas, 'Bäuerliche Verschuldung im Ancien Régime: Das Beispiel Ebikon (bei Luzern) um 1690', in: *Schweizerische Zeitschrift für Geschichte* 42 (1992): 69-93.
- Ineichen, Andreas, *Innovative Bauern. Einhegungen, Bewässerung und Waldteilungen im Kanton Luzern im 16. und 17. Jahrhundert*, Luzern 1996.
- Ingrao, Charles W., *The Hessian Mercenary State. Ideas, Institutions and Reform under Frederick II, 1760-1785*, Cambridge 1987.
- Isenmann, Eberhard, 'Medieval and Renaissance Theories of State Finance', in: Richard Bonney (ed.), *Economic Systems and State Finance*, Oxford 1995: 21-52.
- Jacks, David S., 'Market Integration in the North Baltic Seas, 1500-1800', in: *Journal of European Economic History* 33 (2004): 285-329.
- Kapossy, Béla, 'Le prix de la liberté: idéologie républicaine et finances publiques à Berne au XVIIIe siècle', in: François Flouck et al. (eds.), *De l'Ours à la Cocarde. Régime bernois et révolution en pays de Vaud (1536-1798)*, Lausanne 1998: 143-161.
- Kapossy, Béla, 'Neo-Roman Republicanism and Commercial Society: The Example of Eighteenth-century Berne', in: Martin van Gelderen and Quentin Skinner (eds.), *Republicanism. A Shared European Heritage*, Cambridge 2002: 227-247.
- Keller, Hans Gustav, *Christoph von Graffenried und die Gründung von Neu-Bern in Nord-Carolina*, Bern 1953.
- Kellerhals, Andreas, *Weisst du, wieviel Sternlein stehen? Die protostatistischen Erhebungen im Kanton Bern zwischen 1528 und 1831 (unpublished Lic Phil thesis)*, Bern 1984.
- Kellerhals-Maeder, Andreas; Klöti, Thomas and König, Karl, *Bevor die Post verstaatlicht wurde. Die Post der Fischer 1675-1832*, Bern 1991.
- Kennedy, Paul, *The Rise and Fall of the Great Powers*, London 1989.
- Kindleberger, Charles P., *Manias, Panics, and Crashes. A History of Financial Crises*, Basingstoke 1989.
- Kindleberger, Charles P. and Laffargue, Jean-Pierre, *Financial Crises: Theory, History, and Policy*, Cambridge 1982.
- Kiser, Edgar, 'Markets and Hierarchies in Early Modern Tax Systems: A Principal-Agent Analysis', in: *Politics & Society* 22 (1994): 284-315.
- Klöti, Thomas, *Die Post: Ein "Geschäft" - für wen? Geschichte des bernischen Postwesens von 1648-1798 und Johann Friedrich Ryhiners "Bericht über das Postwesen in Helvetien, 1793"*, Bern 1990.
- Kohn, Meir G., *Financial Institutions and Markets*, Oxford 2004.

- Körner, Martin, *Solidarités financières suisses au XVIe siècle. Contribution à l'histoire monétaire, bancaire et financière des cantons suisses et des états voisins*, Lausanne 1980.
- Körner, Martin, *Luzerner Staatsfinanzen. 1415-1798. Strukturen, Wachstum, Konjunktoren*, Luzern 1981.
- Körner, Martin, 'Geschichte und Zoologie Interdisziplinär: Feld- und Schermäuse in Solothurn 1538-1643. Ein Beitrag zur historischen Demographie wild lebender Tierarten', in: *Jahrbuch für Solothurnische Geschichte* 66 (1993): 441-454.
- Körner, Martin, 'Das System der Jahrmärkte und Messen in der Schweiz', in: *Jahrbuch für Regionalgeschichte* 19 (1993/94): 13-34.
- Körner, Martin, 'Steuern und Abgaben in Theorie und Praxis im Mittelalter und in der frühen Neuzeit', in: Eckart Schremmer (ed.), *Steuern, Abgaben und Dienste vom Mittelalter bis zur Gegenwart*, Stuttgart 1994: 53-76.
- Körner, Martin, 'Expenditure', in: Richard Bonney (ed.), *Economic Systems and State Finance*, Oxford 1995a: 393-422.
- Körner, Martin, 'Public Credit', in: Richard Bonney (ed.), *Economic Systems and State Finance*, Oxford 1995b: 507-538.
- Körner, Martin, 'Berns Staatsfinanzen vom 15. bis zum 18. Jahrhundert. Ein Forschungsprojekt an der Universität Bern', in: *Berner Zeitschrift für Geschichte und Heimatkunde* 59 (1997): 324-326.
