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Subsidizing the Federal German Economy -
Figures and Facts, 1973-1984

by

Karl H. Jüttemeier

Institut für Weltwirtschaft an der Universität Kiel

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Karl H. Jüttemeier
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1. Governmental policies of subsidizing the economy have become one of the most contentious issues on the international agenda throughout the past years. For a long time, the debate about the rights and wrongs of subsidization has often been conducted in the Federal Republic of Germany as though it were a peculiar non-German phenomenon rather applied by less market-oriented economies. Gradually, however, it is being realized how far this is from the truth, and that like many other countries the Federal Republic, too, established an intensive array of subsidy programmes.

At the Kiel Institute quite a lot of efforts have been undertaken to investigate the volume, the structure, and the effect of German subsidization policy. Since most of those studies were published in German language and since many inquiries from an English reading public turned out to come in, this summarising paper was started to meet the international demand. Meanwhile, calculations were improved and figures were updated, thus slight differences as against previous publications do occur.

1. Missing Transparency

2. In public discussion the German system of subsidization is quite often labelled as an impassable and ever expanding jungle. This predominant impression mainly arises from the fact that not only the Federal Government grants subsidies but also eleven federal states (Länder), hundreds of municipalities, various parafiscal institutions, and state-owned banks, all of them having developed and being constantly developing numerous subsidy programmes of their own. The total volume of subsidization as well as its benefitting recipients are officially documented nowhere.

Since 1967 the Federal Government is obliged by law to publish a report on her subsidies biannually [Deutscher Bundestag, a]. These reports list about 300 different programmes specified either as expenditure out of the federal budget or as tax relief; in different annexes some measures of state and local budgets are reported, as well. However, this official document does by no means set up a fairly clear picture of German subsidization policy. There are several shortcomings which restrict its information value [cf. OECD, 1983, pp. 120]. Not the least among these deficiencies is the lack of agreement as to what actually constitutes a subsidy. The Federal Government has changed her definition of subsidies several times in the past either because of a systematic revision of her way of reporting about them or on an ad-hoc basis, but after each revision, the new volumes of subsidization were shown to be smaller than before. According to these official reports the relative importance of subsidies (p.c. of GDP), granted by the Federal Government, has been declining since long whereas other sources of data really indicate the opposite.

The governmental documentation of subsidies and its selection criteria are widely based on political value judgements. Thus the initial prerequisite for a comprehensive analysis of subsidization policy needs a clarification of the definitial issue.

3. It should be noted that this paper owes its existence to a recent study on the structural performance of the German economy which was carried out for the Federal Government [Schmidt et al., 1984] and from which the bulk of data analyzed here is drawn. Within the setting of this project the Federal Government expected a full picture of subsidization policy covering even borderline cases. Actually, the definition chosen widely follows the one which was used 1972 by the US Congress: "..., a subsidy is defined as the provision of Federal economic assistance, at the expense of others in the economy, to the private sector producers or consumers of a particular good, service, or factor of production. The Government receives no equivalent compensation in return, but conditions the assistance on a particular performance by the recipient - a quid pro quo - that has the effect of altering the price or costs of the particular good, service, or factor to the recipient, so as to encourage or discourage the output, supply, or use of these items and the related economic behavior" [U.S. Congress, 1972, p. 18]. As compared to the official definition of the German Government the big advantage of the American definition is that it is broad based and that it emphasizes the instrumental character of subsidies but abstracts from normative aspects which may justify a programme. In order to get the definition to operation, the following explications and technical adjustments were necessary:

- All those authorities which according to the nomenclature of the National Account Statistics form part of the state sector are specified as suppliers of subsidies. Thus state-owned enterprises are excluded but several parafiscal institutions and funds are incorporated.
- Apart from the state sector all other economic branches are determined as potential recipients of subsidies, thus including public enterprises like the Federal Railways and the Federal Post Office.
- Government assistance comprises both tax expenditures and direct transfer payments to enterprises and private households. However, private households are only included in so far as particular goods and services are concerned (e.g. insurance, housing, traffic); general social welfare and pension payments are not incorporated.

4. The data-set was widely compiled from the annual budget documents. Fortunately, the accounting system of public households is rather detailed and uniform for all government levels so that the identification of subsidy programmes segregated into expenditure items and granting ministries was possible without any major difficulties. Tax expenditure items were taken from the official subsidy reports and supplemented by some calculations and estimates of our own. By evaluating numerous additional information from ministries and other sources, each subsidy programme was finally broken down to a maximum of 49 branches of recipients for some selected years (1).

The inventory showed that the German system of subsidization consists of roughly 10 000 different budgetary items. The results of our efforts added up to an amount of 103 billion D-Mark in 1980, thus being more than 50 p.c. higher than is documented by the official subsidy reports of the Federal Government (Table 1).

(1) A detailed description of the whole procedure contains Jüttemeier [1984].

Table 1 - Subsidization Trends According to Different Data-Sources, 1973-1984

Source	1973	1974	1980	1981	1984
<u>National Accounts^a</u>					
Billion D-Mark 1973 = 100	27.4 100.0	29.3 106.9	49.3 179.9	48.2 175.9	62.3 227.4
<u>Subsidy Reports of the Federal Government^b</u>					
Billion D-Mark 1973 = 100	41.7 100.0	44.1 105.8	65.3 156.6	65.5 157.1	74.5 178.7
<u>Kiel Institute of World Economics^c</u>					
Billion D-Mark 1973 = 100	56.9 100.0	62.3 109.5	102.7 180.5	103.0 181.0	120.0 210.9
Subsidies per Employed Person ^c					
D-Mark 1973 = 100	2430 100.0	2720 111.9	4610 189.7	4670 192.2	5890 242.4
Total Degree of Subsidization (p.c.) ^d					
	9.5	9.8	11.0	10.6	11.1

^aSubsidies plus investment grants. - ^bFinancial assistance plus tax expenditures. - ^cEmployed persons of the sectors subsidized. - ^dAmount of subsidies/ (value added at factor costs of the sectors subsidized minus subsidies)* 100.

Source: Deutscher Bundestag (a). - Jüttemeier, 1987. - Statistisches Bundesamt.

2. Trends and Overall Pattern of German Subsidization Policy

5. In 1984 German public authorities transferred 120 billion D-Mark for subsidization purposes (Table 1). As compared to 1973 this means more than doubling the volume (7.0 p.c. per annum). During the same period the incomes (net value added at factor costs) of the subsidy recipients increased by a rate of 5.9 p.c. and the tax revenues of the subsidy suppliers by 5.8 p.c. per annum. The comparison reveals that the subsidization elasticity is greater than 1 and by this indicates an expansive trend. There is, indeed, a widespread subsidization mentality both on suppliers' and recipients' side, and its intensity is gaining in strength.

6. An interruption of the trend, noteworthy indeed, is to be observed for 1981 with a zero growth rate.

- In previous years subsidies have increased drastically, 1977 and 1978 with two-digit rates. After the first oil-price crisis several additional programmes were introduced which were meant to foster the restructuring process of the German economy. These programmes expired at the beginning of the eighties and subsidization policy stabilized on a higher level.

- The then decline of the exchange rate D-Mark against US-Dollar made foreign coal more expensive and as a consequence, the subsidized dif-

ferential between domestic and US-Dollar denominated international prices made less deficiency payments necessary.

- Subsidies out of CAP were comparatively small at the beginning of the eighties. Since the world-market prices of agricultural products were extremely high only few export subsidies were required.

After 1981, however, subsidies increased again. In June 1982 the then Federal Government of chancellor Schmidt introduced a huge temporary and cyclically motivated investment-bonus-programme which in 1984 (1985) had to be honoured by 4.1 (2.2) billion D-Mark. And when the new Federal Government of chancellor Kohl came into power in October 1982, she immediately introduced various tax reliefs (e.g. for agriculture and housing) which in 1984 result in an annual loss of tax revenues of about 7 billion D-Mark. Moreover, the new Federal Government started to subsidize the iron and steel industry to a greater extent than ever before. And as far as CAP is concerned, its expenditures are meanwhile increasing so dramatically that the whole system of intervention might go into bankruptcy. Altogether, from 1981 to 1984 subsidies rose by a yearly rate of 5.2 p.c. whereas total government spending increased by 2.7 p.c.

7. Governments provide a large range of subsidies. For some subgroups, the amounts are listed in Table 2. There are basically two forms a subsidy can take - tax expenditure and financial assistance -, with numerous variations within each form. Tax reliefs represent lost government revenues; they account for roughly one third of the whole volume of subsidization, the biggest part consisting of deductions of certain items from the tax base (e.g. specific write-off regulations). Financial assistance stands for cash-transfers from public households. By far the most important single item consists of current transfers, mobilized for various purposes, like deficiency payments, deficit compensations, research aids and others.

From the recipient's perspective the value of the different kinds of subsidies is not the same. For instance, the incentive value for tax deferrals consists of savings on interest payments and the benefit from direct government loans lies in the difference between preferential and market interest rates. Furtheron the value of some tax reliefs varies with the recipient's marginal tax rate, and some kinds of financial assistance have to be inserted into the tax base but others don't. These differences must be taken into account when calculating the value of subsidy programmes from the recipients' perspective. However, if this is done correctly, there is much reason to expect that with a same effective amount, the various kinds of subsidies have a similar impact on the economic activity that shall be fostered. Thus, the different types of governmental assistance may be regarded as close substitutes for one another.

8. One of the more striking features about German subsidization policy is its rather large decentralization. Table 3 lists the institutional setting for the main sources of supply both for tax expenditure and financial assistance. But the picture is more confusing because on each government level nearly each ministry is involved in the process. The central government level, for example, consists of 17 ministries each of them

Table 2 - Subsidies Classified By Type, 1973-1984

Type of subsidy	1973	1974	1980	1981	1984
1. Tax Expenditures					
<u>Reduction of the tax rate</u>					
Billion D-Mark	3.4	3.7	5.4	6.2	10.8
1973 = 100	100.0	108.8	158.8	182.4	317.6
Share (p.c.)	6.0	5.9	5.3	6.0	9.0
<u>Personal and material tax exemptions</u>					
Billion D-Mark	4.5	4.9	9.6	9.6	10.9
1973 = 100	100.0	108.9	213.3	213.3	242.2
Share (p.c.)	7.9	7.9	9.3	9.3	9.1
<u>Reductions of the tax base</u>					
Billion D-Mark	9.5	10.4	15.5	15.4	20.8
1973 = 100	100.0	109.5	163.2	162.1	218.9
Share (p.c.)	16.7	16.7	15.1	15.0	17.3
2. Financial Assistance					
<u>Debt service</u>					
Billion D-Mark	2.3	2.7	3.9	3.2	3.5
1973 = 100	100.0	117.4	169.6	139.1	152.2
Share (p.c.)	4.0	4.3	3.8	3.1	2.9
<u>Current transfer</u>					
Billion D-Mark	26.1	28.0	47.7	48.1	53.9
1973 = 100	100.0	107.3	182.8	184.3	206.5
Share (p.c.)	45.9	44.9	46.4	46.7	44.9
<u>Capital transfer</u>					
Billion D-Mark	9.7	11.1	18.0	17.8	17.2
1973 = 100	100.0	114.4	185.6	183.5	177.3
Share (p.c.)	17.0	17.8	17.5	17.3	14.3
<u>Preferential loans^a</u>					
Billion D-Mark	1.4	1.5	2.6	2.7	2.9
1973 = 100	100.0	107.1	185.7	192.9	207.1
Share (p.c.)	2.5	2.4	2.5	2.6	2.4
3. Total					
Billion D-Mark	56.9	62.3	102.7	103.0	120.0
1973 = 100	100.0	109.5	180.5	181.0	210.9

^aSubsidy equivalent.

