DEMPATEM

Demand Patterns and Employment Growth
Consumption and Services in France, Germany, the Netherlands,
the United Kingdom and the United States

Concluding Summary

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Many researchers contributed to this project (see list of research teams at the end) and although we volunteered to write this concluding summary DEMPATEM was a joint effort of all participants and this papers draws heavily on the DEMPATEM papers on the next page. We intensively discussed the many steps necessary to reach the final outcome in a series of workshops hosted by different teams.

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University College London
University of Amsterdam
University of Madrid, Carlos III
University Paris I, Sorbonne
Utrecht University

Coordination:
University of Amsterdam and Utrecht University

Executive Summary

The DEMPATEM research project provides a comprehensive study of the employment gap which has grown between the USA and Europe since the 1970s. The gap largely coincides with a lower employment rate of service employment in Europe (exemplified by five countries which comprise 70 % of the EU population). Therefore, the research was as much a study of the scientific explanations for the role of services in the economy. The general research question concerned the impact of product demand patterns on the level of employment and their potential explanation for the transatlantic employment gap. The concise answer is: yes, demand patterns do affect employment levels, but compared to the level of demand the effect is small. Higher American employment relates to higher income and demand, which is largely – but not exclusively – achieved by higher employment participation and longer working hours.

This answer rests on four different strands of research, which were combined:
- analysis of aggregate demand components using data from input-output and national accounts statistics, with a special focus on private consumption;
- analysis of household consumption behaviour, relating budget patterns to household characteristics including demographics, employment participation and income, on the basis of microdata from consumer budget surveys;
- analysis of the employment effects of demand patterns considering the entire production chain in vertically integrated sectors based on input-output data;
- analysis of the employment structure of services, focused on the main employment gap in private-sector services namely the distribution sector (trade, hotels and restaurants).

Much effort was spent on the internationally uniform treatment of the data.

First, the aggregate analysis confirmed that services do play a large role in final demand, primarily through public and private consumption which is more important in the USA than in Europe. The analysis also revealed the impact of institutional arrangements (public-private) concerning the provision of services, indicating that part of the gap in private-household service expenditures between the USA and Europe disappears once the public provision of individual services (e.g., health care) in Europe is taken into account. The remaining collective consumption is at similar levels in the USA and in Europe. The latter has a larger public sector because many services for individual consumption are provided through public channels. Generally, prices increased more for services than for goods, in line with Baumol's

cost disease, but even in constant prices the service share in final demand and especially in private consumption rose.

Second, the analysis of household expenditure surveys showed a very limited impact of household characteristics on the evolution of the share of services in expenditures in each of the countries. The contribution is slightly larger in Europe. Among the household characteristics the expenditure level seems to be the most important for both relative service demand trends over time and the transatlantic differences. Overall, the shift towards services runs parallel between the USA and Europe with the USA at a higher level. These results were achieved on the basis of micro data internationally standardized in expenditures and households characteristics and limited to those expenditures (between 55 and 75 per cent of total) which are unaffected by the institutional differences of public/private provision.

Third, the analysis of product demand on employment based on vertically integrated sectors, which take the whole production chain into account, showed that the employment-intensities of services and goods demand are roughly equal. The changing mix of consumption has, in general, been only a minor source of employment growth within each economy. The final demand structures of the UK, the Netherlands and Spain would generate higher employment in the USA than the American final demand pattern does, while the consumption patterns of France and Germany would reduce American employment by 5 to 7 per cent. In the USA, demand growth has been more strongly job-creating and productivity gains were less strongly job-destroying than in the European economies, opening up the employment gap. Overall, the levels of demand play a much more important role for the transatlantic employment gap than the structures of demand.

Finally, the employment analysis showed that the employment gap largely coincides with services employment. The declines in agriculture and manufacturing, however, are largely responsible for the growth of the gap. The services gap per se grew relatively little and notably decreased in recent years, on a head-count basis.
Within services, retailing and hotels and catering play a prominent role for the gap. In all countries their work force is biased towards women, youth and the low skilled. However, on the pay side the wage structure of retailing relative to the rest of the economy provides no convincing evidence that, in comparison to Europe, US retailing profits from higher wage flexibility offering possibilities of paying lower wages. Notably, no particular contribution was found for pay differentials at low levels of skill nor at the bottom end of the wage distribution.

More rapid productivity growth in European distribution did contribute to the jobs gap in distribution but only in the 1970s and not during the two later decades. The much higher macroeconomic level of goods consumption per capita in the USA as compared to Europe is particularly important for explaining the gap in retail employment and this substantially mitigates the importance of potential constraining effects of wages and productivity.

In the 1970s the USA achieved a higher per-capita income through a higher level of productivity but productivity in France, the Netherlands and West Germany has caught up and by the end of the last century the income gap between the USA and these countries roughly corresponded to the labour-input gap. The UK and Spain, by contrast, still have lower productivity levels. The shift of the causes of the American income advantage from production technology to labour input is hard to explain with conventional macroeconomic arguments because it requires substantial changes in labour supply and consumption behaviour. It is a pressing question for further research beyond the DEMPATEM program why the USA raised labour input so much and why the European countries fail to achieve higher participation: preferences or constraints?

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1 INTRODUCTION: DIFFERENT EMPLOYMENT TRENDS AND DIFFERENT DEMAND PATTERNS?

In this chapter, after a short overview of the employment gap, we discuss the hypotheses that could explain it, particularly the contribution of services. Next we present the strategy of the DEMPATEM project to investigate the hypotheses.

1.1 US-EUROPE DIFFERENCES IN EMPLOYMENT

By the turn of the century the share of the employed among the working-age population in the USA was about 10%-points higher than in many (although not all) European countries. When measured in working hours instead of persons the differences in employment trends are even more pronounced (see Schettkat 2004). Over long periods of time, net employment growth has been absorbed almost entirely by service industries causing changes of 'revolutionary proportions' (Victor Fuchs in his influential 1968 NBER study 'The Service Economy'). The United States took the lead in the shift to service employment and by the year 2001 55 % of all Americans in working age were employed in service industries compared to 47 in France, 43 in Germany, and 52 in the UK. Not surprisingly the ability to expand services is seen as the key-solution to Europe's employment problem. In the European Commission's contribution to the 'Special European Council Meeting' in Lisbon (March 2000) Europe's employment deficit compared to the USA was rightly identified as a 'service gap' (European Commission 2000: 5).

Figure 1.1 The USA and the European economies in stylized demand-supply space, 1970, 2000

product demand/ capita [d]

demand = supply

US 2000

US 1970

Europe 2000

Europe 1970

labour demand / output = productivity⁻¹ [s]
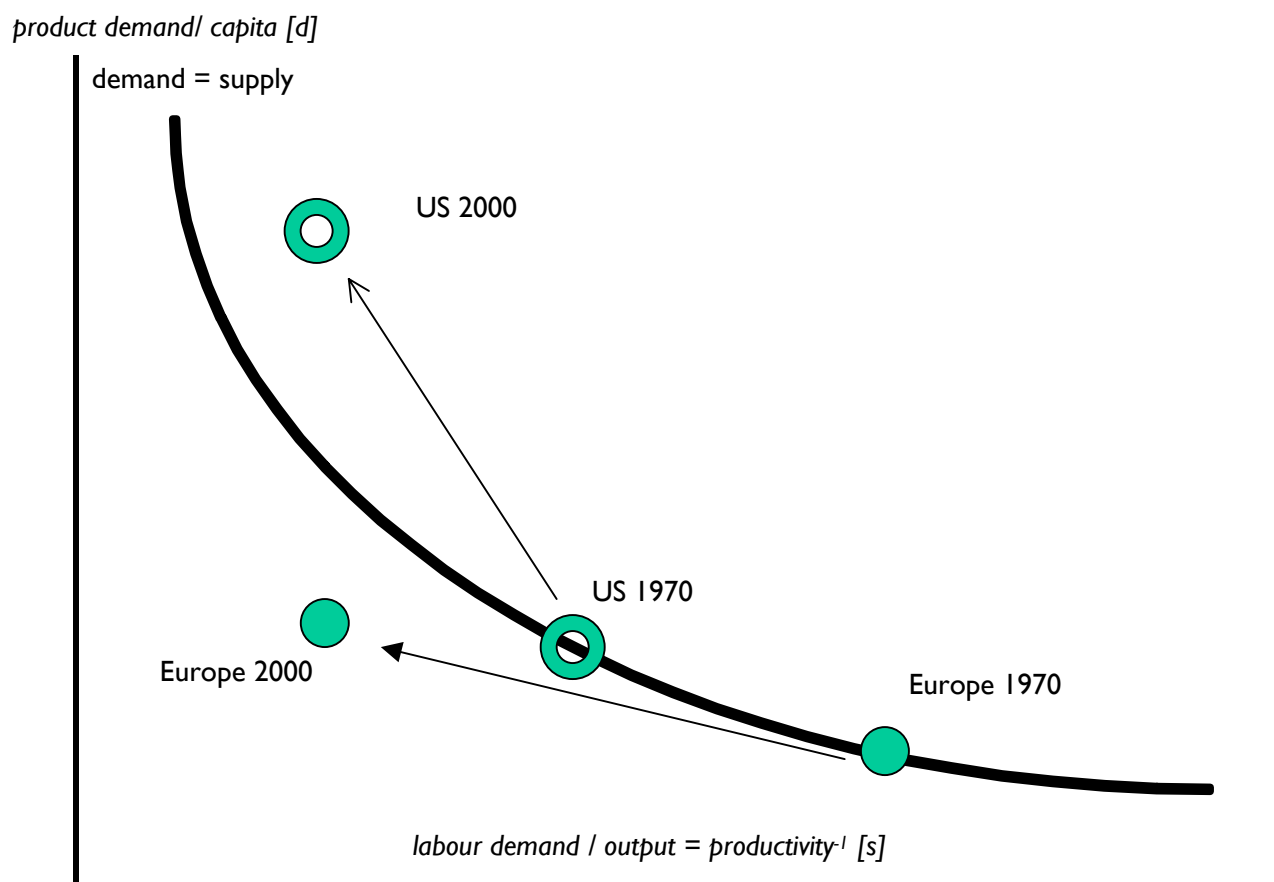
Source *: for detailed values see Schettkat 2004.*

In the 1970s Europe[1] had a slightly higher share of its working-age (15 to 64 years) population in employment than the USA but the latter produced a substantially higher income. The USA was the technological leader but in the following decades European countries caught up to US productivity levels and by the year 2000 France, Germany and Netherlands had roughly converged to US productivity levels while the UK and Spain remained at substantially lower levels (Gordon 2002, Schettkat 2004). Thus, the differences in per capita income between the first three countries and the USA reflect at the aggregate level almost entirely differences in labour input but for the UK and Spain there remains a productivity differential. The different trends on both sides of the Atlantic can be illustrated in a stylized way in supply-demand space as in Figure 1.1.

The solid line in Figure 1.1 represents constant employment rates (the number of employed divided by population in working age) at different levels of productivity (iso-employment

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[1]   Europe is often used in this project as a shortcut for the European countries included in the DEMPATEM project, i.e. France, Germany, The Netherlands, Spain, UK,

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curves). An increase in productivity moves the economy further to the origin and this increase in supply capacity needs to be compensated by growing product demand to keep employment rates constant. In 1970 the European countries and the USA had different productivity levels but they were all roughly on the same 'iso-employment curve'. Income per capita and overall demand in the USA was higher because the American economy produced at a higher productivity level. By the 1990s the USA and the European economies are on distinctively different 'employment curves'. In the USA productivity increased but less than in the European countries, bringing some European countries (France, West-Germany, the Netherlands) at roughly the same productivity level. At the same time, however, demand in the US economy grew substantially more than productivity moving the USA to a position above the original 'iso-employment curve'. Expressed in demand-supply space, the USA move in the vertical direction (demand) exceeded the move in the horizontal direction (supply, productivity). The reverse trend occurred in the European countries, where productivity growth was higher than the expansion of demand moving these countries below the original 'iso-employment curve'. These trends would even be more pronounced if hours worked rather than persons employed would be used.

At the same time, the share of the working-age population employed in services advanced in the USA from 38 % in 1970 to 55 % in 2001 but remained at lower levels in Europe increasing from 30 % to 45 % for the aggregate of the five countries studied in the project: France, Germany, the Netherlands, Spain and the United Kingdom. Thus, employment is growing in service industries and the US-Europe employment gap is overwhelmingly located in services. Obviously the American and the European economies experienced quite different changes, which can hardly be classified as business cycle phenomena nor is it very easy to see that the changes are related to shocks like the oil-price increases of the 1970s. If shocks had acted as a cause for the transatlantic differences in economic trends, they should have moved the economies on different development trajectories.

Table 1.1 shows employment measured by employment-population rates (aged 15-64 years) and final demand and consumption per head of the population in the same age bracket by broad sectors as a percentage of the American figures. Many European countries have employment and final demand figures close to or even higher than the USA in manufacturing but the gaps are substantial for services. Somehow the major difference between the USA and the DEMPATEM countries seems to originate in services. We investigate some of the causes.

Table 1.1: Employment, final demand and private household consumption per head of population (15-64 years, US=100, 1995)

	US*	UK*	FR	DE	NL	ES
Employment (FTEs)						
Overall	100	86.4	78.6	87.6	77.6	69.8
Agriculture	100	73.7	143.3	94.3	105.6	189.9
Manufacturing	100	109.1	93.3	137.4	88.6	94.3
Services	100	81.9	71.9	70.7	73.4	58.1
Final Demand						
Overall	100	78.3	70.7	65.2	82.9	50.1
Agriculture	100	112.8	91.0	56.3	234.9	94.8
Manufacturing	100	94.8	92.8	88.9	99.9	62.4
Services	100	67.6	59.8	54.1	72.0	43.4
Consumption						
Overall	100	70.3	63.3	54.8	56.8	42.6
Agriculture	100	141.9	150.6	93.8	47.5	129.0
Manufacturing	100	90.1	83.7	59.1	38.2	49.8
Services	100	63.0	58.2	53.6	60.9	40.5

* US data refers to 1998, UK data refers to 1997

Source: Computations based on OECD Input-Output database for demand and STAN for employment.

Obviously the higher employment rates in the USA compared to Europe are related to differences in demand levels and the higher share of service-sector employment suggests that also the structure of product demand differs between the two sides of the Atlantic, which may also affect employment levels.

1.2 HYPOTHESES EXPLAINING THE GROWTH IN SERVICE EMPLOYMENT

Many hypotheses have been advanced to explain the US-European employment gap. Most prominent is the 'inequality' hypothesis[2] stating that job creation in the USA is achieved with the help of high and rising wage inequality. Often the analysis is confined to the labour market assuming a direct relation between wages and labour demand but often it is argued that higher wage inequality allows technologically stagnant service industries to expand in the USA., whereas rigid European wage and labour market structures impedes the expansion of service employment and results in high unemployment especially among low-skilled workers. This hypothesis fits the aggregated trends fairly well and established the basis for many policy initiatives in European countries aimed at making wage structures more flexible. American wage inequality rose and always was substantially higher than in Europe even after controlling for skills (Freeman and Schettkat 1999). In Europe, by contrast, wage differentials remained roughly stable or even declined in some countries, for example in West-Germany

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[2]   Institutional 'wage compression' is the synonym.

(Freeman and Schettkat 1999). As much as the 'inequality' or 'wage compression hypothesis' seems to be in accordance with the aggregate stylized facts, detailed studies have failed to produce convincing evidence in support of this hypothesis (Bell and Nickell 1996, Krueger and Pischke 1999, Freeman and Schettkat 2001). There appears to be no correlation between industry wage structure and industry employment levels or growth.

Second is the 'cost disease' hypothesis, which dominates the literature on structural economic change (for an overview Schettkat and Yocarini 2003). It follows a reverse reasoning for the explanation of the rising service-sector employment. Assuming that wages grow at similar rates across the industries, which can be actually observed (see Chapter 6), Baumol (1967, 2001) argued that employment in technologically stagnant services expands and that relative prices of these services increase because with rising income a constant proportion of demand is going into services.