- Körner, Martin, 'The Swiss Confederation', in: Richard Bonney (ed.), *The Rise of the Fiscal State in Europe, c. 1200-1815*, Oxford 1999: 327-357.
- Körner, Martin; Furrer, Norbert and Bartlome, Niklaus, *Währungen und Sortenkurse in der Schweiz 1600-1799*, Lausanne 2001.
- Kriedte, Peter; Medick, Hans and Schlumbohm, Jürgen, *Industrialisierung vor der Industrialisierung: gewerbliche Warenproduktion auf dem Land in der Formationsphase des Kapitalismus*, Göttingen 1977.
- Krüger, Kersten, *Finanzstaat Hessen 1500-1567. Staatsbildung im Übergang vom Domänenstaat zum Steuerstaat*, Marburg 1980.
- Krüger, Kersten, 'Gerhard Oesterreich und der Finanzstaat. Entstehung und Deutung eines Epochenbegriffs der frühneuzeitlichen Verfassungs- und Sozialgeschichte', in: *Hessisches Jahrbuch für Landesgeschichte* 33 (1983): 333-346.
- Krüger, Kersten, 'Public Finance and Modernisation: The Change from Domain State to Tax State in Hesse in the Sixteenth and Seventeenth Centuries - a Case Study', in: Peter-Christian Witt (ed.), *Wealth and Taxation in Central Europe. The History and Sociology of Public Finance*, Leamington Spa 1987: 49-62.
- Kümin, Beat, 'Useful to Have, but Difficult to Govern. Inns and Taverns in Early Modern Bern and Vaud', in: *Journal of Early Modern History* 3 (1999): 153-175.
- Kümin, Beat and Radeff, Anne, 'Markt-Wirtschaft. Handelsinfrastruktur und Gastgewerbe im alten Bern', in: *Schweizerische Zeitschrift für Geschichte* 50 (2000): 1-19.
- Küng, Markus, *Die Bernische Asyl- und Flüchtlingspolitik am Ende des 17. Jahrhunderts*, Genève 1993.
- Kupfer, E., 'Le mémorial d'un bailli de Morges au dix-huitième siècle', in: *Revue Historique Vaudoise* 47 (1947): 65-78.
- Landes, David S., *The Wealth and Poverty of Nations. Why Some are So Rich and Others are So Poor*, London 1998.
- Landmann, Julius, 'Die auswärtigen Kapitalanlagen aus dem Berner Staatsschatz im XVIII. Jahrhundert. Eine finanzhistorische Studie (Teil 1)', in: *Jahrbuch für schweizerische Geschichte* 28 (1903): 1-128.

- Landmann, Julius, 'Die auswärtigen Kapitalanlagen aus dem Berner Staatsschatz im XVIII. Jahrhundert. Eine finanzhistorische Studie (Teil 2)', in: *Jahrbuch für Schweizer Geschichte* 29 (1904): 1-91.
- Landmann, Julius, *Leu & Co. 1755-1905. Ein Beitrag zur Geschichte der öffentlichen und privaten Kreditorganisation*, Zürich 1905.
- Landolt, Niklaus, 'Die Steuerunruhen von 1641 im Staate Bern', in: *Berner Zeitschrift für Geschichte und Heimatkunde* 52 (1990): 129-178.
- Lane, Frederic C., 'Economic Consequences of Organized Violence', in: *Journal of Economic History* 18 (1958): 401-417.
- Lane, Frederic C., *Profits from Power. Readings in Protection Rent and Violence-controlling Enterprises*, Albany 1979.
- Leboutte, René, *Proto-industrialisation. Recherches récentes et nouvelles perspectives. Mélanges en souvenir de Franklin Mendels*, Genève 1996.
- Lee, W. Robert, 'Zur Bevölkerungsgeschichte Bayerns 1750-1850: Britische Forschungsergebnisse', in: *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte* 62 (1975): 309-338.
- Lerch, Ernst, *Der Bernische Kommerzienrat im 18. Jahrhundert*, Tübingen 1908.
- Leuenberger-Binggeli, Jolanda, 'Die Berner Deutsch-Seckelmeister und ihre Standesrechnung', in: *Berner Zeitschrift für Geschichte und Heimatkunde* 61 (1999): 153-186.
- Levi, Margaret, *Of Rule and Revenue*, Berkeley 1988.