Source: Jüttemeier, 1987.

granting some kind of assistance. Moreover, there are quite a lot of state-owned credit institutions - not listed in Table 3 - their only task being to assist governmental subsidization policy by granting preferential loans [Jüttemeier, Schatz, 1983].

9. However, when it comes to the assignment of responsibility and policy formulation the role of the Federal Government is by far the most important one. Beyond her own budget central government has a significant influence on the level and structure of other authorities' subsidies as well:

Table 3 - Subsidies Classified by Sources of Supply, 1973-1984

Sources of Subsidy Supply	1973	1974	1980	1981	1984
1. Tax Expenditures					
<u>Income and Corporate Tax</u>					
Billion D-Mark	9.4	10.5	18.1	18.5	27.0
1973 = 100	100.0	111.7	192.6	196.8	287.2
Share (p.c.)	16.5	16.8	17.6	17.9	22.5
<u>Property and Local Business Tax</u>					
Billion D-Mark	0.9	0.9	1.8	1.7	1.7
1973 = 100	100.0	100.0	200.0	188.9	188.9
Share (p.c.)	1.6	1.4	1.8	1.6	1.4
<u>Value Added Tax</u>					
Billion D-Mark	5.2	5.7	8.3	8.8	11.6
1973 = 100	100.0	109.6	159.6	169.2	223.1
Share (p.c.)	9.2	9.1	8.1	8.5	9.7
<u>Other Taxes</u>					
Billion D-Mark	1.8	2.0	2.3	2.3	2.2
1973 = 100	100.0	111.1	127.8	127.8	122.2
Share (p.c.)	3.2	3.2	2.2	2.2	1.8
2. Financial Assistance					
<u>Parafiscal Funds^a</u>					
Billion D-Mark	0.3	0.4	3.1	2.8	3.3
1973 = 100	100.0	133.3	1033.3	933.3	1100.0
Share (p.c.)	0.5	0.6	3.0	2.7	2.7
<u>Common Agricultural Policy (CAP)</u>					
Billion D-Mark	3.4	3.7	8.0	6.9	9.3
1973 = 100	100.0	108.8	235.3	202.9	273.5
Share (p.c.) ^b	6.0	5.9	7.8	6.7	7.7
<u>Federal Budget^b</u>					
Billion D-Mark	19.2	20.1	30.6	30.8	32.7
1973 = 100	100.0	104.7	159.4	160.4	170.3
Share (p.c.)	33.6	32.3	29.8	30.0	27.3
<u>State Budgets</u>					
Billion D-Mark	14.6	16.5	25.7	25.9	27.2
1973 = 100	100.0	113.0	176.0	177.4	186.3
Share (p.c.)	25.7	26.6	25.0	25.1	22.7
<u>Local Budgets</u>					
Billion D-Mark	2.1	2.5	4.8	5.3	5.0
1973 = 100	100.0	119.0	228.6	252.4	238.1
Share (p.c.)	3.7	4.0	4.7	5.1	4.2

^aERP-Fund and Coal Equalization Fund. - ^bLabour Office included.

Source: Jüttemeier, 1987.

- Programmes of the parafiscal funds are executed outside federal administration but the Federal Minister of Economic Affairs determines their volume and structure (1).

(1) The ERP-(European Recovery Programme) Fund is a special property of the Federal Government. Its assets originally stem from US aids granted to Western European countries after World War II. While the German Federal Government had to repay in terms of US-\$ which she did in 1961, private recipients of US deliveries had to make D-Mark payments to the Federal Government. Thus, the ERP-Fund represents the D-Mark countervalues of US aids. Today the fund is totally financed in a revolving way of credit repayments and interest payments. In 1952 the assets of the ERP-Fund accounted for roughly D-Mark 5 bn and at present for about D-Mark 10 bn. The fund is at the disposal of the Federal Government and she uses it mostly for

- The annual budgets of the Labour Office are approved by the Federal Government and are supervised by the Federal Minister of Labour Affairs.
- Volume and structure of the Common Agricultural Policy of the EC are strongly fixed by the Federal Minister of Agricultural Affairs and his colleagues from other member countries.
- With regard to tax policy the constitution of the Federal Republic provides for most taxes a co-operative legislation of Federal Parliament (Bundestag) together with the state governments' representative body (Bundesrat). Nevertheless, experience shows that there are rarely any cases of tax relief which were not initiated and enforced by federal authorities. The whole system of taxation and concessions is largely a matter of the federal level.
- Principles of fiscal federalism are watered-down on the expenditure side of budgets also. Apart from co-operative duties embodied in the constitution (Gemeinschaftsaufgaben) federal governments often force state governments to participate in special federal subsidy programmes (coal, steel, shipyards, countercyclical and general structural measures).

On the whole, cautious calculations indicate that Federal Government and Parliament are politically responsible for roughly four fifths of the whole volume of subsidization [Jüttemeier, 1984, pp. 36].

10. Politicians perceive subsidies as an appropriate instrument in order to correct or to prevent unwanted results of the competitive market in reference to a political norm. In other words, the volume of subsidization which is supplied may be regarded as an index manifesting the correction requirements of politicians. Tables 4 and A2 show the main fields of operation grouped according to the UN classification system of government functions.

- The biggest part is spent for sector specific programmes, like agriculture, coal mining, iron and steel industry, shipyards, all means of transportation, tax relief for public banks.
- The social security function comprises a variety of measures like general employment schemes of the Labour Office and the promotion of newly establishing entrepreneurs but also selective aid programmes for farmers, miners, construction workers, tenants, and to private non-profit institutions.
- The amounts of regional and research related programmes balance each other. Both policy functions often provide subsidies in sectorally rather unspecific ways. Nevertheless, there are sectoral concentrations: Structurally strong branches absorb more research aid while the weaker ones demand more assistance from regional policy schemes (Table A2).

structural adjustment policies. - The Coal Equalization Fund which in public is better known as "coal penny" is financed through an extra-levy on the consumption of electricity. The revenues are used to subsidize the input of domestic coal in electric power plants.

Table 4 - Subsidies Classified by Government Functions, 1973-1984

Government Functions	1973	1974	1980	1981	1984
<u>General Public Services^a</u>					
Billion D-Mark	0.5	0.6	1.2	1.4	1.5
1973 = 100	100.0	120.0	240.0	280.0	300.0
Share (p.c.)	0.9	1.0	1.2	1.4	1.3
<u>Educational, Cultural, Religious Affairs</u>					
Billion D-Mark	4.5	5.2	8.6	8.9	9.9
1973 = 100	100.0	115.6	191.1	197.8	220.0
Share (p.c.)	7.9	8.4	8.4	8.6	8.3
<u>Social Security, and Welfare Affairs^b</u>					
Billion D-Mark	13.2	14.7	22.3	23.7	25.6
1973 = 100	100.0	111.4	168.9	179.5	193.9
Share (p.c.)	23.2	23.6	21.7	23.0	21.3
<u>Pollution Abatement and Control Affairs</u>					
Billion D-Mark	0.2	0.2	0.4	0.4	0.7
1973 = 100	100.0	100.0	200.0	200.0	350.0
Share (p.c.)	0.4	0.3	0.4	0.4	0.6
<u>Civil and Military Research Affairs</u>					
Billion D-Mark	4.4	4.8	7.9	8.2	9.3
1973 = 100	100.0	109.1	179.5	186.4	211.4
Share (p.c.)	7.7	7.7	7.7	8.0	7.8
<u>Regional Policy Affairs</u>					
Billion D-Mark	4.8	5.4	8.0	8.5	9.5
1973 = 100	100.0	112.5	166.7	177.1	197.9
Share (p.c.)	8.5	8.7	7.8	8.3	7.9
<u>Mostly Sectoral Policy Affairs^c</u>					
Billion D-Mark	29.3	31.4	54.3	51.9	63.5
1973 = 100	100.0	107.2	185.3	177.1	216.7
Share (p.c.)	51.4	50.3	52.8	50.3	52.9
^a Public order and safety affairs included. - ^b Health affairs included. - ^c Housing affairs, fuel and energy affairs, agriculture, forestry, fishing affairs, mining and mineral resource affairs, manufacturing and construction affairs, transportation and communication affairs.					

Source: Jüttemeier, 1987.

Over the years being analyzed the shares of the different functions do not vary very much; a slight decrease is to be observed for sector specific programmes. However, due to new programmes (agriculture, steel industry, housing) it has been increasing after 1981 significantly.

11. With respect to the impacts of subsidization policy on the structure of the economy, it is important to know which sectors are subsidized. Inter-industry variations in the level of subsidization indicate the direction of influence on relative prices among sectors.

Breaking down the volume by sectors (Table 5, A1) reveals that the service sector is the most important recipient of subsidies (roughly one

Table 5 - Subsidies Broken Down by Four Economic Sectors, 1973-1984

Sectors	1973	1974	1980	1981	1984
<u>Agriculture</u>					
Billion D-Mark	10.4	10.8	17.1	15.3	20.2
1973 = 100	100.0	103.8	164.4	147.1	194.2
Share (p.c.)	18.3	17.3	16.7	14.9	16.8
<u>Production Sector</u>					
Billion D-Mark	8.6	9.3	16.9	17.3	21.0
1973 = 100	100.0	108.1	196.5	201.2	244.2
Share (p.c.)	15.1	14.9	16.5	16.8	17.5
<u>Service Sector</u>					
Billion D-Mark	18.2	19.7	32.8	32.7	37.2
1973 = 100	100.0	108.2	180.2	179.7	204.4
Share (p.c.)	32.0	31.6	31.9	31.7	31.0
<u>Housing and Nonprofit Institutions</u>					
Billion D-Mark	19.7	22.5	35.9	37.7	41.6
1973 = 100	100.0	114.2	182.2	191.4	211.2
Share (p.c.)	34.6	36.1	35.0	36.6	34.7
<u>Total</u>					
Billion D-Mark	56.9	62.3	102.7	103.0	120.0
1973 = 100	100.0	109.5	180.5	181.0	210.9

Source: Jüttemeier, 1987.

third) while subsidies for the production sector are increasing most strongly. The comparison demonstrates, too, if one wants to get to the core of the subsidization problem it is not advisable to concentrate the analysis on the production sector as is often done by the public. In 1984 subsidies for the service sector account for D-Mark 4 700 per employee and D-Mark 14 500 for agriculture, but D-Mark 2 000 for the production industries. Thus substantial distortions of competition and structures seem likely. However, one should keep in mind that agriculture and production industries also benefit from tariff-protection while the service sector is rather discriminated.

3. The Sectoral Pattern of German Subsidization Policy

12. The outstanding feature of a subsidy is its double-faced nature of both benefitting and discriminating. This emerges from the fact that assistance is not granted to all branches, nor to all factors of production, nor to all regions, nor to all goods and services, etc., and thus establishes a selectivity which is tantamount to a change of relative prices: For example, if investments are subsidized, this induces an alteration of the price relation between capital and labour and as a consequence creates incentives to use more capital than otherwise would be the case. Suppliers of subsidies sometimes argue that subsidization measures should be designed in a way as not to impose competitive distortions on others [9th Subsidy Report, 1983, p. 7]. However, this best of intentions is simply absurd because it is just the constituent element, the characteristic of subsidies to artificially improve the competitive strength

of branches, single enterprises, factors of production or even whole regions. Subsidization always means a selective intervention into the structure of production by giving incentives to reallocate resources among their alternative uses. For this reason, it is important to emphasize the discriminative nature of subsidies in their various dimensions.

a) The Extent of Selectivity at the Government's Level

13. A meaningful subsidization policy presupposes at the supplier's level a target in mind about what is intended. For German subsidization policy very specific sectoral alignments are predominant: four fifths of the total volume originate from budgetary items which were conceived for one single enterprise or branch, thus discriminating all the others. But just 9 p.c. are derived from sectorally broad-based schemes out of which 25 or more branches obtain their benefits (Table A4). In order to describe the quantitative extent of governments' sectoral preferences, discrimination indices (1) have been constructed. The two indices (Table A4) unisonously identify agriculture, coal mining, all means of transportation, and most other service industries as government's favourites but only few branches out of manufacturing (shipbuilding, aerospace). Nearly the same intersectoral profile holds true for the level of subsidization in individual branches (Table A3). Spearman-rank correlations show a clear positive association between discrimination indices and degrees of subsidization ($R = 0.77$ and 0.75). This allows the conclusion that the degree of subsidization of individual branches is the higher the more branch-specific the programmes are which they enjoy.