These two hypotheses, the 'inequality' and the 'cost disease' hypothesis, mark the extremes of assumptions concerning the functioning of labour markets and the price elasticity of demand in product markets. The inequality hypothesis assumes highly elastic reactions to price variations, whereas the cost-disease hypothesis is based on inelastic demand reactions.[3] In addition, the literature on structural change (for an overview: Schettkat and Yocarini 2003) also emphasizes shifts in product-demand patterns as the income of countries rises ('income' hypothesis). According to this hypothesis relative service demand increases with rising income because services are regarded as luxuries.[4] The various hypotheses emphasizing the growth and international differences in service-sector employment can be summarized in demand-supply space as developed below.

The share of service-sector employment results from differences in relative product demand for services and the relative productivity of services.

$$\frac{E_s}{E_\bullet} = \frac{Y_s * A_i^{-1}}{Y_\bullet * A_\bullet^{-1}} = \alpha * \beta^{-1}$$

where E = employment, Y = real demand, A = productivity, s = subscript for services, $\bullet$ = overall economy

These two variables, relative demand (α = Ys / Y$\bullet$) and relative productivity (β = Ai / A$\bullet$), describe the spectrum of hypotheses that explain the rising shares of service-sector

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[3]   Or at least on income and price effects balancing each other (Appelbaum and Schettkat xx…)

[4]   Luxuries are products with income elasticity greater than one.

employment. It is marked by hypotheses emphasizing changes in product demand in favour of services (Fisher 1935, Clark 1951) and hypotheses emphasizing supply-side effects, i.e. unbalanced productivity growth and assuming constant product demand proportions (Baumol 1967, 2001). For Fisher (1935) and Clark (1951) it was relative saturation of demand for manufacturing products and a shift of demand to services, which caused service employment to expand.[5] Measured in constant prices the share of services in final demand (α) will rise according to their hypothesis and changes in relative productivity ($\beta = Ai / A\bullet$) are regarded as relatively unimportant. Baumol (1967, 2001) challenged this view with a radical supply-side hypothesis. He assumed the share of service demand in final demand (the αs) to be constant but the productivity ratio ($\beta = Ai / A\bullet$) to decline with the advancement of the economies.

William Baumol assumed constant employment-population rates and constant working hours. Thus income (per capita) in his model depends on overall productivity growth in the economy. If services are technologically stagnant, the relative service-sector productivity (β) depends on the advancement of the economy, which depends entirely on productivity trends in the non-service part of the economy (say manufacturing). Therefore, given this assumption, relative service-sector productivity (β) should be lower in the more advanced economies because high incomes in these economies are the result of rising productivity in the technologically progressive goods production. However, due to theoretical and empirical reasons, comparative inter-industry-productivity levels must remain a theoretical construction (Baumol and Wolf 1984, Glyn *et al.* 2004) and cannot be observed directly.

According to the very influential model of Baumol, rising income is spent in fixed real proportions on goods and services and therefore employment in the technologically stagnant service industries will rise.[6] Measured in current prices expenditures on services will expand, because wages in technologically stagnant services rise at the same rate as in technologically progressive industries, that is manufacturing. The equilibrating mechanism of functioning markets (financial and labour markets) and differential productivity growth leads to the 'cost-disease' of services. For this reason industry-specific value added per worker in current prices (productivity) cannot be used as an indicator for industry-specific productivity (Baumol and Wolf 1984). In the Baumol model the effect of rising incomes through technological progress in goods production in connection with technological stagnancy of

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[5] For a more comprehensive overview of theories of structural change see Schettkat and Yocarini, 2003.

[6] What may be the rational for constant αs? One possibility is that there is no substitution between goods and services, i.e. that it is a Leontief-type utility function (Schettkat 2004 for a more comprehensive discussion). Another possibility is that positive income elasticity and negative price elasticity of service demand just compensate (Appelbaum and Schettkat, 2001).

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services and not a shift of demand away from goods to services (in real terms) is causing service employment to grow. In Baumol's analysis the βs are causing the observed change in employment structures but the αs – demand structures – are constant.

According to the Baumol the difference in service-employment shares between the USA and Europe results from higher per-capita income in the USA caused by a higher level of productivity in American goods production.[7] This model is very much in line with the observation of the USA and Europe being on the same 'iso-employment curve' but at different income levels due to productivity differences in 1970 (compare Figure 1.1). However, the 'cost disease' hypothesis seems to fit the American-European differences less well in the more recent period, when many European countries reached productivity levels similar to the USA and now the income-per-capita difference seems to be strongly influenced by differences in labour supply, i.e. Europe and the USA are on very different 'iso-employment curves' (compare Figure 1.1).

As discussed above, the extent to which relative prices for services rise, depends on relative productivity growth but also on relative wage growth. Wage differentiation became the main explanation for differences in price levels between the USA and Europe ('inequality' hypothesis). Flexible and widely differentiated wages in the USA., as against rigid and constricted wages in Europe, so goes the story, allowed for an expansion of low-skill, low-wage service industries in the USA. Given similar technological conditions in these industries, this option was blocked in Europe by rigid wages, causing overly high prices for services. The 'inequality' hypothesis shares many aspects with Baumol's model but relaxes Baumol's assumption of competitive labour markets and assumes wages to be differentiated according to industry productivity, which requires imperfect labour markets.

Baumol assumed income per capita to rise through technological progress. Actually, however, income levels (income per capita) are the outcome of the share of the population in employment (employment-population rates), average working hours and labour productivity. In his seminal studies, Fuchs (1968, 1980) confirmed that demand for services is relatively constant when measured in constant prices but he added complexity by arguing that not only the level of income per capita but also the way a certain income level is achieved affects the structure of demand. A high degree of female labour force participation

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7     $\dfrac{E_s^{US}}{E_\bullet^{US}} - \dfrac{E_s^{EU}}{E_\bullet^{EU}} = \alpha^{US} * \beta^{US} - \alpha^{EU} * \beta^{EU}$ since by Baumol's assumption $\alpha^{US} = \alpha^{EU}$ the LHS

simplifies to $\alpha * (\beta^{US} - \beta^{EU})$ with $\beta^{US} < \beta^{EU}$ because $A_s^{US} = A_s^{EU}$ but $A_\bullet^{US} > A_\bullet^{EU}$ the βs may decline because the non-service part of the economy experiences rising productivity or because productivity in services actually declines.

will necessarily reduce household production, which may then be substituted by market services and goods (Freeman and Schettkat 2002). Thus, the income level may change over time or may differ between two countries because participation and/or hours worked change, most likely affecting also expenditure patterns.

Figure 1.2 summarizes the major hypotheses put forward for the rising share of service employment and for the US-Europe differences in service employment.

Figure 1.2 The major stylized hypotheses for the explanation of rising (or higher)) service employment as summarized in demand-supply space

α	Relative demand for services increases **Fisher/Clark, income hypothesis**
β ↓	Relative productivity of services declines **Baumol, cost disease hypothesis**
β ↓ and α ↑	Relative service productivity declines but also demand patterns shift in favour of services **Fuchs, composition hypothesis**
β ↓ but cost disease cured	Relative service productivity declines but the cost disease effect is offset by falling service sector wages in the USA but not in Europe **Contemporary European economist, inequality hypothesis**
Inter-industry division of labour	**Outsourcing hypothesis**

1.3   THE DEMPATEM RESEARCH STRATEGY

Obviously, which one of the hypotheses actually holds is an empirical question the DEMPATEM project tried to answer. However, even if the structure of real demand turns out to be constant over time, the question remains at which level it occurs. At the aggregate level because diverging trends in the subcomponents of demand compensate, at the level of household expenditures, government consumption, etc. For example, the differences in relative final demand for services may be due to differences in the weights of the various aggregate final-demand components (private consumption, government consumption, investment, imports, exports) and differences in service shares within these components, which again may be caused by differences in income levels, tastes, prices, household composition, specialization in the economy. Furthermore, as has been argued by William Baumol, the share of service employment may increase even without any changes in relative real demand for services, but only through the lack of productivity growth in service activities. Rising income in combination with unbalanced productivity growth can result in

the expansion of service employment. Thus, the analysis of the employment structure is necessarily complex and there can hardly be a straightforward answer to why one country has a higher share of service employment than another.

It seems to be necessary to go beyond the aggregate analysis and to analyze the full complexity of the causality chains as DEMPATEM did. DEMPATEM intended to provide a contribution to a better understanding of the mechanisms that created the American-European employment gap, thus giving impetus to the general debate on employment policies in Europe. DEMPATEM looked simultaneously at the product market and the labour market in a systematic and comparative fashion, using different data sources. To our knowledge DEMPATEM was the first project developing such an integrated approach, spanning product and labour markets in an international comparison of employment trends and their causes. Changing structures are related to long-term changes and the relevant periods here are the 1970s to 1990s.

DEMPATEM broke down the major dimension causing changes or inter-country differences in relative service-sector employment – shifts in the final demand patterns, inter-industry productivity differentials, inter-industry division of labour – into sub-dimensions as illustrated in Figure 1.3 and tried to answer specifically the following six major questions grouped according to the three major dimensions.

Consequently, DEMPATEM analysed the full complexity of the differences in industry structure of employment using the USA as the benchmark country. The major questions were:

Dimension A (Final Demand)

1. Does the higher share of service-industry employment in the USA derive from a larger role of services in the structure of final demand, and is this gap growing?

2. Particularly, is consumer demand higher and growing more rapidly in the US? What is its impact on the production of services?

3. What is the role of the pattern of consumption in this? That is, do American households consume more services than European and why?

4. What determines the pattern of consumption? What role do household characteristics, including labour market participation, income inequality and consumer attitudes play?

Dimension B (Inter-industry Division of Labour)

5. How does consumer spending on services translate into the structure of production and employment?

Dimension C (Inter-industry Productivity Differentials)

6. What is the structure of employment in these industries by skills, gender, age, and pay? And how does this depend on female labour supply? And what are the effects on productivity?

Figure 1.3 Analytical dimensions of investigating the shift to services employment

Main dimensions	Sub-Dimensions
Final demand	
Private consumption	Household expenditures; Household structure; Household income; Household labour force participation.
Government consumption	
Investment	
Exports/imports	
Industry productivity	Skills; Capital-labour ratios; Working hours.
Inter-industry division of labour	Input-output structure; Vertically integrated sectors; Final-product employment.

Firstly, DEMPATEM analysed changes at the aggregate level and differences between the major final-demand components (private consumption, government consumption and investment), the impact of the financing mode on private expenditures (public versus private), price trends, and aggregate income and demand trends. Secondly, DEMPATEM provided a detailed micro-econometric analysis of the structure of private consumption, taking into account household structure (demographics) and labour-force participation. This detailed microanalysis of private consumption expenditures offers important insights into international differences in spending behaviour, but will need to be restricted in order to create internationally comparable expenditure categories. Thirdly, DEMPATEM investigated the impact of the final-demand structure, and the inter-industry division of labour on the employment structure, expressed in terms of the institutional division of the NIPA. Finally, DEMPATEM analysed whether changes and inter-country differences in the composition of the workforce within industries, as well as in capital deepening and in hours worked, contribute to the explanation of differences in service-sector employment.

Demand patterns were analysed in an internationally comparative way, not only at the aggregate level but also at the level of individual households. Although many studies dealing with structural change implicitly include the structure of demand, almost nowhere is it analyzed in a rigorous way, and there seems to be no study analyzing changes in the final-demand structure at both the aggregate and the micro level. Despite its focus on demand, DEMPATEM should not be seen as an '"all depends on final demand" project. For its emphasis lies on the *structure* of final demand and its underlying forces, not simply on the aggregate level of final demand, though this may be an important determinant of the level of employment. The inter-industry division of labour, and intra-industry productivity differences will also be included in the analysis.

The building blocks of the DEMPATEM projects can be summarized as in Figure 1.4.

In the following chapters we will discuss these issues. Starting from a summary consideration of the concept of services and its share in employment (Chapter 2) we consecutively discuss aggregate demand (Chapter 3), consumer demand in relation to consumer households (Chapter 4), the structure of production (Chapter 5) and employment in relation to wages, productivity and consumer demand (Chapter 6). Chapter 7 lists our conclusions.

Figure 1.4 The building blocks of the DEMPATEM research Strategy

Aggregate Demand Analysis	Inter-industry Division of Labour Analysis	Household Demand Analysis	Employment Analysis
Is the service sector share actually growing in final demand? How different is it between countries?	How do employment structures and levels relate to the structure of product demand?	What determines service-sector shares and their changes in private household expenditures?	What did productivity and wages contribute to the growth of the employment gap?
Theoretical hypotheses in demand-supply space Trends in aggregate final-demand components and its structure and employment Public versus private consumption Price structure (inter-temporal, inter-country) and its effect services *Level versus structure*	Aggregating the production chain into vertically integrated sectors Evaluating the employment creation of final demand of services vs. goods The effects of outsourcing in services and manufacturing The effects of final-demand and household-expenditure structures on national employment levels	Analysis of household expenditures based on micro data Effects of household characteristics like: Family status, income, children, age, labour force participation Decomposition of changes in service sector shares over time and USA versus France, Germany, Netherlands, Spain, and UK	Analysis of the contribution of services to the jobs gap; decline of agriculture and manufacturing Focus on the composing industries of services: the role of wage rigidity and the contribution of skills and gender, productivity and product demand in the distribution services
DEMPATEM Questions: ##1, 2	#5	##3, 4	#6

2 SERVICE-SECTOR EXPANSION

2.1 WHY IS DEMPATEM EMPHASIZING SERVICES?

'Service' is an amorphous concept (Griliches, 1992) that lacks a clear-cut definition, even though many efforts have been made to clearly distinguish services from goods. In a way, all products are composite products. Even the haircutter needs a pair of scissors, a chair, a room but also goods need services as intermediate inputs. Is the observation that service-sector employment expands then just an artefact because some inputs are arbitrarily labelled 'services'? Very common is the assumption that service-sector employment in the USA is higher because manufacturing firms specialize and outsource service activities to specialized service providers whereas manufacturing firms in Europe provide these services in-house. According to the conventions of National Accounting, employees would be classified as service workers in the former case but as manufacturing workers in the latter case although they perform exactly the same tasks (this is the outsourcing hypothesis, see above). [8] However, outsourcing is not causing the transatlantic difference in relative service-sector employment (see Gregory and Russo 2004, Chapter 5 of this paper, and Russo and Schettkat 2001).[9]

Although the distinction between services and goods is not sharp, some differences can be listed. Services cannot be stored, and the production and consumption of services (often) occur simultaneously. Services may therefore require time both from their producer and from their consumer (Petit, 2000). Examples are haircuts, tennis lessons and the like. In several cases, the quality of the service depends on the participation of the consumer (Griliches, 1992: 5), as in the case of education, where a tutor will achieve nothing without her student's cooperation. To assert that services are time consuming, would be an invalid generalization, however. Consultancy, tax and cleaning services, for example, may be aimed at saving the 'consumer's' time. There are also activities that are classified as services, but which cannot easily be distinguished from goods-production activities. 'Car repairs', for example, are classified as services, although roughly 70% of the time spent on a car repair can be classified as goods rather than service production (Freeman and Schettkat, 1999).

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[8] Sometimes it is argued that services depend on good production; i.e. nobody can live on services alone. This is true, but it does not mean that services cannot capture a big share of the economy. We still need agriculture, but only a very small fraction of the labour force is occupied in agriculture and still production is higher than ever. The reason is that productivity growth in agriculture has outpaced demand growth, leading to a decline in agricultural employment. Similarly, manufacturing employment may decline sharply for the same reason: productivity rising faster than demand. For many services, however, the reverse holds (Gregory and Russo 2003).

[9] Classifying workers according to their occupations into service and production workers leaves the transatlantic gap in service employment unchanged (Freeman and Schettkat 2001)

An important distinction is by the main user of the service, i.e. whether it is an intermediate or a consumer services (including public services) although most services are intermediate and final at the same time (Schettkat and Yocarini 2003). The major question probably is, whether the specialized provision of a service delivers a productivity gain for individual firms, households and the society as a whole. Therefore, it may be useful to distinguish services requiring expertise, that is services in which the professional provider has a productivity advantage, from services that do not require expertise and for which the productivity differential between market provision (buying) and self-provision is minimal.