- Levine, Ross, 'The Legal Environment, Banks, and Long-Run Economic Growth', in: *Journal of Money, Credit, and Banking* 30 (1998): 596-613.
- Levy, Jack S., *War in the Modern Great Power System*, Lexington 1983.
- Lewis, W. Arthur, 'Economic Development with Unlimited Supplies of Labour', in: *Manchester School of Economic and Social Studies* 22 (1954): 139-191.
- Lewis, W. Arthur, *The Theory of Economic Growth*, Homewood (Ill.) 1955.
- Liebcap, Gary D., *Contracting for Property Rights*, Cambridge 1989.
- Linder, Nikolaus, "'Diess Jahr hat das grosse Unglück so allerorten in Franckreich, Engelland, Holland, Genf um sich gegriffen..." Zu den Gründen für den Bankrott der ersten Berner Bank 1720', in: Hans-Jörg Gilomen; Margrit Müller and Béatrice Veyrassat (eds.), *Globalisierung - Chancen und Risiken. Die Schweiz und die Weltwirtschaft im 20. Jahrhundert*, Zürich 2003: 87-98.
- Linder, Nikolaus, *Die Berner Bankenkrise von 1720 und das Recht. Eine Studie zur Rechts-, Banken- und Finanzgeschichte der Alten Schweiz*, Zürich 2004.
- Lüthy, Herbert, *La banque protestante en France. De la révocation de l'édit de Nantes à la révolution*, 2 Vols, Paris 1959.
- Mann, Michael, *The Sources of Social Power*, 2 Vols, Cambridge 1986-1993.
- Mann, Michael, *States, War and Capitalism: Studies in Political Sociology*, Oxford 1988.
- Markowitz, Harry M., 'The Utility of Wealth', in: *Journal of Political Economy* 59 (1952): 151-157.
- Markowitz, Harry M., *Portfolio Selection: Efficient Diversification of Investments*, Wiley 1959.
- Mathias, Peter and O'Brien, Patrick K., 'Taxation in Britain and France, 1715-1810: A Comparison of the Social and Economic Incidence of Taxes Collected for the Central Governments', in: *Journal of European Economic History* 5 (1976): 601-650.

- Mathias, Peter and O'Brien, Patrick K., 'The Incidence of Taxes and the Burden of Proof', in: *Journal of European Economic History* 7 (1978): 211-213.
- McCloskey, Donald N., 'A Mismeasurement of the Incidence of Taxation in Britain and France, 1715-1810', in: *Journal of European Economic History* 7 (1978): 209-210.
- McCusker, John J., *Money and Exchange in Europe and America, 1600-1775. A Handbook*, London 1978.
- McMillan, John, *Games, Strategies, and Managers*, New York 1992.
- Meier, Thomas, *Handwerk, Hauswerk, Heimarbeit: nicht-agrarische Tätigkeiten und Erwerbsformen in einem traditionellen Ackerbaugebiet des 18. Jahrhunderts (Zürcher Unterland)*, Zürich 1986.
- Mendels, Franklin F., 'Proto-industrialisation: The First Phase of the Industrialisation Process', in: *Journal of Economic History* 32 (1972): 241-261.
- Mensi, Franz Freiherr von, *Die Finanzen Oesterreichs von 1710 bis 1740. Nach archivalischen Quellen dargestellt*, Wien 1890.
- Mercier-Campiche, Marianne, *L'affaire Davel*, Lausanne 1970.
- Mesmer, Beatrix, 'Die Bevölkerung', in: Peter Meyer (ed.), *Illustrierte Berner Enzyklopädie*, Wabern-Bern 1987: 158-169.
- Messerli, Paul and Egli, Hans-Rudolf, 'Der Staat Bern - vom grössten Stadtstaat nördlich der Alpen zum Teil des Espace Mittelland', in: *Geographische Rundschau* (2003): 12-19.
- Milgrom, Paul A. and Roberts, John, *Economics, Organization, and Management*, Englewood Cliffs 1992.
- Mitchell, B. R. (ed.), *International Historical Statistics: Europe, 1750-2000*, Basingstoke 2003.
- Molho, Anthony, 'The State and Public Finance: A Hypothesis Based on the History of Late Medieval Florence', in: *Journal of Modern History* 67 (1995): 97-135.
- Monbaron, Patrick-R., 'Mesures céréalières d'Ancien Régime: la diversité vaudoise', in: *Revue Historique Vaudoise* 100 (1992): 65-102.