14. Planning and designing subsidization policy rather exclusively on a sectoral basis begs several questions. Do German governments pursue an industrial policy, an industrial targeting of a sector-related kind? Which are the economic arguments, i.e. the economic philosophy, explaining the allocation of subsidies to particular industries?

In standard textbooks of public finance subsidies are treated as an instrument serving the promotion of allocative efficiency by compensating for such market failure as it is measured against the normative criteria of Paretian welfare economics. Insofar as the existence and implications of market failure can be identified, subsidies would be limited to compensations for (positive) externalities or for the supply of public goods by private agents. As empirical evidence reveals such theoretical sup-

(1) The discrimination indices were derived from Theil's measures of income inequality [Theil, 1967, pp. 91] the calculation of which considers for each group of individuals (economic branches) the number of persons in any given income interval (number of branches participating in a programme) and their respective income shares (amount of subsidies). From our inventory of German subsidization policy, it is well known for each programme (budgetary item) how many branches participate in it and to what extent. Assuming that the number of recipients (maximum 49 branches) for a given programme reflects the supplier's restriction on the sectoral range of potential beneficiaries, the intersectoral profile of index-values allows some conclusions with regard to the preferential treatment of specific sectors at the government's level.

positions of welfare economics do not have much explanatory power for the structure and the volume of subsidies in the Federal Republic. This is not to say that arguments concerning market failure were not deployed by the government in general discussions. However, not one single programme was found the reasons for which or the volume of which were based on such criteria or could be based on them, holding to scrutiny.

15. On the contrary, German subsidization policy is mostly substantiated by political value judgements. Yet, the normative objectives of this policy being positively observed are often difficult to find out if any at all. The law underlying the Federal Government's biannual report on subsidies determines that for every programme the policy objectives have to be listed. Actually, the column "objectives" mostly contains a description of instruments, assessment bases, or the legal regulations under which subsidies will be granted. In numerous cases it simply says "cost reductions for agriculture", "improvement of the status of earnings and liquidity of coal mining", or even more simply it states "promotion of air traffic", "of savings behaviour", "of showmen's business", or "social consideration", or "good for public welfare". By and large it seems that the suppliers of subsidies - the politicians - do not really know themselves which overall social or economic goals they are striving for. Reducing costs or improving the status of liquidity should not be an end in itself! The budgetary committee of the Federal Parliament once called upon the Federal Government to define her objectives in such a way as to make subsidy controls possible. "Concerning the matter in question, the Federal Government declares that it is difficult - if not impossible - to fulfil such requirements" [Deutscher Bundestag, 1979, p. 39, own translation]. Since 1982 the new Federal Government even tries to catch up with criticism about her lack of subsidy targets by classifying some of the largest programmes (e.g. agriculture, coal mining, housing) as a sacrosanct matter of constitutional norms [Deutscher Bundestag, c, 1985, p. 11].

16. In addition to the justification of individual subsidy programmes which is required by law and which sometimes look rather embarrassing, Federal Government occasionally announces her sectoral intentions in a manner which is still very general but at least is accessible to analysis. If one was summarizing these various governmental declarations and documents the result would be a picture probably corresponding to similar doctrines in most other countries (1).

An utmost verbal emphasis is put on assistance to increase productivity and economic growth. Government believes that especially aerospace, data processing and nuclear energy fit into this idea and providing them with funds means an investment into future-oriented industries. On the other hand, coal mining is labelled as a "problematic industry" the support of which is necessary in order to adjust its capacity to new market conditions without any major "social cruelties". And since hard coal is the country's only major domestic energy resource, subsidization is also seen as part of a policy towards a national strategic energy reserve.

(1) In 1968 Federal Government published a non-obligatory declaration of principles concerning the sectoral dimension of her structural policies [cf. Deutscher Bundestag, d], to which today's government refers as well.

The heading "special problems" implies shipyards and steel industry. Assisting them is mostly regarded as a compensation for subsidies abroad. Agricultural policies mostly refer to the Rome Treaty or to a corresponding national agricultural law from 1955. Reasons given are, for instance, the best possible and secure supply of food, compensations for natural and economic disadvantages, adjusting farmers' social status to conditions in other professions, etc. However, neither national law nor the Rome Treaty demand subsidies, let alone a specifically stamped subsidization policy. A multitude of objectives is also enumerated for subsidizing transport, housing and other service industries but again without any weighting of different targets: Backbone of traffic (federal railways), basic needs (housing, medical care), creation of private property (housing), saving of energy (housing, transport), social policy for special groups of the population (housing, transport, private non-profit institutions), regional development (traffic), and others.

17. Regional considerations, in fact, form another important line of argumentation for subsidization. Since Germany is a federation made up of eleven states, regional interests play a somewhat larger role in policy-making than might be the case in more centralized countries. Apart from some sectorally broad-based programmes, the territorial extension of which is limited to structurally weak regions and West-Berlin, a lot of sector-specific schemes might be interpreted as a special kind of regional policy as well. Coal mining and steel industry play a dominant part in the Ruhr and Saar areas, shipyards are concentrated in four coastal states, and aerospace in Bavaria, Bremen, and Hamburg. Agriculture is still important for quite a lot of less developed areas in some federal states, and quite often Federal Railways are forced to maintain deficitary routes in those areas. There is always a rivalry among the federal states to "haul ashore" out of the federal budget some benefits for industries located on their territories, for no matter what reasons.

18. Analyzing the description of individual subsidy programmes and the denomination of aims for subsidization in other documents, does not provide for something like a coherent concept or a systematic guideline behind German subsidization policy. Normally several distributional and allocational targets are mentioned at the same time but without making any references to different weightings or to priorities. From the very strong alignment of subsidy programmes to single enterprises and branches (Table A4), one would especially expect an evaluation of sectoral selection criteria. The provision of subsidies for such specific reasons would require that the government takes a paternalistic view claiming that her own forecasts of the future development are better than those of private agents. However, a uniform or clear-cut subsidization rationale does not exist. On the contrary, German subsidization policy rather appears as a sum of a wide range of ad-hoc measures.

Moreover, very often declared official objectives do not seem to be consistent over time. Especially in case of highly subsidized branches, any reason or objective put forward for further subsidization is urgently welcome, and in particular so, if it can be labelled as "socially desirable". In order to understand the inherent logic of German subsidization policy, a polit-economic approach seems to be more promising than an economic theory-based analysis which refers to market failure and correction requirements. Variables like lobbying and vote-maximizing have a

great explanatory power to the level and structure of German subsidization policy [cf. Glismann, Weiss, 1980]. As a whole, the sectoral profile of German subsidization policy rarely reflects differences in economic facts but rather is an index for successful pressure-groups.

b) The Extent of Selectivity in an Intersectoral Comparison

19. Uniformity of assistance means that no activity is favoured or discriminated relative to any other. Thus the differences in subsidies among industries and sectors are important from an allocational point of view. In order to evaluate subsidization policy in an intersectoral comparison the concept of effective rates of protection was used by analogy [Hiemenz et al., 1971]. Assuming that the incidence rests upon the sectors to which assistance is granted, subsidies mean at the recipient's level revenues which enlarge the scope for increase of expenses (incomes) to the factors of production. Expressed as a percentage of net value added at factor costs, degrees of subsidization are calculated which can be interpreted as an index for allocational distortions. Of course, such figures cannot tell whether the allocational impact results in higher factor prices and/or in an increasing production. However, degrees of subsidization do show the overall extent of incentives which exists to bind resources in an industry or to attract them from others.

20. Since 1973 the average degree of subsidizing the German economy has increased in cyclical movements starting from 9.5 p.c. then to 11.1 p.c. at present (Table 1). Yet, the aggregates hide the fact that level and development of subsidization are extremely unequal among the different sectors and that throughout the years observed, the basic hierarchy of industries which are subsidized above average, does not change very much. At the beginning of the seventies twelve branches out of 49 had above-average degrees of subsidization, and at the beginning of the eighties the same sectoral composition plus tobacco industry still held true (Table A3). In succession of their degrees of subsidization these branches are (1979-82): Railways (>1000 p.c.), non-profit institutions (418 p.c.), agriculture (273 p.c.), coal mining (91 p.c.), housing (53 p.c.), shipbuilding (39 p.c.), aircraft (32 p.c.), health and veterinary services (22 p.c.), navigation (21 p.c.), other mining than coal mining (18 p.c.), other transports than railways and navigation (15 p.c.), and tobacco (13 p.c.). Except for tobacco industry the subsidization of all these branches is mostly a matter of sector-specific programmes (Table A4). Tobacco is, indeed, a special case. Most of its subsidies stem from sectorally broad-based programmes which are meant to compensate for the political and geographical disadvantages of factories, located in West-Berlin. And since some of these programmes are very attractive (investment grants, wage bonus, half the rate of value added tax), meanwhile most tobacco manufacturing plants moved to Berlin.

21. In general, manufacturing industries are subsidized very much below the average of the total economy (1980-81: 2.5 p.c. versus 10.8 p.c.), but some branches seem to be on their way to close the gap. Compared by the increase of subsidies relative to the respective incomes, sprinters in the subsidy race are iron and steel industry, chemicals and in that field particularly nuclear fuel generation, paper production, and shipbuilding. Noteworthy is especially the development in the iron and steel

industry. Still at the end of the seventies, steel industry only now and then received some assistance out of broad-based schemes, and the American Trade Board did not see any compelling arguments either for counteractions against German companies. In 1978, however, the Federal Government and the state government of Saarland gradually started to subsidize the ARBED-Saarstahl Company to a large extent by means of a so-called restructuring programme for steel mills of the Saar area. Meanwhile, subsidy programmes covering all steel companies came into existence and from 1981 to 1984 steel industry's amount of subsidies increased fivefold thus exceeding the average degree of subsidization for the total economy.

There are also a few branches which are to be regarded as counterparts of the sprinters. In the aircraft, aerospace industry the degree of subsidization fell significantly from 65 p.c. to 32 p.c. (Table A3) and for data processing assistance even decreased in terms of D-Mark (Table A1). Remarkable is the decline for data processing since it is one of the rare cases where Federal Government suspended her sector-specific programmes due to a failure of her policy of "picking a winner". The reasons for previously granted assistance were typical for infant-industries: Data processing, like some other industries, is said to have substantial spin-offs in other fields of the economy. After World War II German companies were not allowed to operate in this field - that was also the case with aerospace and nuclear energy - but when they finally got the permission, a technological gap was said to discriminate them against their main international competitors. Even though they received large sums of assistance the subsidized computers did not succeed on the market, and Federal Government finally altered her policy for the benefit of a more broad-based innovation policy.

22. Scrutinizing the system of subsidization grouped by governmental functions reveals that subsidizing manufacturing industries mainly consists of three types, research-related, region-related, and sector-specific programmes (Table A2).