An additional problem is that measuring the quality of services is extremely difficult, i.e. the 'apples and oranges problem'.[10] Does a shop provide a better service if it has longer opening hours or if it arranges its goods more nicely? It is often thought that output measurements are easier in the manufacturing industry than in the service sector because output is more homogeneous (Griliches, 1992: 7). Although this argument has certain validity, quality changes in manufacturing products have also been difficult to measure (Gordon 1990, Gordon, 1998, Oi and Rosen, 1992,). This has been a problem ever since the National Income and Product Accounts statistics were first created and it has never fully been solved.[11]

Professional services, such as legal advice, tax and accounting consultancies, are bought in the market because it would be impossible for each household or small firm to gain the necessary expertise. The concentration of expertise in certain professions thus creates 'economies of scale' as the huge 'fixed investment' in human capital can be spread over many users. Because of such economies of scale, services requiring professional expertise can be acquired much cheaper from external providers than by internal provision. This helps to explain why firms outsource some services rather than produce them in-house.

Professionalisation, it is often argued, mainly affects so-called business services, but the distinction between business and consumer services is rather blurred. Legal and tax advice, for example, are also 'consumed' by private households and the professionalisation advantage also works for many consumer services. Private households may also apply the principle of opportunity costs when deciding whether to purchase services or to opt for self-provision. Especially if the service requires little expertise, like cleaning. The productivity of

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[10]   Services and their quality changes formed the heart of the debates about the validity of the US CPI (Consumer Price Index), see: Boskin et al. 1998, Abraham et al. 1998.

[11]   OECD (1996) gives an overview of various methods used to estimate real value added in services ranging from double deflation – regarded as preferable (page 7) – to direct deflation by a wage rate index.

such services will be roughly equal for self-provision and purchased services, thus making the price of professional service provision a key variable (Schettkat, 2002).[12]

So, why did DEMPATEM focus so much on services while services are not a clear-cut category? There are several answers:

- The major differences in employment-population rates between the USA and Europe occur in service industries. The *Employment in Europe 2002* report of the European Commission shows (page 29) that the difference in sectoral employment structure between the EU and the USA is entirely in service industries.
- Service industries are the only industries showing net employment growth.
- Services are assumed to have a high income elasticity (investigated in the DEMPATEM Consumption project).
- Services are assumed to be technologically stagnant or at least asymptotically stagnant and services are therefore assumed to experience higher price rises than goods.
- Services are assumed to be less capital and more labour intensive
- Service demand mainly affects the domestic economy and inter-country service demand differences may be especially relevant for employment
- Services are assumed to have a higher employment elasticity of product demand.

DEMPATEM investigated many of these assumption (e.g. the income elasticity of demand in the consumption sub-project, employment elasticity in the input-output sub-project).

2.2   REGULARITIES IN SERVICE-EMPLOYMENT EXPANSION

Victor Fuchs (1980) developed a non-linear model of the development of the share of service employment in overall employment assuming that the share of service employment is zero at very low levels of GDP but that it grows with GDP per capita, asymptotically approaching one. The share of agricultural employment, on the other hand, starts at one and then decreases with GDP asymptotically approaching zero. Fuchs could show that the rising share of service-sector employment follows a regularity seldom found in economics. The coefficients of correlation between the actual service share in employment and the values predicted with Fuchs's model were between 0.80 and 0.99. Applying Victor Fuchs' model to more recent data shows again that Fuchs's model predicts the share of services in overall employment remarkably well.

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[12]   Taking set-up costs into account (for example, travel time to the place of service provision) may increase the efficiency advantage of self-provision even further

Figure 2.1 shows estimates produced with the Fuchs model for more recent American time-series data and the actual position of the European DEMPATEM countries. The figure shows that countries such as the Netherlands, France and the UK reach even higher service employment shares than the predicted US shares at certain levels of per capita income. Germany, on the other hand, is systematically below the predicted values. However, the employment shares are based on persons and it has to be kept in mind though, that (diverging) hours worked are not accounted for. If a large part of employment in the service sector works part-time (as in the Netherlands), these employment shares will overestimate the size of the service sector. Table 2.5 suggests they do, because hours per person employed are lower in service industries than in the rest of the economy although hours worked seem to be difficult to measure (see Schettkat 2004).

Figure 2.1 Predicted service share in US employment and actual values UK, Netherlands, Germany, France and Spain (1960, 1970, 1980, 1990, 2000)
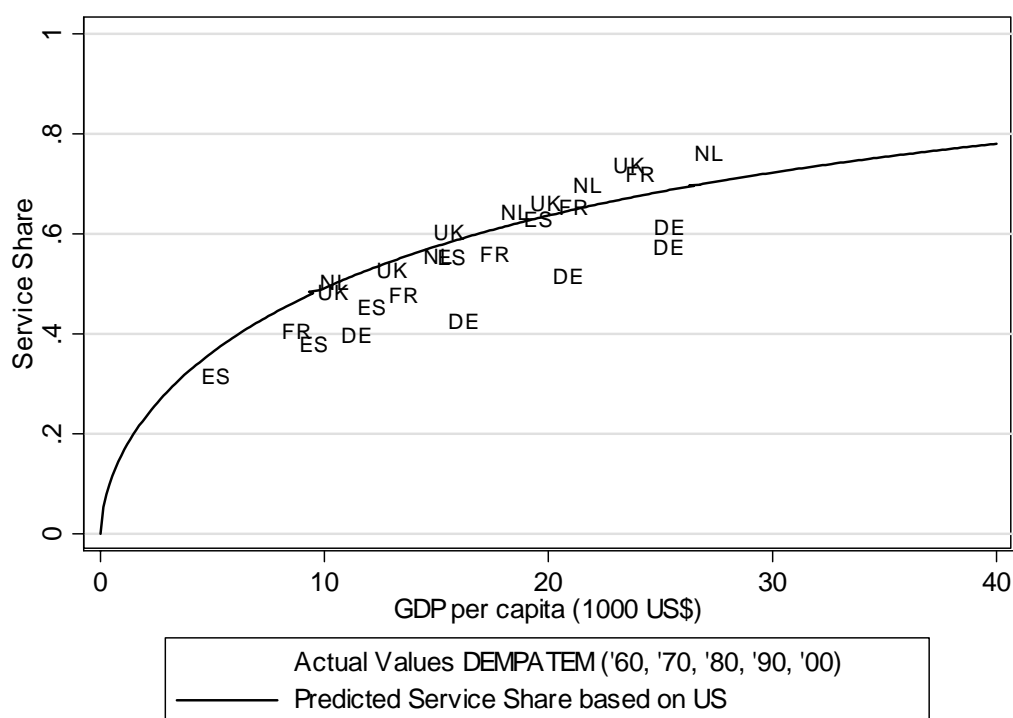
Fuchs pointed out that accurate and stable predictions are not so common in economics and he explicitly mentioned that one has to be aware that these results are "not tests of theoretically grounded hypotheses". No appropriate economic theory has been developed to explain this phenomenon. Consequently, a major question is why this pattern is so persistent. Is it due to shifts in demand, a new industrial division of labour (outsourcing), or was Baumol correct in pointing at differential productivity growth in the different sectors?

How can it be that GDP per capita influences these factors so consistently even in such widely diverging institutional frameworks and differences in growth processes (see above)? The regularities are the result of many variables pulling the service share in different directions and the regularities are therefore more a surprise than a proof of anything.

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3 DEMAND TRENDS

3.1 RELATIVE PRICES OF SERVICES AND PRICE TRENDS

It is a commonly held belief that services are relatively cheaper in the USA than in Europe and that they are consequently in higher demand there but the EU-OECD project on purchasing-power-parities (OECD 2002) has revealed the opposite. Goods rather than services are relatively cheap in the USA whereas the reverse holds in most European countries as illustrated in Figure 3.1, which shows the ratio of consumer-service prices to that of prices for goods. In other words, one dollar buys more services but less goods in Europe. This seems to contradict the hypothesis that the American service sector is bigger than its European counterpart due to a more service-friendly price structure.

Figure 3.1 Prices for consumer services relative to goods prices in the DEMPATEM countries
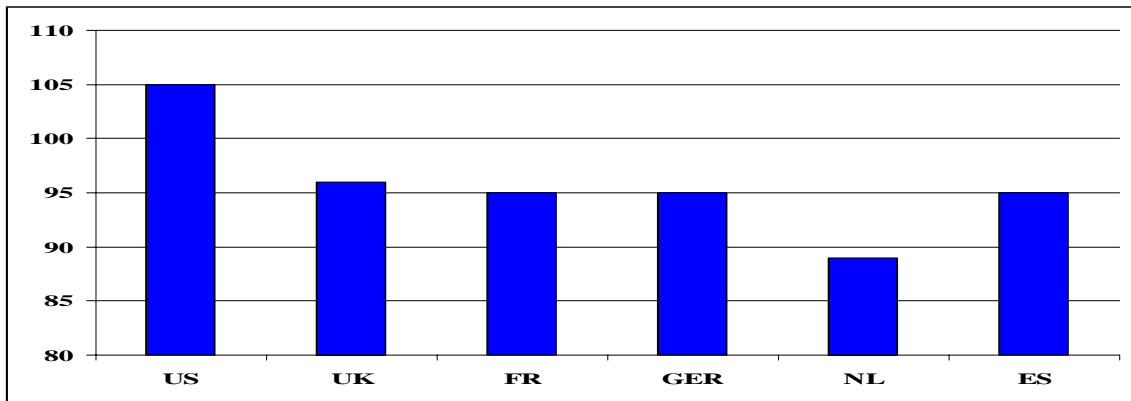
Source: computations are based on OECD 2002.

The standard textbook model assumes substitutability and utility maximization and suggests that the product with the higher relative price will be substituted by the product with the lower price. If utility functions are homeothetic, services should be in higher demand in the country with the lower price level. Thus Europe should experience a higher share of services in final demand. Price effects, however, can be overruled by income effects, and American income per capita is higher.

Investigating the price structure for individual consumer services shows that relative prices of only a few but quantitatively important services – health and education – are lower than relative prices in the USA, while other services – especially those traded in markets (like hotels, restaurants, recreational and cultural services) – have a markedly higher relative price in Europe. The two European low-price industries, health and education, are characterized by a mix of public and private provision and/or financing and they are not a good indicator of actual market prices. Nevertheless, government involvement in health and education, which

especially in health is stronger in Europe than in the USA, does seem to reduce the price level in these industries.

How did prices in various categories of private-household consumption develop over time? Based on implicit price deflators,[13] prices of services rose more than those for goods but this was the net result of heterogeneous trends within the service sector (see Schettkat 2004).

3.2 PUBLIC VERSUS PRIVATE DEMAND

Whether a specific service is classified as public or as private household consumption (usually including consumption of non-profit organization serving private households) strongly depends on national institutional arrangements. Pension insurance, for example, may be organized by the government or by private companies. To take these differences into account, the latest 1993 System of National Accounts (SNA) splits government consumption into a part that can be regarded as individual consumption and another part that is 'pure' collective consumption. Adding together private household expenditures (including expenditures of non-profit institutions serving households) and individual consumption expenditures by government gives total individual consumption expenditures, on a comparable basis across countries.

The European countries (except the UK) appear to consume about 5 percentage-points less of their GDP than the USA (the Netherlands even 9%-points, see Figure 3.2, upper panel), which is largely due to positive net exports. In a typical European country government consumption is between 25 and 35% of final consumption (Table 3.2, middle panel) but in the USA this is only 17%. However, the split of government consumption between collective and individual consumption corrects this pattern: in Europe about 60% of government consumption is individual and only 40% is collective whereas in the USA this is exactly the opposite. Thus, in Europe the public sector seems to be an important provider of individual consumption items, which are provided privately in the USA (see also Freeman and Rein, 1988).

Taking the split of government consumption into 'individual' and 'collective' at face value, the share of collective consumption in overall final consumption reveals a surprising result: except for the Netherlands, all countries spend about 10% of overall final consumption on collective consumption (Figure 3.2, lower panel). The USA now looks like a typical European state with a level of collective consumption similar to Sweden! However, considering that

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[13]   Implicit price deflators are indirectly derived from the comparison of current-price and constant-price expenditures, i.e. they are influenced by quantity reaction to price changes. Therefore, they are different from price trends based on the price comparisons for specific items.

Sweden consumes only 77% of its GDP but the USA 82%, leaves Sweden with 7.6% collective consumption out of GDP compared to a higher 8.7% in the USA.

Figure 3.2 The share of final consumption in GDP and government consumption, individual and collective consumption in final consumption (1999)

Final consumption in GDP
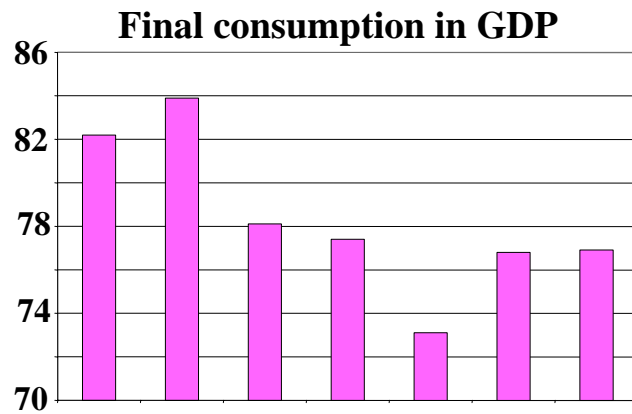
Government consumption in final consumption, total and collective
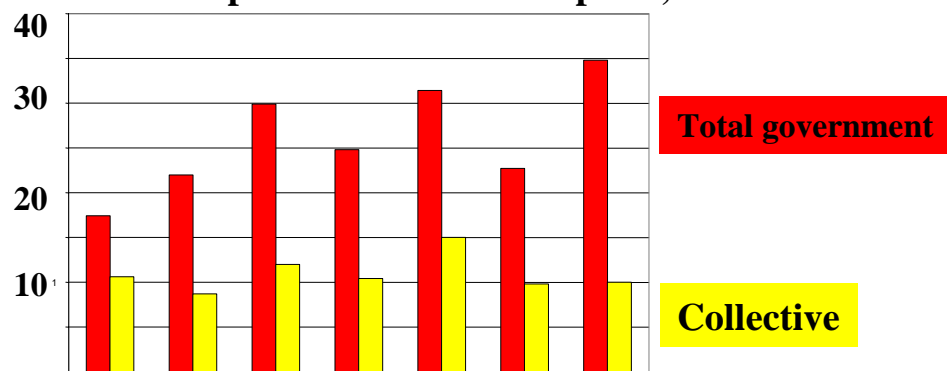
Individual and collective consumption in final consumption

US   UK   F   GER   NL   ES   S
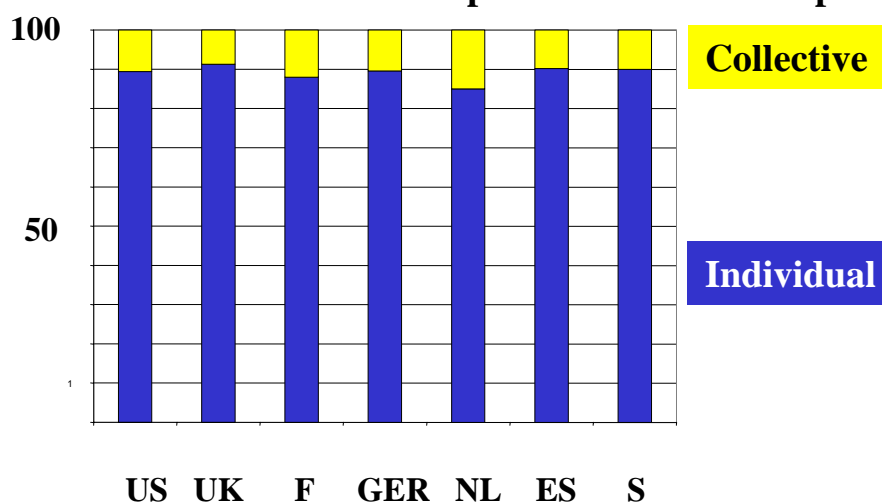
Source: computations based on OECD 2002

Government expenditures are almost entirely concentrated in services as the OECD input-output data reveals (Table 3.1). Aside from public administration, governments are engaged

in 'research and development, 'education' and 'health'. At least 75% of the final demand in education is government demand and in many cases it is well above 90%. Given that most schools are public and free of charge in the USA (see Schmitt, 2003) the US figures in Table 3.1 simply reflect convention of the American NIPA system and cannot be interpreted.[14] The health sector is a bit more diverse, illustrating the differences in the organizational structure between countries. In Germany, for example, health insurance is compulsory for most employees. Almost everybody is covered by a health insurance, but about three quarters of health expenditures are classified as private because insurance and service providers are mostly private organizations.[15] In other countries, like France, the Netherlands and the UK health services are organized through public funds or are provided publicly resulting in a government share of three quarters in spending on health services.