- Monbaron, Patrick-R., 'La conquête bernoise: des redevances vaudoises: la politique du "hâte-toi lentement"', in: François Flouck et al. (eds.), *De l'Ours à la Cocarde. Régime bernois et révolution en pays de Vaud (1536-1798)*, Lausanne 1998a: 117-141.
- Monbaron, Patrick-R., 'Parti pris', in: François Flouck et al. (eds.), *De l'Ours à la Cocarde. Régime bernois et révolution en pays de Vaud (1536-1798)*, Lausanne 1998b: 37-41.
- Monter, William E., 'Swiss Investment in England, 1697-1720', in: *Revue Internationale d'Histoire de la Banque* 2 (1969): 285-298.
- Muldrew, Craig, *The Economy of Obligation. The Culture of Credit and Social Relations in Early Modern England*, New York 1998.
- Mülinen, W.J. von, 'Law und Malacrida', in: *Neues Berner Taschenbuch* (auf das Jahr 1897) (1896): 137-162.
- Näf, Werner, 'Frühformen des 'modernen Staates' im Spätmittelalter', in: Hans Hoffmann (ed.), *Die Entstehung des Modernen Staates*, Köln 1967: 101-114.
- Neal, Larry, *The Rise of Financial Capitalism. International Capital Markets in the Age of Reason*, Cambridge 1990.
- Neal, Larry, 'How it All Began: the Monetary and Financial Architecture of Europe during the First Global Capital Markets, 1648-1815', in: *Financial History Review* 7 (2000): 117-140.

- Neal, Larry and Quinn, Stephen, 'Networks of Information, Markets, and Institutions in the Rise of London as a Financial Centre, 1660-1720', in: *Financial History Review* 8 (2001): 7-26.
- Neal, Larry and Weidmenmier, Marc, *Crises in the Global Economy from Tulips to Today: Contagion and Consequences (NBER Working Paper w9147)* 2002.
- Norrmann, Gerhard Philipp Heinrich, *Geographisch-statistische Darstellung des Schweizerlandes mit beständiger Rücksicht auf physikalische Beschaffenheit, Produkte, Industrie, Handlung und Staatswirtschaft*, 4 Vols, Hamburg 1795.
- North, Douglass C., *Institutions, Institutional Change and Economic Performance*, Cambridge 1990.
- North, Douglass C., 'Institutions, Transaction Costs, and the Rise of Merchant Empires', in: James D. Tracy (ed.), *The Political Economy of Merchant Empires*, Cambridge 1991: 22-40.
- North, Douglass C., 'Institutions and Credible Commitment', in: *Journal of Institutional and Theoretical Economics* 149 (1993): 11-24.
- North, Douglass C. and Thomas, Paul, *The Rise of the Western World. A New Economic History*, Cambridge 1973.
- North, Douglass C. and Weingast, Barry R., 'Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England', in: *Journal of Economic History* 49 (1989): 803-832.
- O'Brien, Patrick K., 'The political economy of British taxation, 1600-1815', in: *Economic History Review* 41 (1988): 1-32.
- O'Brien, Patrick K., 'Central Government and the Economy', in: Roderick Floud and Donald N. McCloskey (eds.), *The Economic History of Britain since 1700*, Cambridge 1994: 205-241.
- O'Brien, Patrick K., *Fiscal Exceptionalism: Great Britain and its European Rivals. From Civil War to Triumph at Trafalgar and Waterloo (LSE Economic History Working Paper 65/01)*, London 2001.
- O'Brien, Patrick K. and Hunt, Philip A., 'England, 1485-1815', in: Richard Bonney (ed.), *The Rise of the Fiscal State in Europe, c. 1200-1815*, Oxford 1999: 53-100.
- Oesterreich, Gerhard, 'Strukturprobleme des Absolutismus', in: *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte* 55 (1968): 329-347.
- Ogilvie, Sheilagh C. and Cerman, Markus, *European Proto-Industrialization*, Cambridge 1996.
- Olivier, Juste, *Le Canton de Vaud, sa vie et son histoire*, 2 Vols, Lausanne 1837.
- Olson, Mancur, *The Logic of Collective Action. Public Goods and the Theory of Groups*, Cambridge MA 1965.
- Olson, Mancur, *The Rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities*, New Haven 1982.
- Oncken, August, *Der ältere Mirabeau und die Oekonomische Gesellschaft in Bern. Rektoratsrede, gehalten am Stiftungsfeste der Universität Bern den 14. November 1885*, Bern 1886.
- Ortuba, Gustav, *Die Wirtschaftspolitik Maria Theresias*, Wien 1963.