- Programmes to promote research activities constitute one important source (30 p.c.). The government prefers financial assistance for individual projects framed to specific industries and products (direct promotion), while tax relief for general activities (indirect promotion) is of minor importance. The sectoral pattern certainly specifies nearly all branches as recipients of research aids, but actually only very few of them with appreciable amounts (mechanical as well as electrical engineering, aircraft, chemical and nuclear fuel industry). Moreover, there is a further intrasectoral concentration: A small group of the largest German manufacturing companies absorbs most funds. For 1974 figures are available showing that 13 big companies obtained 70 p.c. of all such research aids to manufacturing industries which were provided by the Federal Ministry of Research and Technology (80 p.c.) [Jüttemeier et al., pp. 174].

- The most important source of subsidies to manufacturing industries are general programmes which are meant to promote specific regions (Table A2). Such programmes incorporate West-Berlin, and an area along the border to East-Germany and Czechoslovakia, as well as other regions which have an economic status very much below the average of the Federal Republic. This concept of regional promotion is rather broad-

based, that is to say, there are only few regulations concerning the exclusion of certain industries from regional-related assistance. However, the sectoral distribution of such subsidies suggests that there is a slight bias towards capital-intensive branches.

- At the beginning of the eighties, sectoral policy schemes were still of minor significance (14 p.c.). Only shipbuilding, aerospace, steel industry, and nuclear fuel generation have benefitted to a larger extent. Allocating public funds to aircraft and nuclear energy is part of a policy to pick the winners, while assistance for shipyards and steel industry is part of the maintenance of declining industries and unprofitable firms in order to avoid immediate sacrifices for the labour force. Since shipyards and steel companies are still under heavy competitive pressure from abroad, and since their regional concentration is very high, Federal Government and the respective state governments intensified their programmes substantially.

23. Facing the analysis that there exist hundreds of subsidy programmes and that all branches participate to some degree, this should not obscure the fact that, since long, the intersectoral structure of incentives to reallocate resources, represented by degrees of subsidization, is extremely oriented towards a constant set of branches. In 1980-81: 12 branches subsidized above average received 80 p.c. of the total amount of all subsidies whereas their share in incomes (value added at factor cost) was only 20 p.c. Within this set of branches subsidized above average, there is a strong negative correlation between the economic performance (long-term growth-rates of real gross value added) and the degrees of subsidization; its strength is even increasing for changes of subsidization levels. Thus, much evidence is provided that despite official announcements to the contrary, most structural aids are of a long-run nature and little evidence can be found for a temporary subsidization, i.e. a "tapering off" strategy.

24. For the total of all industries the matter is somewhat more complex. Cross-section analyses for the level of subsidization at different periods of time do not provide much evidence for a prevailing policy. This may be due to the fact that levels at any point in time are the product of a whole host of interacting factors, many of which are historical and perhaps do no longer reflect the present outlook of policy makers. Thus, for instance, the reports on subsidies of the Federal Government list numerous cases of individual subsidies which have already lasted for decades. The oldest one has existed since 1868 (tax exemption from the salt duty for salted herrings). Indeed, there is a tendency to add new programmes each time a new "problem" arises but seldom to abolish old subsidies.

Changes in subsidization levels might provide a somewhat clearer indication of the prevailing policy. Comparing the relative ranking of all industries by changes of their degree of subsidization between 1973-74 and 1980-81 and by their growth performance from 1960 to 1983 reveals a negative association. However, the level of statistical significance is unsatisfactory. What can only be said with more certainty is, that German subsidization policy as a whole is not oriented towards a strategy of picking the winners as is often announced by politicians, but the opposite - picking the losers or maintaining declining industries - is not

unambiguous, either. Obviously, there is a bipartition in the inter-industrial distribution of the total volume of subsidization: On the one hand, there is a small group of highly subsidized industries which are favoured for whatever political reasons, and their subsidization in the course of time shows an increasing bias towards relatively declining branches. On the other hand, a majority of industries is participating in the subsidy race from the rear. They simply take part as fellow travellers.

25. Despite many methodical difficulties the impact of subsidies on incomes and employment can be localized to a certain degree, at least, whereas the costs of this policy are entirely hidden. Invisible charges derive from the fact that subsidizing one enterprise reversely results in higher taxes on others in order to finance this kind of policy. Thus the maintenance or creation of jobs through subsidies corresponds to a loss or non-establishment of jobs through higher taxation. At least, some approximations concerning the load of burden may be derived through calculating effective tax rates imposed on incomes (value added) of enterprises (1). Subtracting tax rates from subsidy rates a net-burden of taxation is calculated, the intersectoral profile of which may be regarded as a clue to the government's true sectoral preferences.

26. In 1979-80 the average burden of taxation of all industries (except for housing and private non-profit institutions) roughly ran up to 10 p.c. of their value added (about D-Mark 95 bn per year) and the average relief through subsidies amounted to 7 p.c. (about D-Mark 70 bn per year). Taking into account that most tax reliefs are already embodied in actual tax payments, the balance of tax burden and relief through subsidization results in a net-tax-rate of 3.5 p.c. of value added. This net-rate can be regarded as a basic tax-rate which indicates the amount to which enterprises shall participate in financing government expenditures of a non-subsidizing kind (D-Mark 33 bn per year). Deviations from the basic tax-rate then represent the redistributive element among the economic sectors (D-Mark 40 bn per year), and its intersectoral pattern indicates the direction of allocational distortions. As a matter of fact, the sectoral net-rates enlisted in Table 6 only make a rough outline. They hide the fact that tax-rates for individual enterprises may deviate substantially. The broad reference base of value added hides, as well, that actual assessment bases of taxes are widely eroded by numerous exemptions and as a consequence nominal tax-rates have to be increased in order to guarantee a certain amount of revenues, thus being many times higher than the average rates enlisted in Table 6.

(1) Included are all direct taxes of enterprises, i.e. corporate and income tax, property tax, and local business tax. The latter is a tax levied by municipalities, and it is imposed both on capital yields and capital assets. For all other taxes paid by enterprises, mostly value added tax and specific excise taxes, it is assumed that their final incidence rests upon private households. In order to illustrate the extent of allocational distortions, both tax-burden and relief through subsidization are expressed as percentages of value added at factor cost (tax-rate and subsidy-rate).

Table 6 - Subsidies and Direct Taxes, 1979-80 (p.c. of Value Added at Factor Cost)

Economic Sectors	Subsidies	Direct Taxes of Enterprises	Net Structure(a)
Agriculture	92.2	6.0	+ 79.0
Forestry, Fisheries	5.1	4.0	+ 3.3
Generation and Distribution of Energy and Water	2.9	9.3	- 3.2
Mining	52.1	1.7	+ 52.6
Chemicals, Mineral Oil	2.7	10.8	- 5.2
Plastics, Rubber	1.3	6.0	- 1.4
Stones, Ceramics, Glass	1.1	7.5	- 3.2
Steel, Non-Ferrous Metal, Foundries	1.5	6.9	- 2.1
Light-Metal, Mechanical Engineering, Vehicle Construction	2.8	7.2	- 1.0
Electrical, Precision Goods, and others	2.5	7.6	- 1.8
Wood, Paper, Printing	2.2	8.5	- 3.3
Leather, Textile, Clothing	1.1	6.4	- 2.0
Food, Beverages, Tobacco	2.2	8.9	- 3.4
Construction	1.9	6.4	- 1.0
Commerce	1.3	13.5	- 8.7
Transport	43.5	5.4	+ 40.5
Communication	10.1	14.1 (b)	- 0.5
Credit Institutions	1.7	15.0	- 11.4
Insurance Companies	9.2	18.7	- 14.6
Other Private Services (except Housing)	5.9	15.5	- 6.3
TOTAL OF ALL ENTERPRISES	7.3	9.9	0

(a) Direct taxes minus financial assistance and minus tax expenditures as far as they are not reflected by payments of direct taxes. (b) Duties of the Federal Post Office to the Federal Government.

Source: Schmidt et al., 1984, p. 119.

27. The sectors of agriculture, mining, and transport are net-recipients of subsidies to an intensive degree; they neither contribute to the financing of their subsidies nor to other governmental expenditures. On a smaller scale this is true for forestry and fisheries, as well. All other sectors of Table 6, however, are net-loosers in the subsidy race. Going into details reveals that banks and private insurance companies, relatively seen, contribute most to the financing of subsidies and the Federal Post Office the least of all. By and large industries of the production sector contribute less than those of the service sector. On the whole, there exists a strong negative association between the intersectoral pattern of net-tax-rates and long-term-rates of economic growth. This means that German subsidization policy normally withdraws means from production-lines which are efficient and strong in growth, in order to favour less efficient branches.

As a result of a pure mechanistic calculation one might conclude that under ceteris-paribus-conditions more jobs would be maintained in highly subsidized branches than would alternatively be created in other industries. But taking also into consideration that the alternative jobs would have been more productive than those actually subsidized and, furthermore, accounting for the fact that non-subsidizing regularly means a more

efficient allocation of resources, a contrary conclusion is evident: Without the allocational distortions created through granting and financing subsidies, national incomes and employment, as well, could be on higher level than they actually are at present. This consequence, indeed, is the main result of a study carried out at the Kiel Institute of World Economics which simulates the implications on the level of economic performance and employment by cutting the total volume of subsidization by 50 p.c. [cf. Gerken et al., 1985].

c) The Extent of Selectivity at the Intra-sectoral Level

28. In this section an attempt is made to investigate a bit more into the intra-industrial structure of German subsidization policy. It has long been recognized that the kind of composition of a subsidy programme may have at the recipient's level significant distortionary impacts on output, on labour, on capital, or other economic activities. In general, one can suppose that governments will condition their assistance in a way as to get as close as possible to the divergence to be corrected or the activity to be fostered, and hence trying to minimize leakages and unwanted by-product effects. The transmitting mechanism of a subsidy is the change in relative prices which results from the promotion of specific aggregates.

Table 7 - Subsidies Classified by Initial Point of Intrasectoral Promotion, 1973-1984

Point of Promotion	1973	1974	1980	1981	1984
<u>Gross Output</u>					
Billion D-Mark	11.0	12.1	23.4	23.2	29.9
1973 = 100	100.0	110.0	212.7	210.9	271.8
Share (p.c.)	19.3	19.4	22.8	22.5	24.9
<u>Intermediate Inputs</u>					
Billion D-Mark	9.2	10.4	16.6	16.9	17.9
1973 = 100	100.0	113.0	180.4	183.7	194.6
Share (p.c.)	16.2	16.7	16.2	16.4	14.9
<u>Compensation of Employees</u>					
Billion D-Mark	6.0	7.1	12.1	12.4	13.0
1973 = 100	100.0	118.3	201.7	206.7	216.7
Share (p.c.)	10.5	11.4	11.8	12.0	10.8
<u>Property and Entrepreneurial Incomes</u>					
Billion D-Mark	16.9	17.2	23.6	22.6	24.0
1973 = 100	100.0	101.8	139.6	133.7	142.0
Share (p.c.)	29.7	27.6	23.0	21.9	20.0
<u>Fixed Capital Formation</u>					
Billion D-Mark	13.8	15.5	27.0	27.9	35.2
1973 = 100	100.0	112.3	195.7	202.2	255.1
Share (p.c.)	24.3	24.9	26.3	27.1	29.3

Source: Jüttemeier, 1987.

29. Table 7 contains a breakdown of subsidies according to the initial points which governments have chosen in order to insert their assistance intra-industrially.