Table 3.1: The Share Government Consumption in Final Demand of Detailed Service Industries, 1995.

	US	UK	F	GER	NL	ES
Agriculture	7.2	0.0	0.0	0.1	0.0	1.3
Industry	15.7	0.0	3.1	0.5	8.3	3.9
Services	18.8	29.2	40.5	37.6	43.9	30.5
In detailed services:						
Wholesale and Retail trade, Repairs	2.3	0.0	4.6	0.0	4.5	3.6
Hotels, Restaurants	-0.1	0.0	0.0	0.0	1.3	0.3
Transport, Storage	14.3	0.0	2.1	5.9	23.0	4.2
Post, Communication	13.9	0.0	0.0	0.0	0.0	0.7
Finance, Insurance	4.0	0.0	0.0	0.0	1.3	0.0
Real Estate Activities	2.1	0.0	7.8	0.0	4.6	0.0
Computer & related act.	67.7	.	0.0	0.0	0.0	13.1
R&D	98.9	0.0	99.8	72.4	100.0	99.1
Other business activities	26.6	0.0	0.0	0.8	41.4	6.6
Public Administration, Defence, Social Security	100.0	94.6	99.9	98.8	94.0	97.4
Education	-27.4	54.5	91.4	80.0	96.6	76.5
Health and Social Work	-10.5	81.7	75.8	8.2	74.8	64.9
Other Services	-0.1	12.7	12.9	14.5	19.4	18.5

Source: computation based on the OECD input output database, tables for total demand. US figures refer to 1997

Thus, a major difference between the USA and the European countries is the degree to which individual consumption is provided through the public sector. Government

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[14]   Nadim Ahmad from OECD kindly clarified this and other input-output issues to us. In the US all value added of the public sector, the production, is booked in 'public administration'. The negative numbers in education and health reflect purchases of the public sector, for example private payments for meals served in school, which would otherwise be counted twice (as expenditures of private households and as public consumption).

[15]   It is a major difference between NIPA and household budget surveys that the former includes employers' contributions to health and pension insurance whereas it is excluded from private consumption in the latter (see Hertel/ Statistisches Bundesamt) 1997).

consumption is higher in Europe because governments provide individual services, not because 'true' collective consumption is higher in Europe. For collective consumption the USA looks like a typical European country.

3.3   SERVICES IN THE COMPONENTS OF FINAL DEMAND

Table 3.2 shows the development of the sector shares in final demand derived from the OECD Input-Output databases. Input-output data shows trade services as a separate category of final demand for other industries not as a separate industry providing to final demand (for definitions see Appendix 2 of the Gregory and Russo 2004). Thus the purchase price of a good from other industries is split into a component representing the actual good and another representing the distributional service. This is a major difference to expenditure data as published in the National Accounts or in expenditure surveys because in these data the service component is not separated but included in the expenditure for the good.[16] Final domestic demand data shows rising service shares up to 1990 for all DEMPATEM countries except Germany and the Netherlands (1986). These trends occur in current price (nominal) as well as in constant price (Table 3.2). The data for the mid 1990s (although not fully comparable to the earlier years) shows a continuation of these trends. Roughly speaking, the distance of the European countries with respect to the service-sector share in final demand to the USA remained at about 10%-points in the UK, France, and the Netherlands, but more in Germany.

The causes for these differences in service shares of final demand may be related to different compositions of final demand. Exports, for example, consist mainly of manufactured goods and a high share of exports in final demand will therefore reduce the service share in overall final demand. By far the most important component of demand for services is private consumption, followed by public consumption, which together amount to 80 to 94 percent of total final demand for services (Table 3.3). Domestic consumption is also the most important final demand category for manufacturing, although in this sector it is much less dominant than for services. Therefore rising domestic demand will first of all benefit the service industries. The different final demand components have rather different weights in overall final demand in the various countries though.

Looking at this issue from another perspective and asking what share the three broad sectors have within the final demand categories (Table 3.4) shows the dominance of services in the consumption categories (public and private). Especially in private household demand the service share rose substantially over time. The average American consumer spends three

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[16]   Of course, the distributional service part is related to the purchase of a good. Trade is not a 'stand alone' service (see Glyn et al., 2004).

quarter of his or her overall expenditures on services. This share is generally lower in the European countries but it nevertheless still reaches 60%. The rise of the service share was, of course, at the expense of the relative demand for goods.

Table 3.2: The share of agriculture, manufacturing, and services in final domestic demand, current and constant prices

		constant prices			current prices		
		Agriculture	*Manufacturing*	*Services*	*Agriculture*	*Manufacturing*	*Services*
USA	**1972**	1.5	47.1	51.4	1.4	43.4	55.2
	1977	1.9	44.1	54.0	1.8	43.2	55.0
	1985	2.1	44.0	54.0	1.6	40.4	58.1
	1990	1.9	42.5	55.6	1.4	37.7	60.9
	1997				1.2	34.9	63.0
UK	**1968**	3.4	56.3	40.3	3.6	53.0	43.4
	1979	3.2	53.8	42.9	3.3	52.6	44.2
	1984	4.2	48.6	47.1	4.8	47.0	48.2
	1990	3.4	52.0	44.7	2.5	47.1	50.4
	1995				1.6	40.4	57.9
Germany	**1972**						
	1978	1.8	57.1	41.0	1.8	56.7	41.4
	1986	1.3	56.7	41.6	1.2	55.5	42.8
	1990	1.4	57.9	40.5	1.3	56.8	41.8
	1995				1.4	47.2	51.4
France	**1972**	3.4	54.1	42.5	4.7	61.5	33.8
	1977	2.9	53.7	43.5	3.3	53.9	42.8
	1985	3.7	49.8	46.5	3.5	49.3	47.2
	1990	3.3	51.6	45.1	2.9	48.9	48.2
	1995				1.6	44.7	53.7
Netherlands	**1972**	3.6	53.1	43.2	3.4	55.0	41.5
	1977	4.5	52.6	43.1	4.5	52.1	43.6
	1986	4.3	52.6	43.0	4.6	51.5	44.1
	1990						
	1995				3.8	47.9	49.0
Spain	**1972**						
	1977						
	1986				3.5	45.9	50.6
	1990				1.9	42.2	55.9
	1995				2.5	42.8	54.7

Base years for constant prices: US 1982, UK 1980, Germany 1985, France 1980, Netherlands 1980.

Source: *computations based on the OECD Input-Output database*

Table 3.3: The weight of demand components in overall final demand (current)

	Final Demand	Consumption Overall	Consumption Private	Consumption Public	Investment	Changes in stocks	Exports	Imports
USA	**1997**							
Overall	100	72.8	59.6	13.2	17.9	0.5	8.8	9.5
Agriculture	100	38.6	35.9	2.8	26.9	3.5	31.0	79.0
Manufacturing	100	43.2	36.4	6.8	39.3	1.2	16.3	24.0
Services	100	89.8	72.9	16.9	5.9	0.1	4.2	0.1
UK	**1995**							
Overall	100	65.1	50.9	14.3	13.6	0.4	20.8	21.5
Agriculture	100	42.3	42.3	0	7.6	0.2	49.9	66.8
Manufacturing	100	38.6	38.6	0	28.1	0.9	32.4	41.4
Services	100	84.3	59.7	24.6	3.7	0.1	11.8	6.4
France	**1995**							
Overall	100	66.7	46.8	19.9	15.6	0.3	17.3	16.7
Agriculture	100	58.3	58.3	0	5.1	2.2	34.3	82.2
Manufacturing	100	40.3	39.1	1.3	28.0	0.6	31.0	31.0
Services	100	88.9	52.9	36.0	5.7	0	5.3	2.9
Germany	**1995**							
Overall	100	61	43.6	17.4	18.3	0.2	20.6	18.8
Agriculture	100	65.3	65.1	0.2	12.3	0.8	21.6	122.8
Manufacturing	100	29.7	29.6	0.1	33.2	0.4	36.7	31.9
Services	100	89.5	55.8	33.7	4.8	0	5.7	3.9
Netherlands	**1995**							
Overall	100	45.8	29.3	17	13.1	0.5	40.6	34.5
Agriculture	100	9.1	9.1	0	4.6	-0.2	86.5	91.6
Manufacturing	100	17.8	16.4	1.5	21.1	1.1	60	55.8
Services	100	76	42.6	33.4	5.9	0	18	9.2
Spain	**1995**							
Overall	100	65.7	50.1	15.6	18	0.3	16	19.2
Agriculture	100	51.3	50.7	0.7	4	1	43.6	98
Manufacturing	100	36.2	34.8	1.4	35.3	0.6	27.9	34.5
Services	100	89.4	62.1	27.3	5.2	0	5.3	3.6

Source: *computations based on the OECD's Input-Output database*

Table 3.4: The distribution of final demand across agriculture, manufacturing and services (current prices)

	Final Demand	Consumption			Investment	Changes in stocks	Exports	Imports
		Overall	Private	Public				
USA	**1997**							
Agriculture	1.2	0.6	0.7	0.3	1.8	7.7	4.3	10.1
Manufacturing	35.1	20.8	21.4	18.1	77.2	77.1	65.3	89.1
Services	63.7	78.5	77.8	81.7	21	15.2	30.5	0.8
UK	**1995**							
Agriculture	1.6	1.1	1.4	0	0.9	0.9	3.9	5.1
Manufacturing	40.4	24	30.7	0	83.2	84.8	63.1	77.8
Services	57.9	75	67.9	100	15.9	14.3	33	17.1
France	**1995**							
Agriculture	1.6	1.4	2	0	0.5	11.5	3.2	7.9
Manufacturing	44.7	27	37.3	2.8	79.8	83.1	80.2	82.8
Services	53.7	71.6	60.7	97.2	19.6	5.3	16.6	9.3
Germany	**1995**							
Agriculture	1.4	1.5	2.1	0	0.9	5.9	1.4	9
Manufacturing	47.2	23	32.1	0.4	85.7	93.8	84.2	80.3
Services	51.4	75.5	65.9	99.6	13.4	0.3	14.3	10.8
Netherlands	**1995**							
Agriculture	3.9	0.8	1.2	0	1.3	-1.4	8.2	10.2
Manufacturing	47.4	18.5	26.9	4.1	76.5	99	70.1	76.8
Services	48.7	80.8	71.9	95.9	22.1	2.5	21.7	12.9
Spain	**1995**							
Agriculture	2.5	2	2.5	0.1	0.6	8.8	6.8	12.8
Manufacturing	42.8	23.6	29.7	3.9	83.7	90.6	74.9	77
Services	54.7	74.5	67.8	96	15.8	0.7	18.3	10.2

Source: *computations are based on the OECD's Input-Output database*

4   PRIVATE HOUSEHOLDS' DEMAND FOR SERVICES

The aim of the study made by DEMPATEM's private-consumption team (Adriaan Kalwij, Laura Blow, Marijke Deelen, François Gardes, Maria Jose Luengo-Prado, Stephen Machin, Javier Ruiz-Castillo, Wiemer Salverda, Ronald Schettkat and Christophe Starzec[17]) was to establish the role of the spending behaviour of private households for understanding the international differences in the broad structure of the economy, particularly with regard to the production of and demand for services. For this purpose we attempted to describe consumer demand patterns in an internationally uniform and consistent way and to explain the differences and changes in these patterns. For the latter the main issues were:

(1) Household compositional effects. Differences and changes in households' demographic composition and employment structure may affect the allocation of expenditures among the different commodities at the aggregate level. It is hypothesized that these changes caused an increase in the demand for services related commodities.

(2) Income effects. Most developed countries have experienced real-income growth. The way the demand for a commodity is affected by household expenditures depends on whether this commodity is a luxury, a necessary or an inferior commodity. Under the assumption that services-related commodities are a luxury, their budget share will have increased over the last decades. On the income side inequality may also have an effect. When bottom-end incomes and wages lag behind, high-income households can afford to buy services more cheaply.

(3) Price Effects. Baumol's cost disease stipulates that certain sectors, such as the service sector, experience relatively lower productivity growth and, consequently, face relatively higher increasing costs (Baumol, 1967). This translates into relatively higher prices of the commodities produced in these sectors. Consequently, in the case demand is price-inelastic the budget shares of these commodities increase. The change in the budget share due to a change in relative prices holding quantities constant is referred to in this study as the Price effect.

(4) Preference changes and substitution effects. Demand will most likely respond to relative price changes and preferences over commodities may have changed. These two

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[17]   See Schmitt 2004, Blow 2004, Kalwij and Salverda 2004, Luengo-Prado and Ruiz-Castillo 2004, Deelen and Schettkat 2004, Gardes and Starzec 2004 and Kalwij and Machin 2004.

effects cannot be separately identified in this study and are considered unexplained or residual effects.

For the study we have utilized the national microdata that are available from consumer household budget surveys for each of the six countries[18]. We have gone to great length to treat the data in as comparable a fashion as possible between the countries – for spending patterns as well as household characteristics. Throughout the study we have distinguished between goods and services, and this has been a leading principle also for the categorization of commodities into a internationally comparable pattern. We believe that this effort of standardization is an important contribution to the literature. Existing studies do not provide sufficiently comparable data differed because of differences in definitions and methodology. In line with the rest of the project it was attempted to cover a longer period stretching preferably from no later than the end of the 1970s to the mid-1990s. The choice of years was determined by the availability of both the consumer budget surveys in the countries and data sources for other parts of the DEMPATEM project, particularly the input-output tables to be used for studying the structure of production.

We summarize how that has been done in the first section. After this we describe the spending patterns and the composition of the household population by characteristics that resulted from the research. We discuss the international differences and similarities and the evolution over time. Finally, we present our approach to explaining the observed spending patterns from the individual household characteristics and the results that this generated.

The material underlying this chapter can be found in separate reports for each of the six countries, an overview report summarizing these, and a methodological paper. Detailed results and explanations can be found there.

4.1 DEMAND FOR SERVICES MADE COMPARABLE

Most countries maintain a consumer budget survey but these surveys do not always serve the same purpose and they are certainly not internationally standardized in the way that, e.g., employment statistics are. Evidently, the fact that the goods and services that can be acquired for consumption by private households are largely similar across countries implies a certain degree of natural standardization. However, there is a whole series of important issues to which this not automatically applies and for which solutions had to be found.

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[18] Consumer Expenditure Survey for the USA, Family Expenditure Survey FES for the UK, Family Budget Survey for France, Einkommens- und Verbrauchstichprobe EVS for Germany, Encuestas de Presupuestos Familiares EPF for Spain and Consumentenbudgetonderzoek CBO for the Netherlands. Unfortunately, for Germany we had access only to a restricted set of microdata for 1993 and were forced to partly use tabulated data.