- Ortuba, Gustav, 'Bericht über eine im Auftrag der mährischen Lehensbank durchgeführten Kommerzialreise - eine zeitgenössische Bestandsaufnahme zur Wirtschaftslage mitteleuropäischer Städte um die Mitte des 18. Jahrhunderts', in: *Jahrbuch für Wirtschaftsgeschichte* 3 (1975): 269-297.

- Parker, Geoffrey, *The Military Revolution. Military Innovation and the Rise of the West, 1500-1800*, Cambridge 1996.
- Paul, Helen, *The South Sea Company's Slaving Activities (Economic History Society Young Researchers Paper)* 2004.
- Pelet, Paul-Louis, 'L'économie vaudoise à la fin de l'Ancien Régime, ou la propriété sans manufactures', in: François Flouck et al. (eds.), *De l'Ours à la Cocarde. Régime bernois et révolution en pays de Vaud (1536-1798)*, Lausanne 1998: 163-172.
- Perkins, Edwin J., 'Review of: J.W. Markham, *A Financial History of the United States (Amrok, 2002)*', in: *H-Business (newsletter)* 1 August (2003).
- Persson, Karl Gunnar, "*Mind the Gap!*" *Transport Costs and Price Convergence in the 19th Century Atlantic Economy (Discussion Paper, Institute of Economics, University of Copenhagen, Version 02-02)* 2002.
- Peyer, Hans Conrad, *Von Handel und Bank im alten Zürich*, Zürich 1968.
- Peyer, Hans Conrad, *Verfassungsgeschichte der alten Schweiz*, Zürich 1978.
- Pezzolo, Luciano, *Il Fisco dei Veneziani: Finanza Pubblica ed Economia tra XV e XVII Secolo*, Verona 2003a.
- Pezzolo, Luciano, 'The Venetian government debt 1350-1650', in: P. Janssens; K. Davids and M. Boone (eds.), *Urban Public Debts in Europe*, Leuven 2003b: 81-95.
- Pfister, Christian, *Agrarkonjunktur und Witterungsverlauf im westlichen Schweizer Mittelland zur Zeit der Ökonomischen Patrioten 1755-1797. Ein Beitrag zur Wirtschaftsgeschichte des 18. Jahrhunderts*, Bern 1975.
- Pfister, Christian, 'Climate and Economy in Eighteenth-Century Switzerland', in: *Journal of Interdisciplinary History* 9 (1978): 223-243.
- Pfister, Christian, *Das Klima der Schweiz von 1525-1860 und seine Bedeutung in der Geschichte der Bevölkerung und Landwirtschaft*, 2 Vols, Bern 1984.
- Pfister, Christian, *Im Strom der Modernisierung. Bevölkerung, Wirtschaft und Umwelt 1700-1914*, Bern 1995.
- Pfister, Christian and Egli, Hans-Rudolf (eds.), *Historisch-statistischer Atlas des Kantons Bern, 1750-1995: Umwelt, Bevölkerung, Wirtschaft und Politik*, Bern 1998.
- Pfister, Christian and Kellerhals, Andreas, 'Verwaltung und Versorgung im Landgericht Sternenberg. Mit einem Exkurs über die Verteilung von Grundbesitz und Getreidevorrat in der Kirchgemeinde Bolligen', in: *Berner Zeitschrift für Geschichte und Heimatkunde* 51 (1989): 151-215.
- Pfister, Ulrich, *Die Zürcher Fabriques. Protoindustrielles Wachstum vom 16. zum 18. Jahrhundert*, Zürich 1992a.
- Pfister, Ulrich, 'Politischer Klientelismus in der frühneuzeitlichen Schweiz', in: *Schweizerische Zeitschrift für Geschichte* 42 (1992b): 26-68.
- Pfister, Ulrich, 'Le petit crédit rural en Suisse au XVIe-XVIIIe siècles', in: *Annales HSS* 49 (1994): 1339-1357.
- Pfister, Ulrich, 'A General Model of Proto-Industrial Growth', in: René Leboutte (ed.), *Proto-industrialisation. Recherches récentes et nouvelles perspectives. Mélanges en souvenir de Franklin Mendels*, Genève 1996a: 73-92.
- Pfister, Ulrich, 'Proto-industrialization in Switzerland', in: Sheilagh C. Ogilvie and Markus Cerman (eds.), *European Proto-Industrialization*, Cambridge 1996b: 137-154.
- Pfister, Willy, 'Getreide- und Weizenzehnten 1565-1798 und Getreidepreise 1565-1770 im bernischen Aargau', in: *Argovia* 52 (1940): 237-264.