- The central point of German subsidization policy is marked by the preference given to capital outlays and receipts. More than one quarter of all subsidies are directly assigned to promote fixed capital formation. One fifth is related to entrepreneurial incomes of which in 1984 D-Mark 15.0 bn concern the formation of incomes (e.g. tax base reductions for farmers and self-employed professions), D-Mark 7.6 bn concern the distribution of different classes of income (except for labour; e.g. dividends, interest payments, rents) as well as the compensation of deficits (railways), and D-Mark 1.4 bn concern the formation of equity capital (e.g. coal mining, railways, communication, specific programmes for small and medium-sized enterprises).
- Labour income related subsidies are generally of minor importance. Some sector-specific programmes, for instance, favour agriculture (take-over of social security contributions by the Federal Government), coal mining (additional wage-bonus for pit miners), and construction (bad weather pay). Sectorally broad-based programmes exist for R&D-related personnel and for employees working in West-Berlin.
- An increasing share is assigned to gross output which actually signifies either promoting sales or maintaining high domestic prices or compensating for them. Subsidy programmes which are meant to reduce suppliers' sales prices are available for exports from West-Berlin to the other parts of the Federal Republic (reduced rates of value added tax), for specific goods and services (e.g. reduced rates of value added tax for books and medical service, preferential treatment of the income tax for some kinds of insurance contracts) or for new ships and planes. Maintaining high prices, sometimes to an excessive degree, is the main duty of CAP; it is also given for coal mining through deficiency payments to electric power plants (Coal Equalization Fund) and to the iron and steel industry (consumption of domestic coke). Other product related deficiency payments concern subsidies to German ship-owners, if their ships are built on German shipyards, or rent allowances for specific groups of the population.
- Intermediate inputs are favoured through a wide range of measures. A lot of subsidy programmes are outlined to cover costs which stand for mostly material inputs except for investment but to some degree for labour, too. This is especially true for most R&D programmes of the Federal Ministry for Research and Technology but also for the promotion of specific organizations (e.g. Private Non-Profit Institutions). Selected inputs, on the other hand, are subsidized through tax exemptions of excise taxes (e.g. mineral oil).

30. In Table A5 the shares are listed to which the volume of subsidization for each industry is made up by the five categories of points of intervention described above. A widespread application of all of them among nearly all branches is apparent. However, the percentage shares which are sometimes high, should not obscure the fact that in most cases rather small amounts of money are concerned. As was demonstrated before through the inter-industrial comparison of degrees of subsidization (Table A3), the relative importance of total subsidization is of minor significance for most branches; only a few industries are subsidized to a great extent. This becomes obvious again when comparing subsidies in relation to the aggregates subsidized (Table A6). Apart from the ratios of investment promotion the inter-industrial pattern of subsidization of

all other aggregates does not provide for most cases a range of values which differs much from zero. Thus, rank correlations which were computed could not indicate much evidence for any prevailing overall strategy of channeling public assistance to branches by means of subsidizing different aggregates. Rather, it seems that some highly subsidized industries with a comparatively poor economic performance like, e.g. agriculture, coal mining, railways, are assisted above average through all channels.

Most important is the promotion of investment. This is especially true for most manufacturing industries which together obtain 43 p.c. of their subsidies for investment activities (Table A5). Roughly 10 p.c. of total investments of the private economy are financed through assistance out of public households (Table A6). Since the German tax system is often said to be less attractive for capital formation than those of other countries [cf. e.g. King, Fullerton, 1980], the orientation of German subsidization policy towards investment promotion might be regarded as a correcting device. However, the inter-sectoral pattern of selective investment assistance does not give much evidence for subsidization policy stepping in as a promising substitute for general tax measures: There is a negative rank-order correlation to be observed between the ratios of investment promotion of the different industries and their long-term economic performance (growth-rates of real gross value added) which is strongest for the subgroup of highly subsidized industries ($R = -0,61$). Thus, investment promotion as well rather proves to be a device of mainly maintaining less successful industries.

31. Which consequences on the structure of economic activities result from subsidization as well as from other protection measures is not a specific matter of this paper. In any event, the recipients of assistance probably will consider public aids not only as a mean through which their behaviour shall be influenced but as a source of rent, as well, i.e. entrepreneurs look at them as an opportunity for windfall profits, and workers as a source to cover higher wages. Thus, subsidization may well prove to be an instrument to inflate costs (1). Since wage levels and labour market as a whole show to be rather inflexible in the face of changing economic circumstances, there is a strong a priori supposition that subsidies establish an opportunity to appropriate them in the form of higher wages. Indeed, cross-sector comparisons of the average level of per hour-wages and degrees of subsidization substantiate such a view (2).

(1) Normally such cost inflating effects are not recognized by the recipients of subsidies. This once became obvious from a statement of a lobbyist of the highly subsidized coal mining industry which he made before the budget committee of the Federal Parliament during a hearing about subsidization policy. "I am surprised to hear that the price level of domestic coal should be artificially excessive. I don't know from which reasons this assumption originates: We add our costs and that's it!" [Deutscher Bundestag, b, 1982, p. 186; own translation].

(2) Spearman rank-order correlation for the total economy: $R = 0.40$; for manufacturing: $R = 0.62$.

In how far public assistance may impair the cost-consciousness of enterprises becomes apparent from an individual example: Medium-scale shipyards which are privately owned and which are only slightly subsidized, spend D-Mark 45-50 on direct labour cost per hour as measured at a normal level of capacity utilization. Howaldtwerke-Deutsche Werft AG (HDW), however, which is one of the biggest German shipyards, publicly owned and highly subsidized, comes up to D-Mark 75-80 [cf. Unabhängige Sachverständigenkommission, 1984, pp. 65]. And since HDW always can rely on the liability of its public owners to settle deficits, the company is able to accept high wage levels and to attract qualified personnel easier than its competitors. Furtheron, there is some evidence that the permanent subsidization of some regionally concentrated industries (e.g. coal mining, shipbuilding) resulted in high wage standards for whole regions, thus impeding the regional restructuring process [Krieger, Weskamp, Throe, 1985, pp. 109].

4. Concluding Remarks

32. The conclusions arrived at are somewhat simplified and cut across the individual interests which governments and their agencies might have in subsidizing the economy. A number of points can be made to characterize German subsidization policy:

- The main institutional feature of the system is marked by its large scattering and decentralization. Subsidies are distributed from roughly 10 000 different budgetary items in the federal and other budgets.
- The large number of programmes may give the impression that many different objectives were pursued by the authorities. However, neither the logic of economic goals and the ranking of their priorities is clear at all, nor is there a co-ordination between the different suppliers of subsidies. A coherent industrial policy being all of a piece does not exist. At the level of political rhetoric a commitment to a growth-oriented subsidization strategy is mostly claimed.
- The huge package of subsidy programmes has something in store for everyone. Actually, each industry receives some kind of assistance at least, but only very few branches remarkable amounts. Multiple subsidization from different suppliers and programmes for the same purpose and activity is quite often observed.
- From the inter-industrial pattern of the distribution of subsidies there is little evidence for a subsidization strategy of picking the winners. More indications point to an overall strategy of maintaining less successful industries, especially, since the biggest part of all subsidies is spent for some declining industries.
- Considering the structure of financing subsidies through taxes as well, strengthens the impression that German subsidization policy mostly redistributes money from structurally strong sectors to weak ones.
- There is some evidence that subsidization policy has inflated costs, especially wages.

33. The complex and confusing system favours tendencies to look at it from a partial point of view, i.e. the promotion of one product, one enterprise, one region, or one production-line, and since many programmes rather contain small sums of money the issue of financing subsidies is mostly not taken into account or is played down as a negligible fact at the margin. However, "many a little make a mickle" and, indeed, the total volume of subsidization has reached a level which makes it likely that huge allocational distortions and an excessive taxation have taken place. Furtheron, the lack of a co-ordinated system favours attitudes as well, always to add new programmes, but seldom to abolish or restructure old ones, thus constantly stimulating new demands for further subsidies.

34. So far German subsidization policy was discussed in a national context and was measured against the declared market-oriented pretensions of the Federal Republic. Of course, there is an international dimension as well. Thus, the final question remains at which rank the Federal Republic is placed in the international subsidy race.

A clear-cut answer based on definite numerical quantities is hardly to achieve. At a first glance, Germany seems to be in the lower midfield. However, in internationally comparable statistics under the heading "subsidies" there are only reported current transfers to enterprises which do not give an exhaustive description of the total spectrum of subsidization policies. For instance, capital transfers like investment grants are not included therein, assistance in the form of preferential loans is stated as an increase in stocks in the capital accumulation account, and tax expenditures are not incorporated in national accounts at all.

For some subsidization components more or less comparable figures can be collected from international data sources. From OECD statistics (Table A7) it becomes apparent that especially German subsidization policy is relying very much on capital transfers (investment grants) while Sweden on the other hand prefers wage subsidies which according to the system of national accounts represent subsidies in a narrow sense. Thus, a more comprehensive data compilation changes the rank order of national degrees of subsidization significantly.

35. A more detailed basis of comparison is possible for EC-member countries through general government statistics of EUROSTAT. In the case of the Federal Republic, figures computed from EC-statistic come very close to the total amount of financial assistance which we have calculated on our own (1). The cross-country comparison (Table A8) reveals that German degrees of subsidization are lower than those of most other EC-members, especially in contrast to those of the smaller countries. One should keep in mind, however, that the figures of Table A8 only indicate one

(1) In 1981, for instance, subsidization categories from EC-statistics add to a volume of D-Mark 63.9 bn (see footnotes in Table A8) against D-Mark 69.4 bn in our own calculations. The difference is due to our inclusion of preferential loans (D-Mark 2.7 bn) and the governmental takeover of contributions to the agricultural social insurance system (D-Mark 3.9 bn); the two items cannot be separated in EC-statistics.

part of all subsidizing measures. Excluded are preferential loans and tax expenditures, which in some countries (e.g. France, Germany) are a very important source of subsidization.

To get to know the exact quantities of the different degrees of national subsidization is ultimately of secondary significance, because different overall levels will be equalized by currency exchange rates. What is really important to know is the inter-industrial structure of subsidization. Just as differences in subsidies among industries and sectors are important for the national allocation of resources, the same is true for the international composition of the division of labour. But such figures are not available for most countries. With regard to the Federal Republic of Germany the Kiel Institute has closed this gap. The results show that there is no reason for Germany to play the role of an injured innocent in the international subsidy game.

Table A1 - Subsidies For 49 Branches, 1973-1984 (Million D-Mark)

Economic Sector/Industry	1973	1974	1980	1981	1984
<u>Agriculture, Forestry, Fisheries</u>	10408	10769	17078	15294	20216
<u>Generation And Distribution of Energy And Water</u>	585	513	859	930	1072
<u>Mining</u>	1665	2094	6146	5626	5676
Coal Mining	1602	1913	6023	5478	5528
Other Minings	63	181	123	148	148
<u>Manufacturing</u>	6061	6476	9414	10201	13482
Chemicals, Nuclear Fuel	577	562	1036	1034	1081
Mineral Oil Refining	153	154	174	168	193
Plastics	111	96	166	193	217
Rubber	35	25	26	25	32
Stones And Earths	95	115	135	165	184
Fine Ceramics	19	24	33	50	57
Glass	27	35	39	54	78
Iron And Steel	95	129	336	395	2009
Non-Ferrous Metal	78	97	119	147	136
Foundries	35	43	51	42	51
Drawing Plants, Cold Rolling Mills, Steel Shaping	31	40	65	69	73
Structural And Light-Metal Engineering, Rolling Stock	116	114	159	170	163
Mechanical Engineering	779	747	1247	1392	1819
Data Processing Equipment	254	240	154	133	154
Road Vehicles	298	275	399	508	899
Shipbuilding	209	242	603	721	614
Aircraft, Aerospace	592	643	783	855	727
Electrical Engineering	1116	1203	1538	1568	1971
Precision And Optical Goods, Clocks And Watches	77	91	178	187	214
Iron, Steel, Sheet And Metal Goods	130	145	204	239	276
Musical Instruments, Toys, Jewellery And Others	16	18	28	33	39
Woodworking	22	26	50	54	61
Wood Products	60	78	163	145	157
Pulp, Paper And Paperboard Production	34	43	48	23	38
Paper And Paperboard Processing	55	63	149	169	186
Printing And Copying	256	282	383	407	511
Leather	10	12	20	23	26
Textile	102	123	117	138	175
Clothing	88	94	118	125	137
Food, Beverages	547	601	712	782	962
Tobacco	44	116	181	187	242
<u>Construction</u>	283	252	529	521	741
<u>Commerce</u>	548	616	1044	1133	1343
<u>Transport</u>	12230	13234	18314	18063	19053
Railways	9542	10055	13783	13595	14325
Navigation	612	638	712	749	776
Other Transports	2076	2541	3819	3719	3952
<u>Communication (Federal Post Office)</u>	675	497	2381	2176	2283
<u>Banking And Insurance</u>	921	1081	1852	1426	2202
Credit Institutions	615	736	802	330	580
Insurance Companies	306	345	1050	1096	1622
<u>Other Private Services</u>	3803	4232	9192	9900	12311
Hotels And Restaurants	219	283	381	397	407
Education, Science, Art, Publishing	812	836	1354	1462	1802
Health And Veterinary Services	1977	2164	5081	5704	6906
Other Private Services, n.e.s.	795	949	2376	2337	3196
TOTAL OF ALL ENTERPRISES	37179	39764	66809	65270	78379
<u>Housing^a</u>	9837	11259	17062	18045	20015
<u>Private Non-Profit Institutions</u>	9839	11255	18812	19712	21642
ALL SECTORS	56855	62278	102683	103027	120036

^a Self-occupied housing included.