First, although the thousands of individual commodities may be a rather uniform set their statistical observation can differ. The observation of certain items that cost little is burdensome to the survey respondents and costly to the surveying institution. These are often treated differently, e.g., by keeping a diary for all such spending during a limited time period. During the research of DEMPATEM it turned out that the results of the American survey usually leave out all information of the so-called "diary portion". This contrasts with other countries and we decided to include it – unfortunately, a lot of work for little difference. Second, in spite of the relative uniformity of the commodities that are observed their classification into more or less aggregate categories may differ, e.g. for holidays. For any feasible comparison we had to make do with such aggregations and make them as uniform as possible. We extensively discussed the properties of the classificatory scheme before adopting it. Third, the mode of provision to the consumer of particular commodities can vary essentially between countries ranging from exclusively private, i.e. via the market, at one extreme and exclusively public at the other extreme. Health care, education and similar services are non-trivial examples. Fourth, certain commodities cannot be observed directly by means of a individual survey although they are of economic import and part of the household spending relates to it. Imputed rent for owner-occupied housing is the important example here. This is not a piece of information a household could possibly supply as an answer to a direct question in a questionnaire. Therefore it is no surprise that the treatment of this issue varies strongly between surveys, from full imputation to total absence, e.g. in the case of the UK[19]. Fifth, the nature of goods and services may impose a certain structure on the spending side, as we just observed, but it has no effect on the standardization of household characteristics. We united on a detailed set of household characteristics to enable both a precise descriptive comparison and an identical explanatory approach. Another concern was the definition of household income, which may well hang together with the spending pattern. The in- or exclusion of housing-rent subsidies is a well-known example – if they exist they should be added to both sides, income as well as spending. Usually, income is underreported in these surveys as they are not targeted to measuring this accurately. Consequently, we could not use money incomes for explanation nor could we study savings behaviour. As an alternative we used total expenditures and will talk about budget effects instead of income effects.

In addition to this, some more general properties of the surveys were important. For an adequate explanation of spending from household behaviour the spending on durable goods is a problematic issue. The frequency of such spending is low with many observations of zero spending as a consequence in an annual survey.

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[19]   Compare Frick and Grabka, 2003, which we came to know only at the end of the project.

All this has led us to a two-step approach. First, we determined uniform totals of spending. This included the health and education, durables and imputed rent. Together with a breakdown by spending categories this has been used for an in-depth descriptive comparison, with some astonishing results especially with regard to housing. The second step concerned the effort to explain the patterns of spending from household characteristics. Here we limited ourselves to what we have called the 'restricted' DEMPATEM categories. These notably exclude the commodity categories that can involve public provision: health care and education, but also housing spending was excluded as the imputation process involved the use of the same household characteristics that should be used for the explanation. Finally, durables were excluded.

4.2   THE INTERNATIONAL COMPARISON

As we just said the survey data had to be made compatible for the international comparison in two respects: the characteristics of the consumer households and the categorization of commodities into a spending pattern from which budget shares could be determined. We start considering the former.

To keep the descriptive effort manageable the number of household characteristics had to be strictly limited and to make it meaningful the nature of the characteristics had to extend beyond pure demographics and include employment. Employment participation differs substantially between the USA and the European countries and this could potentially affect the spending pattern as suggested by e.g. the 'marketization hypothesis'[20].

All statistics reported below are weighted sample statistics providing a representative picture of the national population.

Households

On the demographic side we distinguished 17 categories. We report here about singles, single parents, couples with and without children, the retired (defined as having a head of household aged over 64) and other households such as those with a parent or another relative of the head of the household. The latter group was sizeable in Spain and France but it was also important in the USA in 1997. Compositional differences between the countries and the years are considerable (Figure 4.1).

We found a decrease in average household size in all countries, the Netherlands now having the smallest average size or, inversely, the highest number of households per head of the population. Behind this decrease was both a declining number of children in households but

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[20]   Freeman and Schettkat, xx

also – except for Spain – an increase in the share of singles which inflates the number of households. Transatlantic differences were small, albeit the growth of singles was more limited in the USA. It was very strong in the Netherlands, France and the UK, and complementary to this the share of couples with children declined substantially – the 'traditional' type of the single-earner households bore the brunt of these developments. The share of couples without children stagnated and surprisingly fell somewhat in the USA. Retired shares are relatively high in Germany and the UK.

Figure 4.1 Composition of the population by type of household
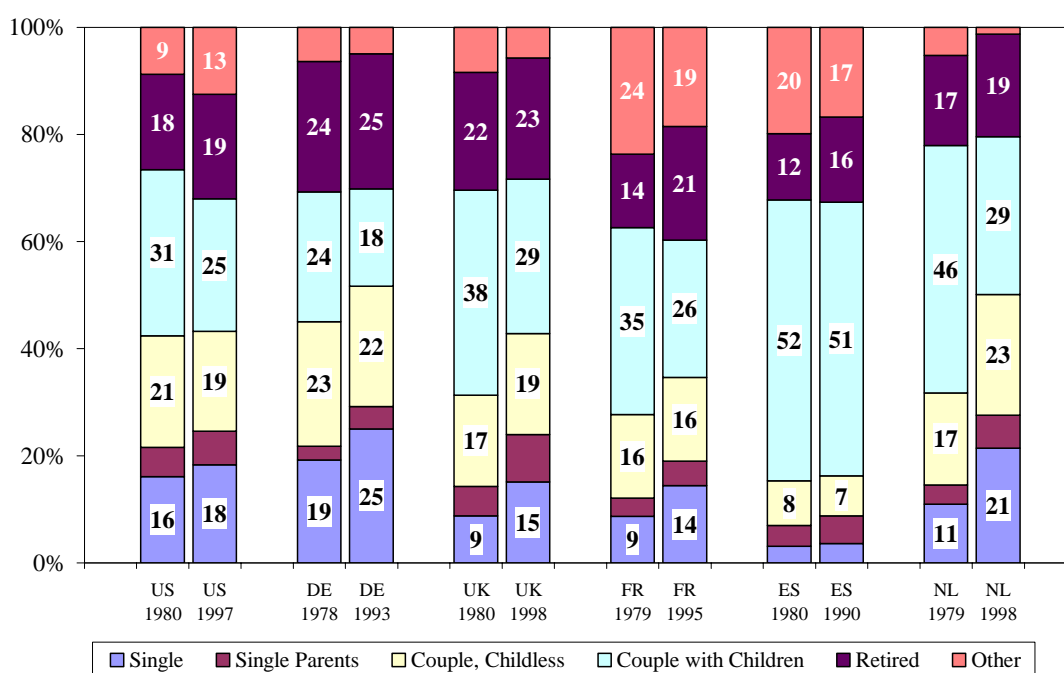
The involvement of households in paid employment was also investigated. Joblessness appears to be rather high, though unchanged since the end of the 1970s, in the Netherlands (18%), followed by the UK (14%) and France (13%). American joblessness is much lower at between 4 and 5 per cent of all households. In the 1990s the share of singles[21] in the USA is not much different from Europe, but they have a substantially higher level of employment participation (see Table 4.1). This ranges from 60 per cent in Spain and the Netherlands to almost 90 in the USA. For couples with or without children the USA is not performing better. This group's share in the population in the USA is one of the lowest and their employment-participation rate, although the highest, is not much higher than in Europe. Strikingly, the share of couples with children and two jobs declined in all countries except

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[21]   Singles as well as couples are taken here with or without children.

Spain and the Netherlands. Their share is low in Germany and the Netherlands and high in the UK and the USA.

Table 4.1 Household shares and employment participation rate of singles and couples with and without children

	US 1979	US 1997	DE 1978	DE 1993	UK 1979	UK 1998	FR 1979	FR 1995	ES 1980	ES 1990	NL 1979	NL 1998
Household shares												
Singles	22	25	22	29	14	24	12	19	7	9	15	28
Couples	52	43	48	41	55	48	51	41	61	59	63	52
Two-earners with children	22	19	10	8	24	20	19	16	15	19	7	12
Employment participation rates												
single	86	88	65	74	69	60	69	59	62	59	43	61
couple	97	97	92	92	95	91	95	87	90	88	85	86

We conclude that with regard to households Europe and the USA shared a number of trends: the declines in the average size and in the shares of couples and of two-earner households with children and, in the opposite direction, the increase in the share of singles and singles in employment. With this Europe moved closer to the American pattern, particularly for household composition. The average absolute difference in percentage shares of the six demographic categories decreased very little for Spain but substantially for the other countries. At the same time level differences can still be substantial. Consequently, it seems worth the effort to investigate the effects of household characteristics on the national patterns of consumer spending.

Expenditures

For arranging the commodities from the available data we have designed a list of categories reflecting common views on spending patterns and geared to the distinction between goods and services at the same time. This resulted in 20 categories covering all spending, what we have called the 'complete' pattern.

As was stated before, for the purpose of an internationally comparable analytical approach we then removed the categories for which it seemed dubious that consumer household survey data would provide adequate information on spending for all countries. This concerned education, health care and housing. At the same time we took out durable spending from all remaining categories. This led to what we termed the 'restricted' pattern, which then comprised non-durable market goods and services. Table 4.2 presents an overview of the categories and the restrictions. Twenty categories were needed for a proper insight into the 'building blocks' of goods and services. The first eight categories comprise goods and the last twelve services.

Table 4.2 The categorization of commodities

Complete categorization	Excluded from the restricted domain		
1. Food and non-alcoholic beverages 2. Alcoholic beverages and tobacco 3. Clothing and footwear 4. Private transport goods 5. Furnishing and appliances 6. Entertainment goods 7. Personal Goods 8. Home energy GOODS			durables
9. Food and beverages away from home 10. Holiday Services 11. Housing 12. Household services 13. Health goods and services 14. Personal services 15. Public transport services 16. Private transport services 17. Communication services 18. Education and training services 19. Entertainment services 20. Miscellaneous services SERVICES	x because of imputations x because of public/private provision x because of public/private provision		

Figure 4.2 shows the quantitative effects of the restrictions at the aggregate level. A number of highly interesting conclusions can be drawn on the four excluded types of expenditures. As was said before we spent much effort on making the spending on housing internationally comparable, including imputed rent either as it was found in the survey or by imputing it ourselves as best as we could. The imputing techniques necessarily differed and housing expenditures are not perfectly comparable across countries.

The effects are highly interesting. Housing appears to be a very substantial category of expenditures, taking up to nearly 30 per cent of the total household budgets. Housing expenditures also showed substantial increases in most countries, ranging from 3 or 4 percentage-points in France, Germany and Spain to 10 in the UK. The American outcomes are within the range found in Europe. The importance of these observations resides in the fact that much of the spending on housing, certainly in the National Accounts statistics (which also impute rent), is commonly considered as a part of services. Apparently, large part of the increase in aggregate spending on services does not rest on hard observations of transactions but on a constructed variable.

Figure 4.2 The effects of restricting the spending pattern
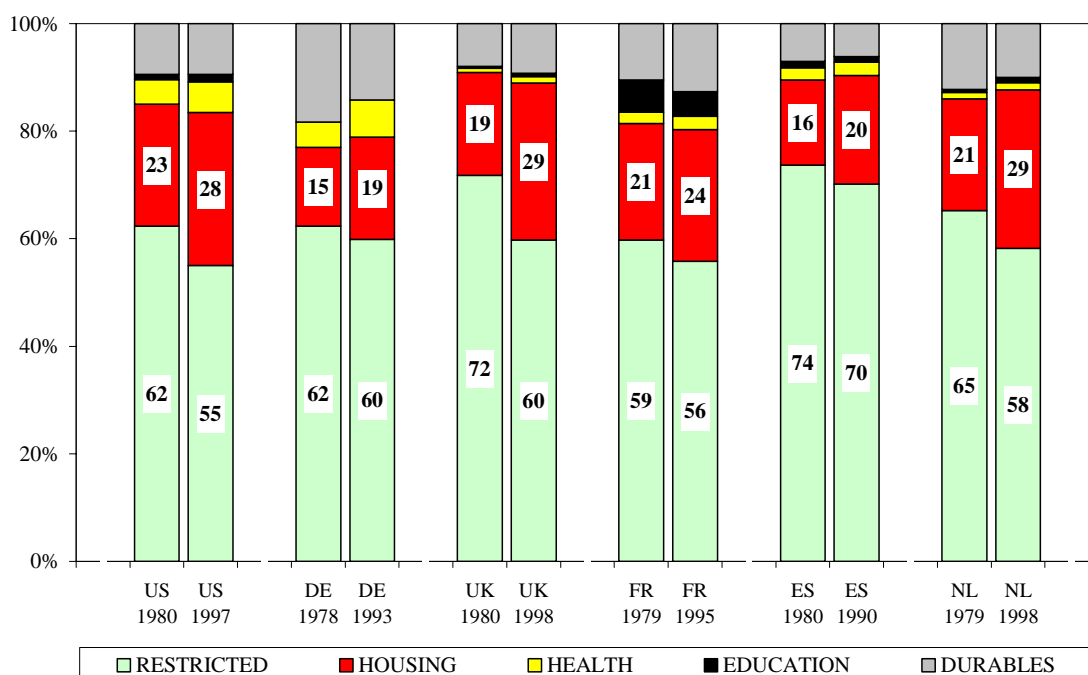
Second, we find that direct spending from the household purse on the two mixed public/private categories of health and education is relatively small and also not very different between the USA and Europe. It is a far cry from the spending on both as it appears in the national statistics (which naturally includes the public financing that is not captured in surveys of private spending). Third, we see that spending on durables although certainly not negligible is relatively limited. It seems somewhat larger in France and Germany, but again the USA is not out of range. Naturally, given the definition above that one cannot drop services on one's feet they can most certainly also not be stored and kept for future use, and therefore taking out durables implies a shrinking of the goods categories solely.

It is important to note that, taken together, the excluded categories take up a rather substantial and increasing amount of all consumer spending. Consequently, the 'restricted' spending that we will focus on below, varies between 55 and 65 per cent at the end of the 1990s with the exception of Spain where it amounted to 70. The role of the day-to-day provision of market goods and services in consumer life may be more limited than many would think, nevertheless a substantial majority of expenditures is still covered. Naturally, this observation also serves as a caveat for what follows. Our explanation of spending from household characteristics goes as far as this. It cannot provide the full picture of consumer expenditures in the national economy. The justification is that we did not think that the

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spending beyond the restrictions could be explained with sufficient scientific rigour from individual household behaviour in a cross-country comparison.

Figure 4.3 Goods and services in restricted spending
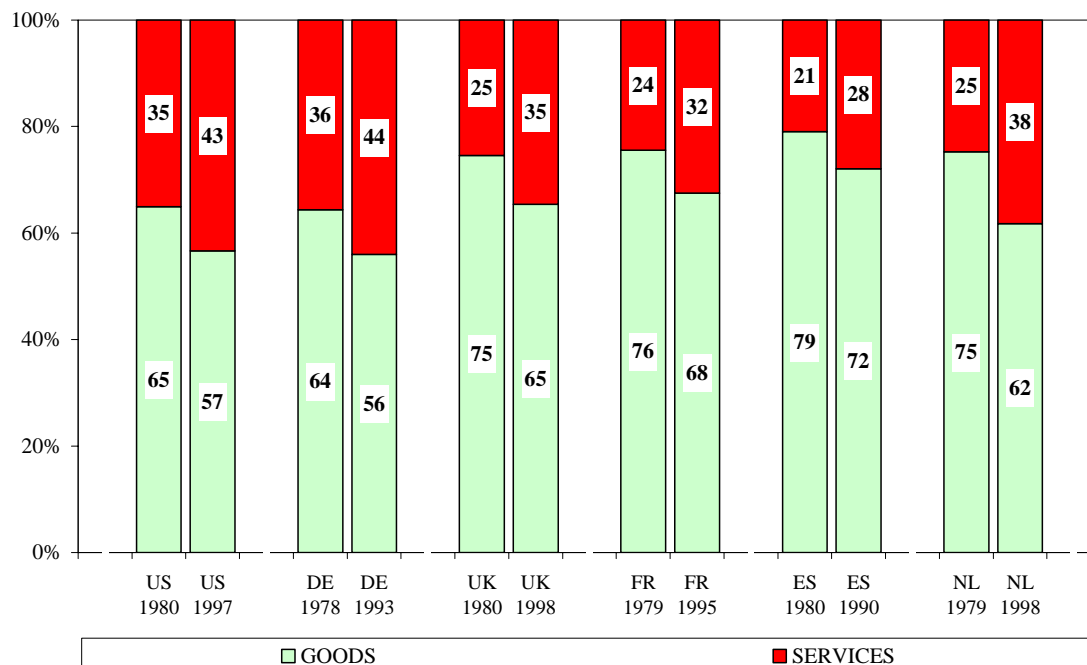
Within the restricted domain there are 17 remaining categories of spending, which are all considered in the explanatory analysis to which we turn in section 4.3. For the present descriptive presentation we first focus on the distinction between goods and services. Figure 4.3 depicts the shares of both in the total of restricted expenditures.