- Pfister, Willy, *Aargauer in fremden Kriegsdiensten*, 2 Vols, Aarau 1980-84.

- Pfister, Willy, 'Die bernischen Soldregimenter im 18. Jahrhundert', in: *Berner Zeitschrift für Geschichte und Heimatkunde* 45 (1983): 1-72.
- Poggi, Gianfranco, *The Development of the Modern State. A Sociological Introduction*, Stanford 1978.
- Prak, Maarten, 'Early Modern Capitalism: an Introduction', in: Maarten Prak (ed.), *Early Modern Capitalism. Economic and Social Change in Europe, 1400-1800*, London 2001.
- Radeff, Anne, 'Des boutiquiers révoltés. Commerce rural et patents dans l'ancien Etat de Berne à la fin du 18e siècle. Commerce et fiscalité', in: Sébastien Guex; Martin Körner and Jakob Tanner (eds.), *Staatsfinanzierung und Sozialkonflikte (14.-20. Jh)*, Zürich 1994: 185-207.
- Radeff, Anne, *Du café dans le chaudron. Économie globale d'ancien régime. Suisse occidentale, Franche-Comté et Savoie*, Lausanne 1996.
- Reinhard, Wolfgang, 'Introduction: Power Elites, State Servants, Ruling Classes, and the Growth of State Power', in: Wolfgang Reinhard (ed.), *Power Elites and State Building*, Oxford 1996a: 1-18.
- Reinhard, Wolfgang (ed.), *Power Elites and State Building*, Oxford 1996b.
- Reinhard, Wolfgang, *Geschichte der Staatsgewalt. Eine vergleichende Verfassungsgeschichte Europas von den Anfängen bis zur Gegenwart*, München 1999.
- Remak, Joachim, *A Very Civil War. The Swiss Sonderbund War of 1847*, Boulder 1993.
- Ritzmann, Franz, *Die Schweizer Banken. Geschichte - Theorie - Statistik*, Bern 1973.
- Rodgers, Clifford J. (ed.), *The Military Revolution Debate: Readings on the Military Transformation of Early Modern Europe*, Boulder 1995.
- Rodt, Emanuel von, *Geschichte des Bernischen Kriegswesens. Von der Gründung der Stadt Bern bis zur Staatsumwälzung von 1798*, 2 Vols, Bern 1831-1834.
- Root, Hilton L., 'The Redistributive Role of Government Economic Regulation in Old Régime France and England', in: *Comparative Studies in Society and History* 33 (1991): 338-369.
- Roseveare, Henry, *The Treasury. The Evolution of a British Institution*, London 1969.
- Roseveare, Henry, *The Financial Revolution 1660-1760*, London 1991.
- Ryser, Rudolf, *Die Besoldungspolitik des Staates Bern von 1750 bis 1950*, Bern 1956.
- Sayous, André-E., 'La crise financière de 1709 à Genève', in: *Bulletin de la Société d'histoire et d'archéologie de Genève* 6 (1935): 354-383.
- Sayous, André-E., 'L'affaire de Law et les Genevois', in: *Zeitschrift für Schweizerische Geschichte* 17 (1937): 310-350.
- Scheuermeier-Poglajen, Jakob, *Die Rechnungen von Stadt und Schultheissenamt Burgdorf von den 1680er Jahren bis 1711*, Bern 1992.
- Schläppi, Daniel, *Die Zunftgesellschaft zu Schmieden in Bern zwischen Tradition und Moderne. Sozial-, struktur- und kulturgeschichtliche Aspekte von der Helvetik bis ins ausgehende 20. Jahrhundert*, Bern 2001.
- Schluchter, André, *Die Bevölkerung der Schweiz um 1800*, Bern 1988.
- Schmidt, Georg C.L., *Der Schweizer Bauer im Zeitalter des Frühkapitalismus. Die Wandlung der Schweizer Bauernwirtschaft im achtzehnten Jahrhundert und die Politik der Oekonomischen Patrioten*, 2 Vols, Bern 1932.
- Schmidt, Heinrich Richard (ed.), *Worber Geschichte*, Bern 2005.
- Schnabel, Isabel and Shin, Hyun Song, 'Liquidity and Contagion: The Crisis of 1763', in: *Journal of the European Economic Association* 2 (2004): 929-968.

- Schneider, Hedwig, *Die bernische Industrie- und Handelspolitik im 17. und 18. Jahrhundert*, Zürich 1937.
- Schneider, Jürgen et al. (eds.), *Währungen der Welt VI. Geld und Währungen in Europa im 18. Jahrhundert*, Stuttgart 1992.