Table A2 - Subsidies For 49 Branches Broken Down By Type of Subsidy And Subsidization Policy, Average 1980-81 (Million D-Mark)

Economic Sector/Industry	Type of Subsidy		Type of Subsidization Policy			
	Tax Expenditure	Financial Assistance	Civil and Military Research Policy	Regional Policy	Sector-oriented Policy	Other Policies
<u>Agriculture, Forestry, Fisheries</u>	2173	14013	9	14	11921	4243
<u>Generation And Distribution of Energy And Water</u>	328	567	132	217	503	43
<u>Mining</u>	357	5530	359	45	5010	473
Coal Mining	316	5435	334	18	4929	471
Other Minings	41	95	26	27	81	2
<u>Manufacturing</u>	4686	5122	2887	4975	1349	597
Chemicals, Nuclear Fuel	572	463	307	538	104	87
Mineral Oil Refining	127	44	27	46	70	28
Plastics	113	67	27	150	1	2
Rubber	15	11	5	20	0	0
Stones And Earths	91	59	17	118	1	15
Fine Ceramics	23	19	7	33	2	1
Glass	27	20	7	38	1	2
Iron And Steel	51	315	126	109	102	29
Non-Ferrous Metal	63	70	43	62	0	30
Foundries	24	23	9	34	1	4
Drawing Plants, Cold Rolling Mills, Steel Shaping	33	35	20	44	1	3
Structural And Light-Metal Engineering, Rolling Stock	97	68	36	126	3	1
Mechanical Engineering	328	992	802	441	73	5
Data Processing Equipment	38	107	102	41	0	1
Road Vehicles	302	153	96	345	7	7
Shipbuilding	19	644	91	32	540	0
Aircraft, Aerospace	15	805	401	11	405	3
Electrical Engineering	882	672	599	946	2	7
Precision And Optical Goods, Clocks And Watches	119	65	51	91	1	40
Iron, Steel, Sheet And Metal Goods	155	67	31	187	1	4
Musical Instruments, Toys, Jewellery And Others	22	8	5	26	0	0
Woodworking	36	17	3	43	1	5
Wood Products	82	73	17	130	1	7
Pulp, Paper And Paperboard Production	17	19	4	25	0	8
Paper And Paperboard Processing	116	44	6	148	1	4
Printing And Copying	361	34	8	120	0	268
Leather	12	10	4	15	0	4
Textile	84	44	16	109	1	2
Clothing	100	22	7	115	0	1
Food, Beverages	590	158	19	665	36	28
Tobacco	180	4	0	176	0	8
<u>Construction</u>	236	288	38	357	1	130
<u>Commerce</u>	810	279	1	1042	7	39
<u>Transport</u>	1893	16296	51	232	17041	865
Railways	529	13161	0	16	13373	301
Navigation	539	191	10	16	704	1
Other Transports	825	2944	41	201	2964	563
<u>Communication (Federal Post Office)</u>	2170	109	0	110	2141	29
<u>Banking And Insurance</u>	1621	20	2	87	506	1045
Credit Institutions	548	20	2	62	503	0
Insurance Companies	1073	0	0	25	3	1045
<u>Other Private Services</u>	5488	4060	486	1022	1857	6181
Hotels And Restaurants	185	205	1	359	3	27
Education, Science, Art, Publishing	292	1117	156	188	310	754
Health And Veterinary Services	4252	1142	7	95	415	4877
Other Private Services, n.e.s.	760	1597	323	381	1129	524
TOTAL OF ALL ENTERPRISES	19759	46282	3962	8098	40334	13643
<u>Housing^a</u>	6986	10568	3	102	12493	4957
<u>Private Non-Profit Institutions</u>	4122	15141	4089	74	211	14889
ALL SECTORS	30867	71990	8054	8273	53037	33489

^aSelf-occupied housing included.

Table A3 - Indicators Of The Intersectoral Pattern Of Subsidization

Economic Sector/Industry	Degrees Of Subsidization, p.c. (Rank)		Subsidies Per Employed Person D-Mark (Rank)		Compound Rates, p.c. (Rank)		
	1973-74	1980-81	1973-74	1980-81	1970-1982		1960-83
					Employed Persons	Net Value Added At Factor Cost	Real Gross Value Added At Market Price
<u>Agriculture, Forestry, Fisheries</u>	91.8 (2)	273.0 (2)	5620 (6)	11380 (5)	-3.9 (43)	2.7 (42)	1.1 (35)
<u>Generation And Distribution of Energy And Water</u>	3.8 (16)	4.0 (15)	2130 (14)	3330 (15)	1.0 (9)	8.3 (10)	5.7 (8)
<u>Mining</u>	28.2	82.7	7290	24940	-2.2	5.7	-2.5
Coal Mining	29.9 (4)	90.6 (3)	7450 (3)	26260 (2)	-2.1 (29)	6.1 (22)	-1.9 (45)
Other Minings	15.7 (7)	17.5 (8)	5550 (7)	7970 (8)	-3.5 (42)	0.3 (47)	-4.6 (47)
<u>Manufacturing</u>	2.3	2.5	640	1100	-1.5	5.6	3.2
Chemicals, Nuclear Fuel	2.0 (25)	3.1 (19)	880 (21)	1680 (20)	-0.6 (16)	5.4 (25)	6.3 (6)
Mineral Oil Refining	4.3 (14)	3.5 (17)	3230 (10)	4330 (14)	-1.3 (22)	15.6 (1)	4.6 (13)
Plastics	1.8 (27)	1.9 (29)	500 (27)	790 (29)	1.7 (4)	7.9 (12)	9.3 (2)
Rubber	0.9 (42)	0.5 (47)	220 (40)	220 (46)	-2.1 (30)	5.0 (28)	3.3 (17)
Stones And Earths	1.1 (39)	1.4 (34)	370 (30)	650 (33)	-2.2 (32)	2.6 (43)	2.4 (23)
Fine Ceramics	1.4 (31)	2.0 (28)	330 (34)	690 (31)	-2.0 (27)	4.6 (33)	0.9 (36)
Glass	1.2 (36)	1.3 (35)	320 (37)	550 (35)	-2.2 (31)	3.7 (36)	3.0 (20)
Iron And Steel	1.0 (40)	3.1 (21)	320 (36)	1210 (23)	-2.4 (34)	2.9 (40)	0.8 (38)
Non-Ferrous Metal	3.5 (19)	3.7 (16)	940 (19)	1750 (19)	-3.4 (41)	3.1 (38)	3.8 (15)
Foundries	1.1 (38)	0.9 (42)	280 (38)	380 (41)	-2.9 (37)	3.0 (39)	0.2 (41)
Drawing Plants, Cold Rolling Mills, Steel Shaping	0.4 (46)	0.6 (46)	120 (46)	240 (45)	-1.0 (18)	3.2 (37)	1.5 (33)
Structural And Light-Metal Engineering, Rolling Stock	2.0 (24)	1.7 (30)	580 (26)	880 (26)	0.0 (15)	7.7 (13)	2.1 (26)
Mechanical Engineering	2.3 (23)	2.6 (23)	640 (23)	1190 (24)	-1.1 (20)	5.9 (24)	2.1 (27)
Data Processing Equipment	6.0 (12)	2.7 (22)	2340 (13)	1860 (17)	-3.2 (39)	6.2 (20)	11.5 (1)
Road Vehicles	1.2 (37)	1.0 (41)	320 (35)	470 (37)	0.5 (12)	8.0 (11)	5.6 (9)
Shipbuilding	11.5 (10)	38.5 (4)	3130 (11)	11410 (4)	-2.0 (28)	7.2 (17)	0.1 (42)
Aircraft, Aerospace	64.5 (3)	31.2 (5)	15250 (2)	14500 (3)	2.9 (2)	13.4 (2)	8.9 (3)
Electrical Engineering	3.5 (18)	3.1 (20)	940 (20)	1400 (21)	-1.1 (19)	6.8 (18)	5.4 (10)
Precision And Optical Goods, Clocks And Watches	1.4 (30)	1.7 (31)	390 (28)	770 (30)	0.3 (13)	7.7 (14)	4.1 (14)
Iron, Steel, Sheet And Metal Goods	1.3 (33)	1.6 (32)	350 (32)	650 (32)	-1.9 (26)	4.7 (31)	2.1 (28)
Musical Instruments, Toys, Jewellery And Others	0.9 (41)	1.0 (40)	180 (43)	330 (42)	-1.5 (23)	6.8 (19)	0.7 (39)
Woodworking	1.3 (34)	2.2 (26)	330 (33)	870 (27)	-3.1 (38)	4.7 (32)	1.7 (30)
Wood Products	0.7 (43)	1.1 (39)	180 (42)	420 (38)	-1.3 (21)	6.1 (21)	2.2 (25)
Pulp, Paper And Paperboard Production	1.7 (28)	1.3 (36)	590 (25)	650 (34)	-3.3 (40)	5.2 (27)	3.0 (19)
Paper And Paperboard Processing	1.5 (29)	3.3 (18)	380 (29)	1220 (22)	-2.4 (35)	3.9 (35)	2.5 (21)
Printing And Copying	4.0 (15)	4.2 (14)	1020 (18)	1820 (18)	-2.6 (36)	4.7 (30)	2.5 (22)
Leather	0.4 (47)	0.6 (45)	70 (47)	180 (47)	-5.0 (46)	1.7 (45)	-2.0 (46)
Textile	1.2 (35)	1.2 (37)	240 (39)	390 (39)	-5.2 (47)	0.4 (46)	0.6 (40)
Clothing	1.3 (32)	1.5 (33)	220 (41)	390 (40)	-4.7 (45)	1.8 (44)	0.1 (43)
Food, Beverages	2.4 (22)	2.1 (27)	630 (24)	850 (28)	-0.9 (17)	6.0 (23)	2.4 (24)
Tobacco	8.4 (11)	13.0 (10)	2420 (12)	7220 (9)	-4.0 (44)	2.8 (41)	1.8 (29)
<u>Construction</u>	0.4 (45)	0.6 (44)	120 (45)	250 (44)	-1.5 (24)	5.2 (26)	1.6 (32)
<u>Commerce</u>	0.7 (44)	0.8 (43)	170 (44)	310 (43)	0.1 (14)	7.2 (16)	3.2 (18)
<u>Transport</u>	61.5	61.2	12290	18730	-0.1	7.2	2.7
Railways	187.8 (1)	1939.0 (1)	22320 (1)	38720 (1)	-1.5 (25)	4.4 (34)	-0.1 (44)
Navigation	26.9 (5)	21.4 (7)	7060 (4)	10010 (7)	-2.3 (33)	5.0 (29)	1.2 (34)
Other Transports	17.6 (6)	14.7 (9)	4540 (8)	6920 (10)	1.4 (5)	9.3 (8)	4.8 (12)
<u>Communication (Federal Post Office)</u>	3.6 (17)	9.1 (13)	1200 (17)	4570 (13)	1.0 (10)	9.3 (9)	6.3 (7)
<u>Banking And Insurance</u>	3.1	2.7	1460	2210	1.9	12.2	6.5
Credit Institutions	2.6 (21)	1.1 (38)	1400 (16)	1060 (25)	2.4 (3)	12.4 (3)	6.4 (5)
Insurance Companies	5.2 (13)	10.3 (11)	1590 (15)	5220 (12)	0.9 (11)	11.6 (5)	6.9 (4)
<u>Other Private Services</u>	5.2	6.2	1700	3470	1.9	11.0	3.9
Hotels And Restaurants	2.7 (20)	2.5 (24)	360 (31)	500 (36)	1.2 (8)	7.5 (15)	0.9 (37)
Education, Science, Art, Publishing	11.7 (9)	9.8 (12)	3750 (9)	5790 (11)	1.4 (6)	10.0 (7)	1.7 (31)
Health And Veterinary Services	14.5 (8)	21.6 (6)	5710 (5)	10670 (6)	5.1 (1)	10.6 (6)	3.8 (16)
Other Private Services, n.e.s.	1.9 (26)	2.4 (25)	800 (22)	1920 (16)	1.3 (7)	12.0 (4)	5.2 (11)
TOTAL OF ALL ENTERPRISES	6.5	7.2	1710	3100	-0.8	7.0	3.2
<u>Housing^a</u>	50.8	52.9	X	X	X	8.8	3.8
<u>Private Non-Profit Institutions</u>	329.8	413.5	17300	26640	3.0	10.5	3.4
ALL SECTORS	9.7	10.8	2570	4640	-0.7	7.2	3.2