We see that in all countries services have a minority share but also that the share increased substantially over the two decades that we covered. The detailed country studies showed that the goods share decreased primarily because expenditures on food and beverages fell, including alcoholic beverages and tobacco – except for France where the latter remained constant. For the other six goods categories the picture is mixed, with some increase or some decrease and some differences between the countries. Spending on private transport goods fell noticeably in the USA – but we note again that durable goods such as cars were excluded – and clothing and footwear did in several countries.

Figure 4.4 Shares of three wage-cost intensive services in restricted spending
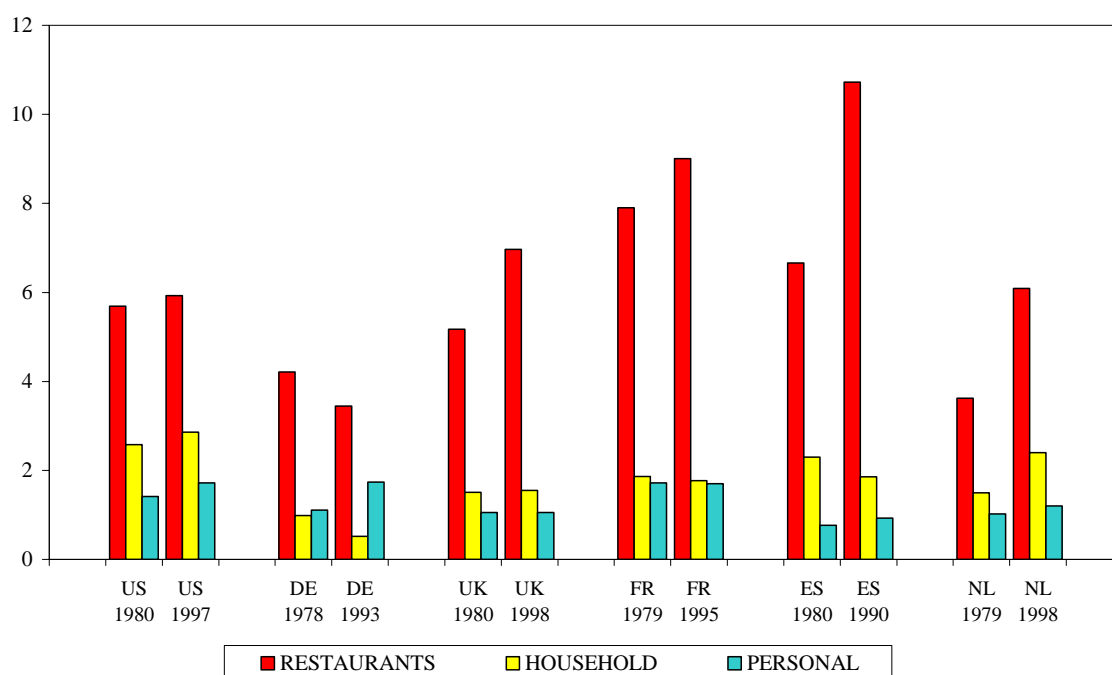
On the side of services the changes fanned out more widely. Many categories witnessed an increasing share, actually in the USA all categories did. Also there was more uniformity between the countries. However, there are some interesting exceptions to this pattern. Spending on household services fell in the Spain, Germany and France, as did private transport services in the USA and France. By contrast, spending in restaurants, 'food and beverages away from home', registered substantial growth in some countries but a clear fall in Germany and very little growth in the USA. Personal services is a third categories for which wages may be an important cost. The evolution of the three categories is shown in Figure 4.4. Their combined share is clearly smaller in Germany.

The American share is close to the British and the Dutch while the French and Spanish shares are significantly higher, mainly because of higher spending in restaurants.

We also studied the development of prices as an input for the further analysis, as much as possible at the level of the 20 commodity categories. Table 4.3 summarizes the results.

Table 4.3 Average annual changes of relative prices

Country	US 1980-1997	DE 1978-1993	UK 1980-1998	FR 1980-1995	ES 1980-1990	NL 1979-1998
Period						
All Goods and Services	5.7	4.0	7.4	8.5	13.9	2.8
Within All Goods and Services (compared to the overall total)						
Durable Goods	-1.2	0.0	-1.6	-1.6	-2.0	-0.6
Health Services	3.6	0.1	2.3	-1.4	-1.1	0.1
Education Services	5.7	-0.9	4.3	2.0	0.1	0.7
Housing	-0.1	0.1	2.5	1.3	0.8	2.0
Restricted Expenditures	-0.2	0.0	-0.2	-0.2	0.1	-0.6
Within Restricted Expenditures (compared to the restricted total)						
Non Durable Goods	-0.6	0.0	-0.4	-0.7	-0.4	-0.2
Services	1.0	0.1	1.3	0.8	0.4	0.6

Durable goods have become relatively cheaper in all countries except Germany. Prices of health and education have in particular increased in the USA and the UK. The price of housing sharply increased in the Netherlands, France and the UK and decreased somewhat in the USA. Non-durable goods and services have become relatively cheaper while services became more expensive over time and, consequently, goods became relatively cheaper. This observation is in line with Baumol's cost disease applied to the labour-intensive service sector that experiences lower productivity gains than goods industries.

We conclude this section by taking a look at real average household expenditures, both for complete and restricted spending, for the total and at three different points in the household distribution of spending levels to indicate changes in inequality. Note that no adaptation was made for household size and composition, in other words these amounts have not been equivalised over households. Figure 4.5 shows the annual growth rates.

Figure 4.5 Annual growth (%) of average household expenditures, complete and restricted, and for three decile-levels of the distribution of complete expenditures
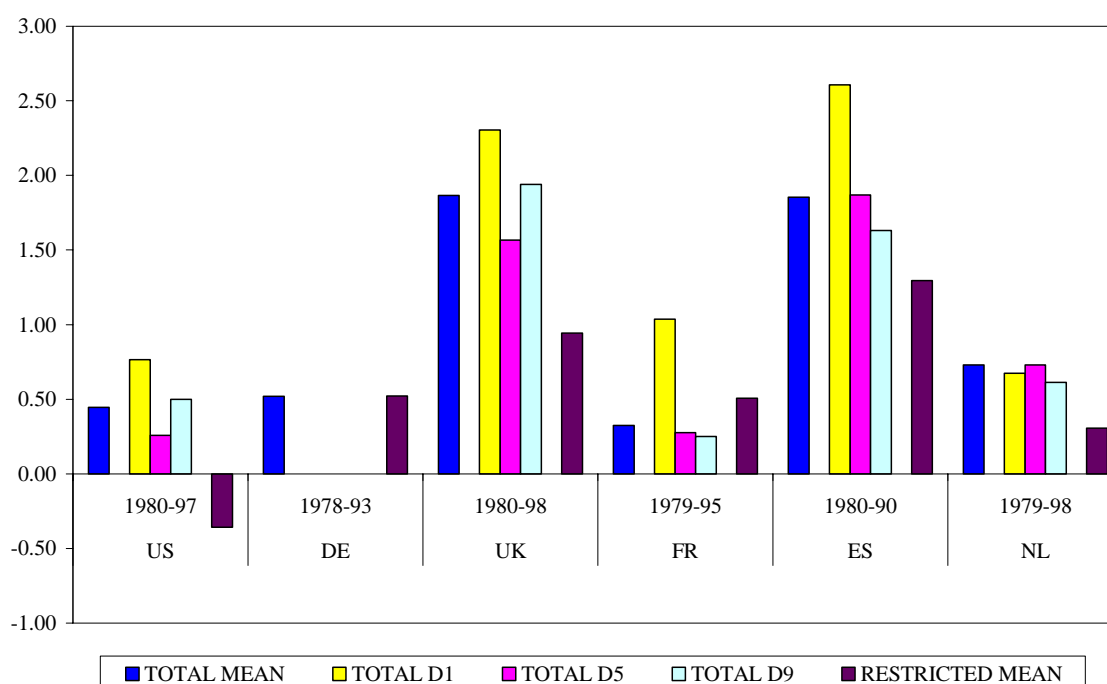
The aggregate growth of complete spending appears to be small in the USA, France and the Netherlands, and relatively large (about 2 %) in the UK and Spain, which is consistent with other sources. The change is also shown for three decile levels of the distribution of complete expenditures: the first, fifth and ninth decile. In all countries, notably including the USA., the increase was larger at the bottom of the distribution than higher up, with the slight exception of the Netherlands. The last bar shows the evolution of the average restricted expenditures per household. It should be noted that the USA registered a decline. This should be kept in mind when interpreting the sign of findings below.

4.3   EXPLAINING CHANGES IN DEMAND

As the last part of this chapter on consumer demand, we discuss the possible explanations for the changes in the expenditure patterns that have been observed, particularly for the demand for services. The possible explanations are:

- Composition effects: changes in household composition: here we distinguish between demographic changes and changes in household employment.
- Budget effects: change in household expenditures here we distinguish between changes in the average budget and changes in expenditures inequality.
- Price effects: the increase in the budget share due to an increase in the relative price of this commodity, ignoring substitution effects.
- Price substitution effects and preferences changes over time. (residual)

A uniform system of (reduced-form) Engel curves was used for estimating the relationship between each of the budget shares for each of the 17 commodity categories on the one hand and 7 household demographic variables, 3 employment variables[22] and total expenditures on the other hand. The latter represents income, which could not be used because it is poorly measured in some of the countries. The estimates were used for decomposing the change with respect to the household characteristics. Table 4.4 presents the results of this analysis, summarizing it for the two broad categories of (non-durable) good and services. The size of the shift from goods to services over the period was between 7 and 9 percentage-points except for the Netherlands where it was close to 14.

Demographic changes, i.e. household composition, explained only a limited part of the changes in the spending pattern in each of the countries, 10 – 20 per cent. In addition, changes in household employment appeared to explain very little indeed. This is an amazing finding given the changes in employment participation. We expected to find substantial effects of increased female employment participation leading to growing numbers of two-earner households. One possible explanation for the absence of such effects may be sought in the nature of the compositional change among households. The share of two-earner households tended to decline and much of the increase was among singles for whom employment participation may make little difference for the spending pattern. Also, the possible changes may not affect the goods-services division. Two-earner households may buy another car before going to a restaurant or hiring domestic services. Finally, the effect to be considered next, budget levels, may have eaten away the effect of increased employment.

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[22]   Logarithm of household size, the number of persons under 6 years, number of persons over 5 and under 18 years of age, over 17 and under 31 years, over 30 and under 65 years, and over 64 years of age, each time divided by household size; age and age squared of the head of household; the number of employed persons in the household, a dummy variable equal to 1 if all adults are employed, 0 otherwise, and, finally, a dummy variable equal to 1 if all adults are employed and a person under 6 years of age is present in the household, 0 otherwise. For several countries a regional variables were also included.

Table 4.4 Decomposition of the changes in budget shares summarized for goods and services, restricted expenditures

	Total change	Demo-graphics	Employ-ment	Budget level	Budget inequality	Price effects	Substitution & preferences
ES	**1980-1990**						
Goods	-7.0	-1.0	0.1	-3.0	0.0	-1.9	-1.2
Services	7.0	1.0	-0.1	3.0	0.0	1.9	1.2
NL	**1979-1998**						
Goods	-13.6	-2.6	-0.1	-0.9	0.6	-2.9	-7.7
Services	13.6	2.6	0.1	0.9	-0.6	2.9	7.7
US	**1980-1997**						
Goods	-8.3	-0.8	0.1	0.9	0.0	-3.2	-5.1
Services	8.3	0.8	-0.1	-0.9	0.0	3.2	5.1
FR	**1980-1995**						
Goods	-8.0	-1.1	0.2	-2.6	0.0	-5.2	0.7
Services	8.0	1.1	-0.2	2.6	0.0	5.2	-0.7
UK	**1980-1998**						
Goods	-9.2	-1.6	-0.1	-2.8	0.5	-6.3	1.1
Services	9.2	1.6	0.1	2.8	-0.5	6.3	-1.1
DE	**1978-1993**						
Goods	-8.4	-1.5	0.0	-1.4	0.0	-4.6	-0.8
Services	8.4	1.5	0.0	1.4	0.0	4.6	0.9

The level of total expenditures – the third issue – will impact the budget shares depending on the budget elasticity. These can be found, again for the goods and services aggregates only, in Table 4.5. The table shows that the aggregate of services is a luxury. Hence one would expect the share of services to be increasing with the level of spending. Indeed, the budget level effects can explain between 40 per cent of the services increase for Spain and a few per cent for the Netherlands. The USA had a negative outcome which indicates that the share of services grew in spite of the decline in average household spending in the restricted domain that was noted above. The explanatory role of income inequality was investigated with the help of the Theil index again based on budgets. The index appeared to show very little movement over time and was significantly different from the USA only for the Netherlands. Greater inequality may imply that high-income households can command more low-paid services. The contribution of inequality to the explanation is next to nothing. A greater or lesser inequality between households had no noticeable effects on the pattern of consumption.

Table 4.5 Budget elasticities, restricted expenditures

Country Year	US 1980	DE 1978	UK 1980	FR 1995	ES 1980	NL 1979
Non Durable Goods	0.80	0.75	0.77	0.97	0.82	0.80
Services	1.38	1.45	1.66	1.08	1.70	1.61

Price effects support the notion of a more rapid increase in the price of services compared to goods, likely because of differential developments in productivity in line with Baumol's cost disease. They appeared to be rather large in our findings. In the UK prices explained almost two-thirds of the 9 percentage-point increase in spending on services. There were also major effects for France and Germany. For the three other countries, however, the effects were more limited – less than one-third in Spain and the Netherlands and somewhat more in the USA. Baumol's virus does not affect countries equally.

Finally, the residual of the estimation is attributed to changes in preferences of the households and substitution between categories. Its role for the explanation is very limited with the exception of the USA and the Netherlands.

We conclude from this that changes in consistently defined consumption patterns seem to have more to do with rising expenditures and shifts in relative prices as well as in preferences than they do with the changing composition of households across countries. The American patterns do not seem to deviate significantly from the European. We also note that the aggregate behaviour of services and goods does not imply that all individual categories comprised within both aggregates necessarily move in the same direction. Particular goods can have high budget elasticities and particular services can have low elasticities. This is consistent with findings in the other parts of the research project, the structure of production and employment. The role of level effects was also found elsewhere.

5 THE INTER-INDUSTRY DIVISION OF LABOUR

5.1 VERTICALLY INTEGRATED SECTORS

Modern economies are extremely complex and almost all products are composite products. The provision of services, say the booking of a flight, requires inputs of manufactured goods and of other services. Computers need to be activated, databanks need to be contacted and so forth. Thus, the productivity in the provision of a specific service does not only depend on the face-to-face provision of the service but also on the productivity of the various inputs used – it depends on the productivity of the whole supply chain. Even if the face-to-face provision of a service suffers from technological stagnancy, improvements in the supply chain at earlier stages of the production process may raise the productivity of this service. Baumol (2001) used the example of a string quartet, which itself cannot improve its productivity when giving a concert but their travel time to the concert halls all over the world may shorten substantially. However, the productivity improvements in the supply chain may also be limited, which led Baumol to classify some services as 'asymptotically stagnant'.

Thus, to determine the productivity of a certain service requires aggregation over all steps of production necessary to produce this final service. Also the answer the question on the difference in labour intensity between goods and services requires the aggregation of labour inputs in the production chain. The production process needs to be vertically integrated (Pasinetti 1973) to achieve the full picture of productivity and/or labour intensity. Input-output analysis does exactly this, analysing the linkages from final demand to employment through the production structure. Input-output analysis allows tackling questions on the relative employment intensity of final demand for services and goods. Does service demand create more jobs than the demand for goods? Where are these jobs created? How do changes in final demand patterns affect employment? Does the change in product mix of final demand promote or discourage employment? Is the US product mix of final demand more employment friendly than that in Europe?