- Schrötter, Friedrich Freiherr von (ed.), *Wörterbuch der Münzkunde*, Leipzig 1930.
- Schulze, Winfried, 'Gerhard Oesterreichs Begriff der Sozialdisziplinierung in der Frühen Neuzeit', in: *Zeitschrift für Historische Forschung* 14 (1987): 265-302.
- Schumpeter, Joseph A., 'The Crisis of the Tax State', in: *International Economic Papers* 4 (1954): 5-38.
- Schumpeter, Joseph A., *Essays: on Entrepreneurs, Innovations, Business Cycles, and the Evolution of Capitalism* (ed. by Richard V. Clemence), New Brunswick 1991.
- Schweizerisches Idiotikon (ed.), *Wörterbuch der schweizerdeutschen Sprache*, Frauenfeld 1881-present.
- Schwinges, Rainer C. (ed.), *Berns mutige Zeit. Das 13. und 14. Jahrhundert neu entdeckt*, Bern 2003.
- Scribner, Bob, 'Communities and the Nature of Power', in: Bob Scribner (ed.), *Germany. A New Social and Economic History*, London 1996: 291-325.
- Shea, Gary, *Rational Pricing of Options during the South Sea Bubble: Valuing the 22 August 1720 Options* (unpublished working paper) 2004a.
- Shea, Gary, *South Sea Company Subscription Shares and Warrant Values in 1720* (unpublished working paper) 2004b.
- Shea, Gary, 'Financial Market Analysis Can Go Mad (in the search for irrational behaviour during the South Sea Bubble)', in: *Economic History Review* (forthcoming-a).
- Shea, Gary, *Handbook of 18th Century and Early 19th Century British Corporate Finance* forthcoming-b.
- Siegrist, Jean-Jacques, 'Die Baumwollindustrie des 18. Jahrhunderts in der ehemaligen Herrschaft Hallwil', in: *Heimatkunde aus dem Seetal* 31 (1957).
- Smith, Adam, *An Inquiry into the Nature and Causes of the Wealth of Nations*, Oxford 1976.
- Spruyt, Hendrik, *The Sovereign State and Its Competitors*, Princeton 1994.
- Stasavage, David, *Public Debt and the Birth of the Democratic State: France and Great Britain, 1688-1789*, Cambridge 2003.
- Steiger, Carl Friedrich, 'Rede über die Errichtung der ausländischen Finanzen des Hohen Standes. Gehalten vor dem Hochlöblichen Äusseren Stand, den 26. Februar 1784 durch Carl Friedr. Steiger', in: *Berner Zeitschrift für Geschichte und Heimatkunde* 10 (1952): 26-39.
- Steiger, Christoph, *Innere Probleme des bernischen Patriziats an der Wende zum 18. Jahrhundert*, Bern 1954.
- Steiner, Peter, *Das Gericht Reinach zur Zeit der Berner Herrschaft*, Menziken 1956.
- Sugarman, David, *Law in History. Histories of Law and Society*, Aldershot 1996.
- Sussman, Nathan and Yafeh, Yishay, *Constitutions and Commitment: Evidence on the Relation between Institutions and the Cost of Capital*, unpublished working paper, Hebrew University of Jerusalem 2003.
- Suter, Andreas, *Der schweizerische Bauernkrieg von 1653. Politische Sozialgeschichte - Sozialgeschichte eines politischen Ereignisses*, Tübingen 1997.
- Suter, Andreas, 'Neutralität, Prinzip, Praxis und Selbstbewusstsein', in: Manfred Hettling et al. (eds.), *Eine kleine Geschichte der Schweiz*, Frankfurt a.M. 1998: 133-188.

- Sylla, Richard; Tilly, Richard and Tortella, Gabriel (eds.), *The State, the Financial System and Economic Modernization*, Cambridge 1999.
- Temin, Peter and Voth, Hans-Joachim, 'Riding the South Sea Bubble', in: *American Economic Review* 94 (2004): 1654-1668.
- Temin, Peter and Voth, Hans-Joachim, 'Credit Rationing and Crowding Out During the Industrial Revolution: Evidence from Hoare's Bank, 1702-1862', in: *Explorations in Economic History* 42 (2005): 325-348.
- Thomes, Paul, 'Kommunalhaushalte und Steuern im 17. und 18. Jahrhundert zwischen Funktionswandel der städtischen Aufgaben und Strukturwandel der städtischen Einnahmen', in: Eckart Schremmer (ed.), *Steuern, Abgaben und Dienste vom Mittelalter bis zur Gegenwart*, Stuttgart 1994: 91-108.