^aSelf-occupied housing included.

Table A4 - Intersectoral Pattern of Discrimination at the Government Level (Average 1980-81)

Economic Sector/Industry	Number of Industries Participating in a Same Subsidy Programme (Subsidization Shares, p.c.)					Discrimination Index	
	1	2-4	5-10	11-24	≥ 25	Weighted by the Number of Participating Industries (Rank)	Weighted by Subsidization Shares (Rank)
<u>Agriculture, Forestry, Fisheries</u>	99.8	0.0	0.0	0.0	0.1	4.88 (5)	3.21 (8)
<u>Generation And Distribution of Energy And Water</u>	59.5	1.0	9.7	2.9	26.9	2.51 (17)	2.16 (17)
<u>Mining</u>	92.7	1.7	3.4	0.8	1.4		
Coal Mining	94.2	1.1	3.4	0.6	0.8	4.92 (4)	3.27 (7)
Other Minings	31.5	28.2	2.4	11.3	26.5	3.17 (12)	2.78 (12)
<u>Manufacturing</u>	13.8	6.5	6.8	7.2	65.6		
Chemicals, Nuclear Fuel	4.5	9.4	4.0	8.1	74.0	1.70 (26)	1.12 (30)
Mineral Oil Refining	41.0	0.0	7.0	8.8	43.2	2.11 (20)	2.73 (14)
Plastics	0.0	0.0	0.3	3.9	95.8	1.30 (39)	0.90 (38)
Rubber	0.0	0.0	0.1	0.6	99.2	1.09 (44)	0.75 (44)
Stones And Earths	0.0	0.0	0.3	4.1	95.5	1.10 (43)	0.74 (45)
Fine Ceramics	2.6	0.0	2.7	8.8	85.8	1.46 (36)	0.96 (36)
Glass	0.0	1.6	2.7	6.9	88.9	1.08 (45)	0.97 (34)
Iron And Steel	31.9	3.6	1.5	13.4	49.7	1.93 (22)	2.07 (18)
Non-Ferrous Metal	0.0	2.4	5.8	30.7	61.2	1.69 (27)	1.28 (27)
Foundries	0.0	1.7	0.0	4.4	93.9	1.05 (46)	0.60 (47)
Drawing Plants, Cold Rolling Mills, Steel Shaping	0.0	0.0	0.7	3.6	95.7	1.03 (47)	0.65 (46)
Structural And Light-Metal Engineering, Rolling Stock	1.1	0.0	0.4	10.8	87.6	1.22 (42)	0.89 (40)
Mechanical Engineering	3.4	17.0	18.0	9.6	52.0	1.61 (31)	1.52 (21)
Data Processing Equipment	0.0	0.0	28.9	2.6	68.5	1.69 (28)	1.57 (20)
Road Vehicles	0.0	1.4	6.6	9.9	82.0	1.63 (30)	1.01 (32)
Shipbuilding	81.7	0.0	11.3	1.0	6.0	3.64 (9)	4.14 (4)
Aircraft, Aerospace	49.4	3.4	12.8	11.6	22.9	3.70 (6)	3.16 (9)
Electrical Engineering	0.0	0.1	2.4	10.0	87.5	1.83 (24)	1.26 (28)
Precision And Optical Goods, Clocks And Watches	0.0	0.6	21.8	8.3	69.2	1.68 (29)	1.37 (25)
Iron, Steel, Sheet And Metal Goods	0.0	0.0	0.2	1.2	98.6	1.51 (34)	1.12 (31)
Musical Instruments, Toys, Jewellery And Others	0.0	0.0	0.0	1.1	98.9	1.43 (37)	0.97 (35)
Woodworking	0.0	0.5	1.1	6.8	91.6	1.28 (40)	0.89 (39)
Wood Products	0.1	0.2	8.2	2.7	88.9	1.53 (32)	0.96 (37)
Pulp, Paper And Paperboard Production	0.0	0.0	0.9	4.8	94.3	1.49 (35)	0.98 (33)
Paper And Paperboard Processing	0.0	0.0	0.5	2.0	97.5	1.53 (33)	0.88 (41)
Printing And Copying	0.0	67.2	0.3	0.8	31.7	2.52 (15)	3.43 (6)
Leather	0.0	0.0	13.2	1.0	85.8	1.36 (38)	0.85 (42)
Textile	0.0	0.0	0.0	2.3	97.7	1.23 (41)	0.75 (43)
Clothing	0.0	0.0	1.8	0.4	97.8	1.95 (21)	1.45 (22)
Food, Beverages	15.7	0.1	1.8	1.0	81.5	1.88 (23)	1.43 (23)
Tobacco	5.0	0.0	0.0	0.1	94.9	2.85 (14)	1.36 (26)
<u>Construction</u>	7.8	16.8	18.6	1.9	54.9	2.33 (19)	1.98 (19)
<u>Commerce</u>	2.3	1.1	14.7	0.2	81.8	2.51 (16)	1.43 (24)
<u>Transport</u>	84.2	14.3	0.1	0.2	1.2		
Railways	91.5	8.4	0.0	0.0	0.1	5.75 (1)	3.50 (5)
Navigation	87.5	9.3	1.4	0.1	1.7	4.81 (6)	4.40 (3)
Other Transports	57.1	36.6	0.4	1.0	4.9	3.75 (7)	2.64 (15)
<u>Communication (Federal Post Office)</u>	49.4	45.8	0.0	0.0	4.8	2.92 (13)	2.99 (11)
<u>Banking And Insurance</u>	95.7	0.0	0.0	0.1	4.2		
Credit Institutions	91.9	0.0	0.0	0.2	7.8	3.56 (10)	3.08 (10)
Insurance Companies	97.7	0.0	0.0	0.0	2.3	5.42 (2)	4.74 (1)
<u>Other Private Services</u>	67.8	20.9	1.9	1.6	7.7		
Hotels And Restaurants	22.9	1.0	16.0	0.0	60.0	1.74 (25)	1.18 (29)
Education, Science, Art, Publishing	80.6	5.4	0.4	0.5	13.2	3.39 (11)	2.78 (13)
Health And Veterinary Services	73.1	25.1	0.0	0.0	1.7	4.99 (3)	4.41 (2)
Other Private Services, n.e.s.	55.6	24.0	4.7	6.1	9.7	2.34 (18)	2.57 (16)
TOTAL OF ALL ENTERPRISES	72.8	9.8	2.2	1.5	13.8		
<u>Housing^a</u>	99.6	0.4	0.0	0.0	0.0		
<u>Private Non-Profit Institutions</u>	94.4	4.1	0.5	0.7	0.3		
ALL SECTORS	81.4	7.1	1.5	1.1	8.9		

^aSelf-occupied housing included.

Table A5 - Intersectoral Pattern of Subsidization Broken Down by Intrasectoral Points of Promotion, Average 1980-81
(Shares, p.c.)

Economic Sector/Industry	Gross Output	Intermediate Inputs	Compensation of Employees	Property and Entrepreneurial Incomes	Fixed Capital Formation
<u>Agriculture, Forestry, Fisheries</u>	48.7	7.7	3.1	34.6	6.0
<u>Generation And Distribution of Energy And Water</u>	3.1	7.7	4.5	19.4	65.3
<u>Mining</u>	37.2	19.1	21.5	4.6	17.7
Coal Mining	38.0	18.7	21.9	4.7	16.7
Other Minings	2.9	26.2	12.4	0	58.5
<u>Manufacturing</u>	24.4	16.8	15.4	0.6	42.7
Chemicals, Nuclear Fuel	14.5	12.9	10.7	0	61.9
Mineral Oil Refining	0.6	46.3	0.7	0	52.4
Plastics	8.4	4.7	14.0	0	72.9
Rubber	7.8	5.1	18.4	0	68.6
Stones And Earths	6.0	4.2	13.1	0	76.7
Fine Ceramics	0	6.0	13.5	2.4	78.0
Glass	0	6.9	10.3	0	82.8
Iron And Steel	6.3	21.3	9.0	0	63.4
Non-Ferrous Metal	30.2	13.0	7.7	0	49.1
Foundries	10.6	7.3	20.4	0	61.7
Drawing Plants, Cold Rolling Mills, Steel Shaping	10.5	12.4	25.2	0	51.9
Structural And Light-Metal Engineering, Rolling Stock	26.7	8.1	16.2	1.2	47.7
Mechanical Engineering	7.1	15.4	23.6	3.4	50.5
Data Processing Equipment	9.8	39.3	33.0	0	17.8
Road Vehicles	2.6	6.4	11.9	0.2	78.9
Shipbuilding	60.7	18.5	9.5	0	11.3
Aircraft, Aerospace	6.0	42.5	30.3	0	21.1
Electrical Engineering	29.5	18.4	29.1	0.1	22.8
Precision And Optical Goods, Clocks And Watches	44.7	10.7	25.1	0	19.5
Iron, Steel, Sheet And Metal Goods	40.7	3.0	17.1	0.2	38.9
Musical Instruments, Toys, Jewellery And Others	33.9	2.2	18.1	0	45.8
Woodworking	5.8	2.2	6.4	0	85.6
Wood Products	3.9	3.2	9.4	0.6	82.8
Pulp, Paper And Paperboard Production	5.6	2.2	9.1	0	83.1
Paper And Paperboard Processing	15.8	1.1	8.1	0	75.0
Printing And Copying	74.2	0.5	6.2	0.1	19.0
Leather	23.8	6.4	12.7	0	57.1
Textile	15.7	4.9	14.7	0	64.7
Clothing	56.2	2.9	12.8	0	28.1
Food, Beverages	45.8	2.0	7.1	0.5	44.5
Tobacco	68.1	0	7.6	0	24.3
<u>Construction</u>	10.3	2.0	30.4	0.5	56.8
<u>Commerce</u>	46.1	0.5	19.9	0.9	32.6
<u>Transport</u>	8.3	22.1	31.6	15.2	22.9
Railways	2.3	11.7	48.8	14.6	22.7
Navigation	0.1	44.1	0.8	37.9	17.0
Other Transports	31.6	23.9	6.6	13.2	24.8
<u>Communication (Federal Post Office)</u>	5.5	0.6	2.4	91.1	0.4
<u>Banking And Insurance</u>	63.9	0	3.4	32.0	0.8
Credit Institutions	0.2	0	6.0	92.1	1.7
Insurance Companies	97.4	0	2.0	0.3	0.3
<u>Other Private Services</u>	49.7	11.9	9.2	13.2	16.1
Hotels And Restaurants	1.8	1.4	10.5	3.8	82.4
Education, Science, Art, Publishing	7.1	18.5	12.9	49.1	12.4
Health And Veterinary Services	75.8	7.4	5.8	2.6	8.5
Other Private Services, n.e.s.	23.5	18.5	16.1	17.5	24.5
TOTAL OF ALL ENTERPRISES	31.0	15.7	14.1	19.3	19.9
<u>Housing^a</u>	12.2	1.1	0.3	20.9	65.4
<u>Private Non-Profit Institutions</u>	3.4	14.0	33.2	34.8	14.6
ALL SECTORS	22.6	16.3	11.9	22.5	26.7

^aSelf-occupied housing included.