5.2 EMPLOYMENT CREATION OF FINAL PRODUCT DEMAND

When integrating over the production chain, does the common assertion hold that service demand creates more jobs than the demand for goods? To analyze this question the DEMPATEM input-output team (Mary Gregory and Giovanni Russo[23]) performed a series of simulations varying product-specific final demand by standardized amounts within each country. For example, in the USA final demand was first raised for manufacturing products by 1 million 1997 US dollars, then for transport etc. producing comparable employment

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[23]   For more detail see Gregory and Russo 2004.

effects of additional spending across products and years. Table 5.1 summarizes the results, which are comparable within the countries.

Table 5.1: Employment Creation of a Standardized Increase in Final Demand for Various Products, Industry (Manufacturing, Utilities, Construction) =100

	USA		UK		France	
	1977	1997	1977	1997	1977	1997
Industry	1.0	1.0	1.0	1.0	1.0	1.0
Agriculture	1.0	1.5	0.5	1.7	1.2	2.4
Manufacturing	0.8	1.1	0.3	1.0	1.1	1.3
Utilities	0.2	0.5	0.1	0.5	0.4	0.5
Construction	0.4	1.1	0.4	1.2	0.6	1.3
Services	0.9	0.9	0.9	0.8	1.4	1.4
Trade	0.8	1.5	0.3	1.2	0.6	1.6
Hotels, Restaurants	0.3	0.6	0.3	1.1	0.3	1.3
Transport	0.5	1.0	0.2	0.9	0.6	1.4
Communication	0.5	0.7	0.5	0.8	0.9	1.2
Finance, insurance	0.3	0.8	0.2	0.9	0.3	0.8
Real estate	0.2	0.7	0.3	0.8	.	.
Community, social services	0.4	1.5	0.3	1.4	1.4	2.1
	Germany		Netherlands		Spain	
	1977	1997	1977	1997	1977	1997
Industry	1.0	1.0	1.0	1.0	1.0	1.0
Agriculture	2.1	2.0	0.4	1.6	2.5	2.0
Manufacturing	0.3	1.1	4.7	2.0	0.8	1.3
Utilities	0.4	0.6	0.1	0.5	0.3	0.7
Construction	0.8	1.2	0.5	1.5	1.0	1.3
Services	1.1	1.2	0.9	1.4	1.2	0.9
Trade	0.9	1.5	0.5	1.4	1.2	1.3
Hotels, Restaurants	0.7	2.1	0.5	1.7	1.4	1.3
Transport	0.9	1.3	0.4	1.5	1.2	0.7
Communication	1.1	0.9	0.5	1.0	0.8	0.7
Finance, insurance	0.5	0.8	0.4	1.1	1.0	0.7
Real estate	0.3	0.6	0.4	1.3	0.3	0.7
Community, social services	1.2	1.5	0.5	1.9	2.4	1.3

Source: *based on Gregory and Russo 2004*

First of all the table reveals that the employment creation of services is not generally higher than that of manufacturing goods. But there is country variation. Especially France and Germany seem to create more jobs in services than in 'industry' but the French/German picture does not hold uniformly for Europe.[24] Over time, it seems that the employment effects a standardized unit of final demand creates in service has risen relative to the employment effects it has in manufacturing.

Within the countries it seems to be roughly the same industries that create more jobs per unit of standardized final demand in the late 1970s and the 1990s. The rank correlations of

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[24] There is huge variation within the manufacturing sector and some industries like 'manufacturing of office machinery' show very high employment effects whereas 'chemicals' or 'pharmaceuticals' show only very modest effects.

the employment effects are around 0.7 for the years 1977 and 1997 (1995 respectively). Across countries the correlations are even higher between the European countries but lower between the European countries and the USA., especially for France and Germany (compare Gregory and Russo 2004, Table X1).

When demand increases, manufacturing industries keep between 50% (in the US) and 59% (in the Netherlands) of the employment change within that industry, between 24% (Germany) and 31% (US) spills over to services and the rest is employment created in other manufacturing industries. For services the retained percentages are much higher. Between 71% (in the US) and 78% (in Germany) remain within the service industry and only between 6% (France) and 11% (Spain) spill over to manufacturing industries (see Figure 5.1). Over time these patterns look fairly stable, except for Spain, where outsourcing from manufacturing to services increased substantially. It is remarkable that the employment effects of outsourcing from manufacturing differ from the value-added shares actually outsourced from manufacturing to employment, which are higher in Europe than in the USA indicating a different mix of intermediate services on both sides of the Atlantic or that value added per person in US intermediate services is lower than in Europe (Russo and Schettkat 2001).

Figure 5.1 Distribution of employment of demand increases, manufacturing and services

Manufacturing
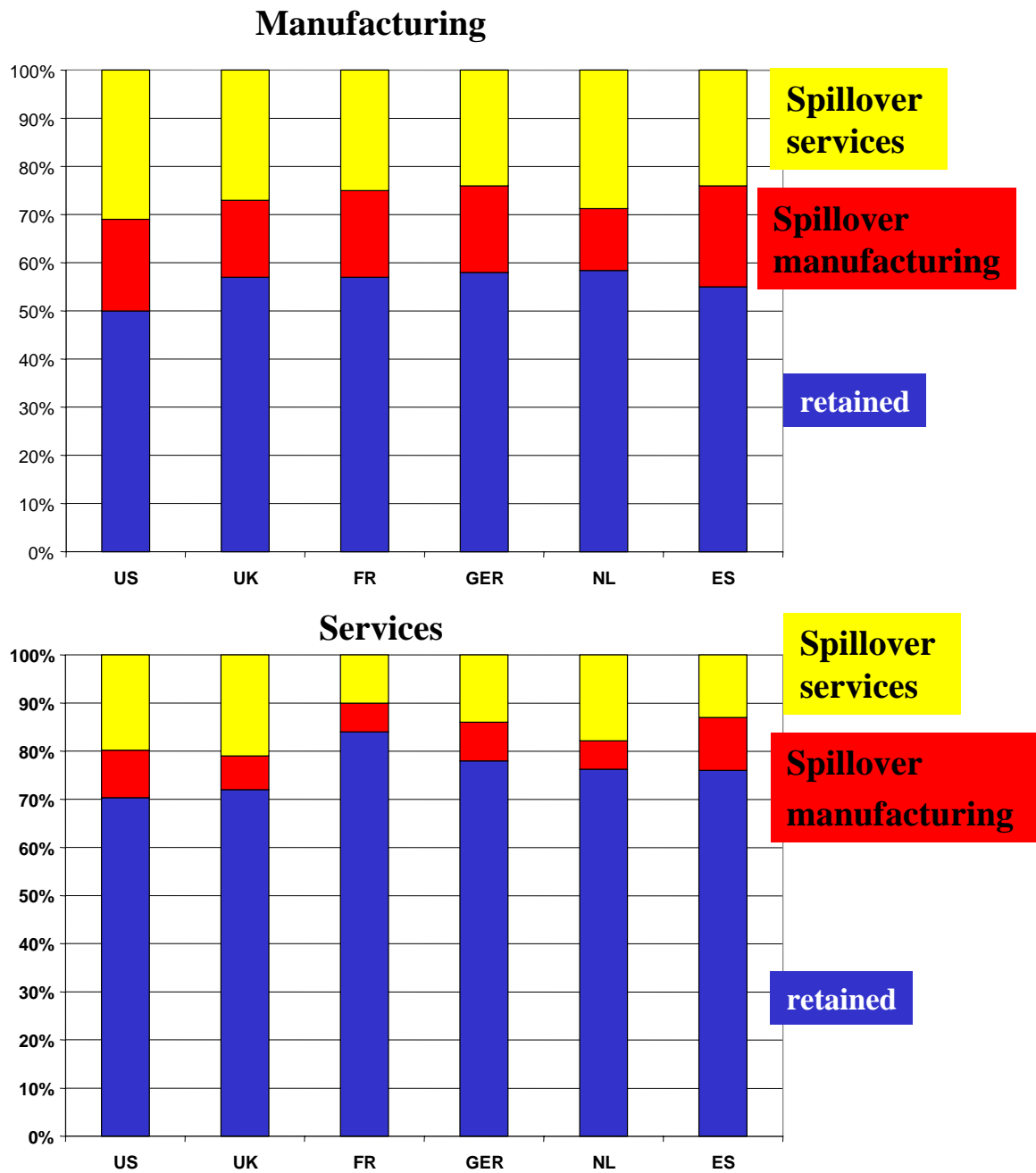
Services

Source: *based on Gregory and Russo, 2004*

5.3 COUNTERFACTUALS: WHAT CAUSES THE US-EUROPE DIFFERENCE IN SERVICE-SECTOR EMPLOYMENT?

Is the European product-demand structure employment unfriendly? Could Europe improve employment levels if it had the American product-demand structure? There seems to be an implicit agreement among many economists and politicians that these questions need to be answered with a clear YES. However, the DEMPATEM analysis concludes with a clear NO. The final-demand mix within services European-style creates more employment than the final-demand structure within services in the USA in the order of 3 to 7%. This result holds both ways, when the production structure of the USA and that of the European countries is applied. The European mix of final service demand seems to be more employment friendly than the American mix. However, the overall higher share of services – not the structure within final service demand – in the USA clearly improves employment although on very modest rates not compensating the negative effects of the service mix.

When restricting the analysis to private household consumption, the pattern reverses. Now the American service mix and the share have clearly employment-enhancing effects in the European countries. Since investment has only a small share in the final demand for services, the public sector must cause the extreme differences between the employment effects of US service demand patterns in overall final demand compared to private household demand. However, compared to the employment effects of differences in demand *levels*, the employment effects of the demand *structure* are marginal.

6 WAGES, PRODUCTIVITY, DEMAND AND THE EMPLOYMENT GAP

Even if consumption patterns (Chapter 4) and production structures (Chapter 5) were the identical across countries employment patterns might differ because of diverging productivity levels, leading to less or more jobs for producing the same output. In an economic context such productivity differences would have to rest on differences in wage costs. Such differences could exist because of different supply and demand conditions in the labour market and/or different institutions regulating these markets. Clearly, such differences do exist, as we have learned from the preceding chapters, and all the more there is good reason to investigate what wages and productivity may contribute to the understanding of the employment gap – which is the aim of the present chapter. It is based on the work done by Andrew Glyn, Joachim Moeller, John Schmitt, Michel Sollogoub and Wiemer Salverda (Glyn *et al.* 2004).

The focus in this chapter on the sector of distribution services. This is based on the following considerations.

(i)   Distribution services is a major contributor to the gap between European and USA employment rates.

(ii)   Distribution is the major services sector most clearly related to household consumption. Community and personal services are differentially supplied by the market and state sectors across countries, which makes it extremely difficult to analyze in a comparative framework. Distribution services is a purely private sector and thus reflects market pressures more directly.

(iii)   Distribution services is the most important site of low-skill employment. If European rigidities inhibit the employment at the lower end of the labour market then distribution should exemplify this problem. The OECD (2001, table 3.8) has shown that more than one half of the employment gap between the EU and USA for low-wage jobs (lowest third of the US wage distribution) was located in distribution services and this accounted for over one quarter of the total jobs deficit.

(iv)   It is possible – as we will see – to make plausible attempts at measuring both productivity growth in distribution services over time within an economy and, a much more difficult task, productivity levels across countries. This is important for understanding employment differences.

This chapter first describes pay and employment in the retail sector and reports on a detailed econometric analysis of national data covering pay and employee characteristics. The object is to pin down the extent to which these employment and pay patterns are consistent with the notion that employment in this sector in Europe is substantially constrained by labour market rigidities. Next, the analysis widens to compare productivity and capital accumulation in distribution services in the USA and our group of European economies to verify whether these patterns support the rapid wage increase/capital intensification/fast productivity growth/low employment growth picture of European services. Thirdly we examine the role of the lower levels and/or slower growth of consumption demand in limiting employment in distribution services in Europe as compared to the USA.

6.1   EMPLOYMENT AND WAGE STRUCTURE

If an industry were severely inhibited by labour market rigidities in Europe we would anticipate that it would be paying wages which were on average much closer to those in the rest of the economy than in the USA. This would be because higher relative wages for the unskilled in general would push up wage costs in this low-skill sector. Further, minimum wages or welfare state floors would prevent employers in this sector taking advantage of slack labour markets at the bottom end of the pay scale to further economize on wage costs by paying below the going rate for given skill categories (a wage "penalty" for working in retail). Wage compression would also lead to "employment structure compression" – less opportunity for retail to take advantage of low pay for certain groups (youth for example) who may be quite suitable for work in that sector.

To approach this we have compared the patterns of employment and wages for the USA and four of our European countries using microdata sets[25] that allowed to go back to the end of the 1970s. Distribution services comprises wholesale trade, retail trade, and hotels and catering. To focus as sharply as possible on the segment of the labour market where the impact of rigidities should be most apparent wholesale is left out of the detailed analysis, if data allow. Combining the microdata evidence with the above LFS data the employment rate for retail was estimated. European employment in retail was relatively steady whereas it continued to expand in the USA. Thus the employment gap in retail, already considerable at

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[25]   The data sets are: Current Population Survey (CPS), Beschäftigtenstichprobe IAB, Enquête Emploi (EE), General Household Survey(GHS), Loonstructuuronderzoek (LSO).It has proved impossible to carry out a comparable analysis of Spain due to limitations in the available data. These microdata sets are either establishment based (Germany, Netherlands) or household based and the variables (measures of wages for example) are not always exactly comparable across countries as we note below. The German data consistently concern West Germany and exclude the public sector.

the end of the 1970s, grew over the period from 1.3 to 1.7 percentage-points of the population (Table 6.1).

Table 6.2 Employment rates for employees only in retail, selected years*

Ratios to population of working age

	EU4	USA	USA-EU4
end of 1970s	4.5	5.8	1.3
end of 1980s	4.6	6.1	1.5
mid of 1990s	4.5	6.2	1.7

*) End of 1970s: UK, US, NL 1979, Germany 1978, France 1982; end of 1980s UK, US 1990, NL and Germany 1989, France 1991; mid of 1990s: France and Germany 1995, NL 1996, US 1997 and UK 1998.

Table 6.2 shows how employment in retail in each country differs in composition – gender, age, part-time working and skill levels – from the national average.

As a broad generalisation, the specific characteristics of retail employment tend to be more constant over time within countries than equal between countries. In terms of age and gender composition of employment in US retailing does not seem to be an extreme case. When it comes to skills, however, there *is* a striking difference[26]. In the USA (together with the UK and Netherlands) the least skilled are over-represented in retail, but in Germany and France there is a smaller proportion of the least qualified than in the economy as a whole. This seems consistent with the notion that regulation was increasingly holding back the employment of the low skilled in this industry which internationally appears as archetypically low skilled.

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[26]   The three skill levels are measured using the: ISCED levels 0-2, 4 and 5-7. Skills are notoriously difficult to compare across countries since the educational systems from which they are derived differ so widely; however these problems are less worrying for the comparisons of retail to the national average.

Table 6.2 Employment characteristics in retail, selected years

*% of average for the economy, dependent employment, full-time equivalents**

		women	youth 15-24	part-time <35hrs	skills low	middle	high	avg wage	<1/3	avg wage low skilled
US	1979	106	158	210	105	114	50	80	160	84
	1990	107	178	197	113	118	49	74	167	83
	1997	105	178	180	117	118	54	76	162	90
DE-W	1978	183	146	237	67	120	27	74	167	74
	1990	184	136	223	65	118	27	77	157	81
	1995	174	135	206	69	116	28	79	152	83
FR	1982	113	177	120	94	120	32	81	187	94
	1991	117	200	129	82	125	34	80	159	94
	1995	113	215	117	74	124	42	78	183	97
UK	1979				not available					
	1990	151	164	177	130	115	24	65	n.a.	76
	1998	138	200	178	124	130	42	62	n.a.	74
NL	1979	124	186	223	128	66	9	73	216	79
	1985	147	213	183	134	102	13	71	210	75
	1996	143	241	164	130	119	28	70	204	78

*) FTE and hourly wages, except Germany: head count and monthly wage (median instead of average). No correction for hours worked was possible; consequently average wages in German retail may be underestimated in comparison with the average.