- Thomes, Paul, *Kommunale Wirtschaft und Verwaltung zwischen Mittelalter und Moderne*, Stuttgart 1995.
- Tillier, Anton von, *Geschichte des eidgenössischen Freistaates Bern von seinem Ursprunge bis zu seinem Untergange im Jahre 1798*, 6 Vols, Bern 1838-1840.
- Tilly, Charles (ed.), *The Formation of National States in Western Europe*, Princeton 1975.
- Tilly, Charles, *Coercion, Capital, and European States, AD 990-1992*, Cambridge MA 1992.
- Tracy, James D., *A Financial Revolution in the Habsburg Netherlands. Renten and Rentiers in the County of Holland, 1515-1565*, Berkeley 1985.
- Tuor, Robert, *Mass und Gewicht im Alten Bern*, Bern 1977.
- Utz, Hans, 'Liberty and Property. England im 18. Jahrhundert nach Berichten von Bernern', in: *Berner Zeitschrift für Geschichte und Heimatkunde* 54 (1992): 97-150.
- Verdeil, Auguste, *Histoire du Canton de Vaud*, 4 Vols, Lausanne 1849-1852.
- Verein Forschungsprojekt Aargau 1798, *Revolution im Aargau: Umsturz - Aufbruch - Widerstand 1798-1803*, Aarau 1997.
- Vettori, Arthur, *Finanzhaushalt und Wirtschaftsverwaltung Basels (1689-1798). Wirtschafts- und Lebensverhältnisse einer Gesellschaft zwischen Tradition und Umbruch*, Basel 1984.
- Veyrassat, Béatrice, *Négociants et fabricants dans l'industrie cotonnière suisse 1760-1840. Aux origines financières de l'industrialisation suisse*, Lausanne 1982.
- Wälchli, Karl Friedrich, 'Von der Reformation bis zur Revolution', in: Peter Meyer (ed.), *Berner, Deine Geschichte. Landschaft und Stadt Bern von der Urzeit bis zur Gegenwart (Illustrierte Berner Enzyklopädie: 3)*, Wabern-Bern 1981: 107-150.
- Wälchli, Karl Friedrich, 'Der bernische Landvogt im Aargau, am Beispiel von Obervogt Niklaus Emanuel Tscharner von Schenkenberg', in: *Argovia* 103 (1991): 108-113.
- Walter, Emil J., *Soziologie der Alten Eidgenossenschaft. Eine Analyse ihrer Sozial- und Berufsstruktur von der Reformation bis zur Französischen Revolution*, Bern 1966.
- Weber, Max, 'Die 'Objektivität' sozialwissenschaftlicher und sozialpolitischer Erkenntnis', in: *Archiv für Sozialwissenschaft* 19 (1904): 22-87.
- Weber, Max, *Economy and Society. An Outline of Interpretative Sociology*, Berkeley 1978.
- Weber, Silvia, *Les comptes du bailliage d'Yverdon. Observations et analyses des années 1635 à 1637, 1681 à 1683, 1731 à 1733, 1780 à 1782 (unpublished Lic Phil thesis)*, Lausanne 1997.
- Weingast, Barry R., 'Constitutions and Governance Structures. The Political Foundation of Secure Markets', in: *Journal of Institutional and Theoretical Economics* (1993): 286-312.
- Weir, David, 'Markets and Mortality in France, 1600-1789', in: John Walter and Roger Schofield (eds.), *Famine, Disease and the Social Order in Early Modern Society*, Cambridge 1989: 201-234.

Wilson, Charles, *Anglo-Dutch Commerce & Finance in the Eighteenth Century*, Cambridge 1941.

Wilson, Peter, 'European warfare 1450-1815', in: Jeremy Black (ed.), *War in the Early Modern World*, London 1999: 177-206.

Wittmann, Walter, *Einführung in die Finanzwissenschaft*, 4 Vols, Stuttgart 1970-74.

Würgler, Andreas, *Unruhen und Öffentlichkeit. Städtische und ländliche Protestbewegungen im 18. Jahrhundert*, Tübingen 1995.

Zeerleder, Albert, 'Die politische und literarische Mission des englischen Gesandten Abraham Stanyan in der Schweiz von 1705 bis 1713', in: *Berner Zeitschrift für Geschichte und Heimatkunde* 5 (1942): 87-102.

Zesiger, Alfred, *Das bernische Zunftwesen*, Bern 1910.