Table A6 - Intersectoral Pattern of Ratios of Subsidization, Average 1980-81 (p.c. of Aggregates Subsidized)

Economic Sector/Industry	Gross Output	Intermediate Inputs and Compensation of Employees	Property and Entrepreneurial Incomes	Investment
<u>Agriculture, Forestry, Fisheries</u>	12.0	4.2	37.2	10.8
<u>Generation And Distribution of Energy And Water</u>	0	0.1	2.1	3.5
Mining	6.8	8.0	25.4	37.9
Coal Mining	7.7	8.6	25.2	45.5
Other Minings	0.1	2.1	0	12.5
<u>Manufacturing</u>	0.2	0.3	0.1	7.0
Chemicals, Nuclear Fuel	0.1	0.2	0	9.0
Mineral Oil Refining	0	0.1	0	5.7
Plastics	0.1	0.1	0	8.2
Rubber	0	0	0	2.6
Stones And Earths	0	0.1	0	4.7
Fine Ceramics	0	0.2	0.4	14.9
Glass	0	0.1	0	6.1
Iron And Steel	0	0.2	0	7.8
Non-Ferrous Metal	0.2	0.1	0	7.6
Foundries	0	0.1	0	4.8
Drawing Plants, Cold Rolling Mills, Steel Shaping	0	0.1	0	2.7
Structural And Light-Metal Engineering, Rolling Stock	0.2	0.2	0.1	10.8
Mechanical Engineering	0.1	0.4	1.0	12.4
Data Processing Equipment	0.1	0.9	0	1.4
Road Vehicles	0	0.1	0	3.7
Shipbuilding	5.4	2.4	0	36.3
Aircraft, Aerospace	0.7	8.8	0	34.6
Electrical Engineering	0.4	0.7	0	6.5
Precision And Optical Goods, Clocks And Watches	0.4	0.4	0	4.2
Iron, Steel, Sheet And Metal Goods	0.2	0.1	0	5.4
Musical Instruments, Toys, Jewellery And Others	0.1	0.1	0	4.7
Woodworking	0	0	0	11.1
Wood Products	0	0.1	0	11.0
Pulp, Paper And Paperboard Production	0	0	0	2.6
Paper And Paperboard Processing	0.2	0.1	0	13.2
Printing And Copying	1.3	0.1	0	5.4
Leather	0.1	0.1	0	5.3
Textile	0.1	0.1	0	6.6
Clothing	0.3	0.1	0	9.6
Food, Beverages	0.2	0	0	5.5
Tobacco	0.8	0.3	0	13.5
<u>Construction</u>	0	0.1	0	5.3
<u>Commerce</u>	0	0	0	2.5
<u>Transport</u>	1.2	9.3	23.5	26.2
Railways	1.5	36.7	-359.2 ^b	51.2
Navigation	0	2.7	29.6	6.1
Other Transports	1.4	1.6	4.4	12.0
<u>Communication (Federal Post Office)</u>	0.3	0.3	26.5	0.1
<u>Banking And Insurance</u>	1.0	0.1	1.9	0.2
Credit Institutions	0	0.1	2.0	0.2
Insurance Companies	3.5	0.1	0.4	0.2
<u>Other Private Services</u>	1.5	1.2	1.2	3.0
Hotels And Restaurants	0	0.1	0.3	13.7
Education, Science, Art, Publishing	0.2	1.5	8.4	2.2
Health And Veterinary Services	8.4	3.0	0.6	5.0
Other Private Services, n.e.s.	0.3	1.0	0.6	1.9
TOTAL OF ALL ENTERPRISES	0.6	0.7	4.1	6.9
<u>Housing^a</u>	1.9	0.6	9.8	12.2
<u>Private Non-Profit Institutions</u>	1.7	25.6	X	52.7
ALL SECTORS	0.7	1.0	6.6	9.4

^aSelf-occupied housing included. - ^bP.c. of Loss.

Table A7- International Comparison of Subsidization, 1971 - 1983 (p.c. of Domestic Factor Incomes Without General Government)

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Australia													
(1) Subsidies	1.3	1.4	1.4	1.5	1.4	1.4	1.7	1.8	1.8	1.9	2.0	2.2	2.1
(2) Subsidies, Capital Transfers	1.5	1.6	1.7	1.8	1.7	1.6	2.0	2.0	2.0	2.1	2.3	2.5	2.4
Canada (1)	1.3	1.3	1.4	2.7	3.6	2.7	2.5	2.3	2.7	3.7	3.9	3.6	3.4
(2)	1.7	1.7	1.8	3.1	4.0	3.2	3.0	2.9	3.2	4.3	4.4	4.8	5.1
Denmark (1)	4.4	4.5	4.8	5.6	4.5	4.8	5.3	5.6	5.6	5.5	5.5	5.8	5.9
(2)	5.9	5.8	6.0	7.0	6.2	6.8	7.1	7.5	7.3	7.5	8.2	8.0	8.3
France (1)	2.3	2.2	2.4	2.7	3.0	3.3	3.3	3.1	3.1	3.0	3.4	3.5	3.4
(2)	3.0	2.9	3.2	3.5	4.0	5.0	4.2	3.8	3.9	3.9	4.3	4.4	4.3
Germany (1)	2.4	2.8	3.0	2.8	3.0	2.9	3.1	3.4	3.3	3.1	2.9	2.8	2.8
(2)	5.4	5.8	5.9	6.0	6.2	6.5	6.7	6.5	6.4	6.2	5.8	5.6	5.7
Netherlands (1)	..	..	..	..	..	..	1.9	2.0	2.0	2.2	2.3	2.5	2.7
(2)	..	..	..	..	..	..	3.4	3.6	4.3	5.7	6.2	6.3	6.3
Sweden (1)	3.0	3.1	3.1	3.8	5.0	6.5	7.2	7.3	7.3	7.5	8.3	8.8	9.3
(2)	3.5	3.8	3.6	4.2	5.4	7.2	8.6	9.0	10.1	9.0	10.3	11.6	12.0
United Kingdom (1)	2.6	2.8	2.9	5.6	5.5	4.5	3.6	3.5	3.7	3.9	4.0	3.3	3.4
(2)	5.0	5.6	5.9	7.5	7.7	6.3	5.6	5.5	5.2	5.6	8.1	5.7	5.4
Austria (1)	2.9	2.6	2.7	3.3	4.9	4.5	4.7	5.0	4.7	4.8	4.9	4.9	5.2
Belgium (1)	1.8	1.9	2.1	1.7	1.8	2.1	2.1	2.3	2.6	2.2	2.3	2.1	2.4
Italy (1)	2.3	2.6	2.2	2.3	3.1	3.0	3.3	3.6	3.2	3.3	3.7	4.4	3.8
Japan (1)	1.5	1.6	1.4	2.2	2.0	1.8	1.9	1.9	1.9	2.1	2.1	2.0	2.1
Norway (1)	8.7	8.7	8.7	9.4	10.2	11.5	12.7	13.0	11.5	11.2	10.6	10.6	10.0
United States (1)	0.7	0.9	0.6	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.8	1.0

(1) Subsidies according to the accounts for general government. - (2) Subsidies plus capital transfers to other resident sectors according to the accounts for general government.

Source: OECD (b), 1985. - Own calculations and estimates.

Table A8 - Comparison of Subsidization Between EC-Member Countries, 1970-1982
(p.c. of Domestic Factor Incomes Without General Government)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Belgium General Government (1)	4.2	4.4	4.9	4.7	4.6	5.0	5.4	5.6	5.8	5.8	6.0	6.6	6.2
General Government plus EC (2)	..	4.9	5.4	5.4	5.1	5.5	6.2	6.6	6.9	7.2	6.8	7.3	7.0
Denmark (1)	5.7	5.6	5.2	3.9	5.2	4.1	4.6	4.0	4.2	4.3	4.8	5.5	..
(2)	..	..	..	4.9	6.8	5.6	6.4	6.5	6.9	6.7	6.8	7.1	..
France (1)	3.4	3.0	3.0	2.8	3.2	3.5	4.2	3.7	3.6	3.3	3.1	3.4	3.6
(2)	..	3.6	3.6	3.6	3.6	4.1	5.0	4.5	4.4	4.2	4.0	4.3	4.3
Germany (1)	4.4	3.9	4.2	4.5	4.6	4.8	5.0	5.0	5.1	5.3	5.1	4.9	4.9
(2)	..	4.3	4.5	5.0	5.0	5.1	5.5	5.6	5.8	5.9	5.6	5.4	5.4
Ireland (1)	..	..	..	..	8.5	9.2	9.7	8.7	9.2	9.8	11.0	11.4	..
(2)	..	..	..	..	11.7	13.4	13.5	15.9	16.8	16.6	16.7	15.6	..
Italy (1)	4.0	3.5	4.0	3.3	3.5	5.1	4.5	6.3	5.3	5.3	5.1	5.1	5.6
(2)	..	3.9	4.5	3.9	3.8	5.6	5.0	6.8	5.8	6.0	6.0	6.0	6.6
Luxembourg (1)	2.5	2.8	4.7	3.8	3.3	5.0	5.3	6.2	5.2	6.0	6.2	8.8	..
(2)	..	3.0	5.3	4.5	3.4	5.4	5.8	6.7	6.3	6.6	6.7	9.1	..
Netherlands (1)	5.0	3.7	4.3	4.3	4.5	5.7	5.7	5.2	5.3	6.0	6.9	7.3	7.3
(2)	..	4.7	5.4	5.7	5.5	6.8	7.2	6.7	6.9	7.9	8.6	8.6	8.8
United Kingdom (1)	5.7	4.6	5.4	5.4	6.1	6.0	4.8	4.4	4.1	3.8	4.0	6.3	4.8
(2)	..	..	..	5.6	6.3	6.4	5.0	4.6	4.3	4.1	4.4	6.7	5.3

(1) Included are the following items (cf. Eurostat (b)): Subsidies to other sectors, transfers to non-profit institutions, miscellaneous current transfers to other residents sectors, investment grants to other resident sectors, other capital transfers to other residents sectors. (2) Included are the items from (1) plus corresponding transfers supplied by institutions of the European Communities.

Source: Eurostat (a), various issues. - Eurostat (b), various issues. - Own calculations.

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