Sources: Current Population Survey (CPS), Beschäftigtenstichprobe, Enquête Emploi (EE), General Household Survey(GHS), Loonstructuuronderzoek (LSO)

The right-hand panel of Table 6.2 presents a similar analysis of the comparative position of retail for some key dimensions of the wage structure. The simplest comparison – average wages – gives the most striking result. Here there seems remarkable uniformity across our five countries – workers in retailing are on average paid around two-thirds to three quarters of the national average and these ratios are rather stable across time. This seems inconsistent with the over-regulation/wage-compression view of Europe, since in such labour markets employers should have less opportunity to pay below the national average. For a number of countries the retail wage at the first decile is a considerably higher ratio to the national D1 wage than is the case for average wages (not shown). This would seem to suggest an effective wages floor even in retail and so it is not surprising to find France in this position. However this was not true for Germany and the USA more closely resembles France here. The column for the concentration of workers in the sector who are the bottom third of the overall pay distribution seems to show France with a *greater* concentration in retailing than does the USA. The right-most column focuses on the low skilled in retailing. The worst paid amongst the low skilled were no worse off in retail than they were elsewhere in USA and France, but appear to have been far worse off in retail in Germany and the UK[27].

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[27]   The fact that the German pay data is monthly and does not include hours worked limits the value of the comparisons involving Germany as it must exaggerate the width of the distribution as numbers of

The picture of retailing employment derived from this analysis is far from straightforward. In some respects it fits well with the regulation/wage compression story but the pattern overall hardly meshes in with this. To try and get behind this rather bewildering pattern we turn to a more detailed analysis of differences in employment and wage structure estimating the wage structure of retail trade relative to the rest of the economy in three successively more complex ways.

The first set of estimates involves a standard wage equation covering all sectors. The results are built up from an initial estimation involving simply a dummy for retail (and another for hotels and catering not reported here) which gives the "raw" industry wage differential. The addition of successive groups of controls (gender, youth, experience, skills and part-time work) whittle away at the industry differential because retail employs more of the low-wage categories. The result is an estimate of the retail pay penalty – the average extent to which an individual working in retail is earning less than somebody with the same characteristics working elsewhere. Figure 6.1 shows that the pure wage penalty for working in retail is substantial and does not differ much between the countries or over time. There are also substantial composition effects on the wage bill, to which we return, below. The fundamental point from this simple exercise is that the USA (or indeed the UK whose new-found labour market flexibility is widely trumpeted) do not appear as clear outliers in retail pay as compared to the continental European countries.

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the worst paid also work shorter hours. This problem can be sidestepped more effectively in the regression analysis which follows

Figure 6.1 Wage differentials of retail trade to rest of the economy except hotels and catering

These estimates followed the usual route of regression about the mean. However the lack of labour market flexibility is supposed to bolster wages, and thus discourage employment, particularly at the bottom end of the wage distribution. Quantile regressions allow an assessment of whether the impact on pay of particular factors, such as industry, vary at different points in the relevant distribution (in this case deciles of the pay distribution). Accordingly a broadly similar wage equation to that used above was re-estimated using quantile methods, at the second (D2), fifth (D5) and eighth (D8) deciles. If retailers were really able to take advantage of greater flexibility at the bottom end of the pay scale in the USA to pay very low wages it would be anticipated that the "retail penalty" would be greater at D2 in the USA than in Europe even if the average penalty over the distribution was similar.

Table 6.3 presents the pay penalties for retail industry that remain after controlling for worker characteristics. Two features of the American results are striking. Firstly the pay penalties are consistently *smaller* at the bottom of the pay distribution (D2) than they are higher up. In this respect the USA is not dissimilar to the other countries where penalties increase the higher is the point in the distribution. Secondly the size of the pay penalties in US retail, even for those at the bottom of the distribution, are not out of line with those in Europe.

Table 6.3 Pay penalties (%) of retailing by level in the wage distribution

	USA			DE-W			UK	
	1979	1990	1997	1979	1990	1997	1989/90	1998/01
D2	-0.083	-0.154	-0.125	-0.168	-0.144	-0.117	-0.138	-0.138
D5	-0.125	-0.179	-0.180	-0.167	-0.147	-0.128	-0.197	-0.194
D8	-0.132	-0.181	-0.192	-0.150	-0.151	-0.150	-0.217	-0.235
	FR			NL				
	1982	1991	1995	1979	1989	1996		
D2	-0.079	-0.088	-0.076	-0.121	-0.144	-0.187		
D5	-0.118	-0.114	-0.123	-0.143	-0.156	-0.178		
D8	-0.138	-0.111	-0.143	-0.159	-0.148	-0.162		

Quantile regressions estimated from national microdata, wage coefficients turned into percentage pay differentials. Controlled for hotels and restaurants, female, three skills levels, 5 experience categories

The third stage in the analysis probed the differentials even further by estimating the pay penalties in retail for different characteristics and at different points in the distribution. There is no reason to suppose that the retail penalty for being low skilled for example will be the same as for the high skilled, and it may be that the low skilled at the bottom of the distribution are the most vulnerable to very low pay. This involved separate wage equations for retail and for the whole economy. Then the differences in wages between retail and the rest of the economy were decomposed into the retail pay penalties suffered by each group (such as the least skilled) and the impact of the various composition differences in the workforce (larger number of unskilled in retail and so forth). Again since these effects can all vary between different points in the distribution, these regressions were estimated for different decile points. The equation involved a number of interactions, and a Blinder-Oaxaca decomposition was made to determine the contributions of the elements of employment structure on the one hand and of the array of retail pay penalties for the various worker characteristics on the other hand[28].

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[28]   The basic equation for the estimation was:

$$\ln w_i^\theta = \alpha_0 + \alpha_1 EXP_i + \alpha_2 EXP_i^2 + \alpha_3 PT_{1i} + \alpha_4 PT_{2i} + \alpha_5 \sum_{n=2}^{6} DSKILL_{n,i}$$

+ interactions of part-time with gender and skills

+ interactions of experience and experience squared

with gender and skills + error

Table 6.4 presents the results of the Blinder-Oaxaca decomposition of the wage differentials between retail trade and the whole economy for the earliest and latest years, at the median (results for D2 are similar). In 1997 German retail workers at the median wage were paid some 28% less on average than workers in the economy overall and this raw differential was bigger in the USA (38%)[29]. The impact of the rewards penalty for retail seems to amount to much less than half this gap (in 1997 13% in Germany, 17% in the USA) while the differing composition contributes considerably more (16 as against 25%). Interestingly the rewards for low skills contribute very little in the USA, in 1979 as well as 1997; high skills contribute more. Indeed the lack of high-skilled made a bigger contribution to holding down the wage bill, especially in the USA, than the above average number of low skilled. The pay penalty for intermediate skills in Germany is rather more important. Although experienced workers have a much bigger penalty in the USA, the main effect on both countries is the large presence of part-time workers compared to the rest of the economy.

Here w^{θ} stands for earnings at quantile θ and EXP for potential experience. $DSKILL_n$ (n = 1,...,3) are (0,1)-dummy variables for male workers with low, intermediate and high skills, respectively, while $DSKILL_n$ (n = 4,...,6) denote corresponding variables for the three skill categories of female workers. The above equation was estimated by quantile regressions. Since the German data are top-coded at the social contribution ceiling, we used Powell´s method of censored least absolute deviations instead of the normal quantile regression approach.

[29] Lack of detailed hours data for Germany means that these estimations refer to monthly wages for both countries. To the extent that workers in retailing work shorter hours this raw differential is exaggerated (and the effect may vary across countries). Some part of this hours effect is caught in the compositional effect for part-time workers which has a rather similar impact in the two countries.

Table 6.4 Decomposition of the retail wage differential at median wage level, 1979 and 1997

	Rewards Differ- ence	Compo- sition	Inter- actions	Total	Rewards Differ- ence	Compo- sition	Inter- actions	Total
	USA 1979				**Germany 1979**			
Skill-Effect	-0.084	-0.051	0.015	-0.120	*-0.200*	*-0.062*	*0.016*	*-0.246*
Low	*0.009*	*-0.010*	*0.000*	*-0.018*	*-0.081*	*-0.001*	*0.034*	*-0.048*
Medium	*-0.042*	*-0.008*	*-0.004*	*-0.054*	*-0.111*	*-0.045*	*-0.024*	*-0.180*
High	*-0.033*	*-0.034*	*0.019*	*-0.048*	*-0.008*	*-0.015*	*0.006*	*-0.017*
Part-Time	0.009	-0.123	0.009	-0.105	0.012	-0.068	0.017	-0.039
Experience	-0.053	-0.068	0.006	-0.115	0.078	-0.033	-0.055	-0.011
Total	-0.129	-0.241	0.030	**-0.340**	-0.110	-0.163	-0.023	**-0.295**
	USA 1997				**Germany 1997**			
Skill-Effect	-0.074	-0.084	0.025	-0.133	-0.110	-0.034	0.012	-0.117
Low	*-0.003*	*-0.015*	*-0.001*	*-0.019*	*-0.010*	*0.009*	*0.010*	*0.009*
Medium	*-0.016*	*-0.014*	*-0.002*	*-0.032*	*-0.086*	*-0.014*	*0.006*	*-0.094*
High	*-0.055*	*-0.056*	*0.028*	*-0.082*	*-0.015*	*-0.029*	*0.012*	*-0.032*
Part-Time	0.001	-0.101	0.001	-0.099	0.017	-0.083	0.018	-0.049
Experience	-0.097	-0.065	0.014	-0.148	-0.031	-0.047	-0.032	-0.110
Total	-0.170	-0.251	0.040	**-0.380**	-0.125	-0.164	0.014	**-0.276**
	France 1982				**Netherlands 1979**			
Skill-Effect	0.00	-0.044	0.004	-0.040	-0.110	-0.083	-0.037	-0.230
Low	*0.006*	*-0.000*	*0.005*	*0.011*	*-0.113*	*-0.041*	*-0.028*	*-0.182*
Medium	*-0.008*	*-0.006*	*0.001*	*-0.013*	*-0.011*	*-0.001*	*0.003*	*-0.009*
High	*0.001*	*-0.037*	*-0.002*	*-0.038*	*0.014*	*-0.040*	*-0.013*	*-0.039*
Part-Time	-0.015	-0.013	0.002	-0.026	0.002	-0.119	0.003	-0.113
Experience	-0.078	-0.039	-0.007	-0.124	0.013	-0.089	0.017	-0.060
Total	-0.093	-0.096	-0.001	**-0.189**	-0.094	-0.291	-0.017	**-0.403**
	France 1995				**Netherlands 1996**			
Skill-Effect	-0.055	-0.068	0.016	-0.106	-0.228	-0.083	0.006	-0.305
Low	*-0.009*	*0.004*	*0.004*	*0.000*	*-0.076*	*-0.025*	*-0.034*	*-0.135*
Medium	*-0.024*	*-0.017*	*-0.002*	*-0.042*	*-0.077*	*-0.003*	*-0.016*	*-0.096*
High	*-0.022*	*-0.055*	*0.014*	*-0.064*	*-0.075*	*-0.054*	*0.056*	*-0.075*
Part-Time	-0.015	0.004	-0.003	-0.014	-0.023	-0.159	-0.017	-0.198
Experience	-0.064	-0.055	-0.001	-0.119	0.088	-0.143	0.003	-0.052
Total	-0.134	-0.119	0.013	**-0.239**	-0.162	-0.385	-0.008	**-0.555**
	UK 1989/90							
Skill-Effect	-0.135	-0.076	0.026	-0.185				
Low	*-0.047*	*-0.016*	*0.001*	*-0.062*				
Medium	*-0.049*	*-0.003*	*-0.004*	*-0.056*				
High	*-0.039*	*-0.057*	*0.029*	*-0.067*				
Part-Time	-0.012	-0.191	0.010	-0.193				
Experience	0.030	-0.236	-0.019	-0.225				
Total	-0.117	-0.503	0.017	**-0.603**				
	UK 1998/2001							
Skill-Effect	-0.138	-0.095	0.025	-0.209				
Low	*-0.023*	*-0.022*	*-0.002*	*-0.047*				
Medium	*-0.042*	*-0.023*	*-0.012*	*-0.078*				
High	*-0.073*	*-0.050*	*0.039*	*-0.084*				
Part-Time	0.002	-0.251	0.008	-0.242				
Experience	-0.037	-0.083	0.010	-0.110				
Total	-0.173	-0.429	0.042	**-0.561**				

The pattern of effects was really pretty stable in the USA, but the raw differential and the rewards effect both increased. It fell somewhat in Germany. There were a number of substantial changes including the near elimination of a large retail pay penalty for the least

skilled after 1979. However since in the USA the least skilled never had a large penalty this merely brought Germany in to line with the USA rather than representing a greater degree of wage compression which could explain lower German employment.

The results for France, the Netherlands and the UK offer a range that encompasses the USA. France had smaller but growing raw differentials. The Netherlands and the UK had pay penalties comparable to the USA and significantly larger raw differentials as a consequence of larger composition effects which are strongly rooted in experience and part-time work. The latter is virtually absent in France.

We are not suggesting as a conclusion that labour market regulations play no role, but overall the patterns described above do not accord with the general ideas about the importance of the pay differential for low skills nor with the picture of inflexible European labour markets being the dominating influence inhibiting retail expansion.

6.2   PRODUCTIVITY AND CAPITAL ACCUMULATION

If distribution-services employment was being inhibited by labour market inflexibilities this should be reflected in labour productivity being too high or having grown too fast. More flexible wages should have resulted in less substitution of capital for labour and/or less substitution of skilled labour for unskilled labour. Both of these would have reduced the growth of labour productivity and increased employment. Comparing such trends in Europe and the USA should provide evidence for what is constraining employment.

Changes in the volume of distribution-services output within countries are typically measured by deflating measures of current price sales by retail price indices to obtain sales volumes. Indices for different types of stores are then weighted by the average gross margin (assuming that differences in margin at a point in time reflect differences in the output produced by the store). The index for total real sales is linked to base-year current-price value added to obtain value added at constant prices as published in National Accounts. This in turn is used with employment data to construct labour productivity etc. The underlying assumption is that the quantity and quality of service per real dollar of sales remains constant over time[30], which is controversial. A more recent refinement in measurement has been to apply double deflation to this sector, so that changes in the real use of intermediate inputs (but not quality changes) are taken into account.

Table 6.5 (left panel) reports the data for the growth of labour productivity in distribution services as calculated by Mary O'Mahony (2002). In the 1970s continental Europe appeared to have distinctly higher productivity growth in distribution services than did the USA. This was true also for the economy as a whole and included the final burst of "catch-up" of

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[30]   Fuchs, 1968, Chapter 5.

productivity to American levels. This was also the era of wage pressure, a rising NAIRU and a profit squeeze throughout Europe. These developments may very well have put pressure on employment in distribution services as in other sectors.

Table 6.5 Growth of hourly labour productivity and capital/labour ratios
annual average (%)

	Productivity			Capital/labour		
	Distri-bution			Distri-bution		
		Retail trade	*Hotels & catering*		*Retail trade*	*Hotels & catering*
USA						
1970-79	1.5	2.3	-1.6	1.5	1.9	-2.1
1979-90	2.1	2.5	-0.4	2.3	1.7	0.8
1990-99	3.7	3.1	0.4	3.1	2.8	1.6
UK						
1970-79	1.5	1.9	-1.4	3.9	5.0	2.1
1979-90	2.0	2.5	-0.2	4.1	5.1	2.6
1990-99	1.9	1.8	-1.3	4.2	4.3	3.5
France						
1970-79	3.2		1.9	3.9	3.3	3.7
1979-90	1.9		-0.1	3.2	3.5	3.0
1990-99	0.6		-1.3	2.1	2.0	1.1
W. Germany/Germany						
1970-79	3.4	4.2	1.4	3.0	3.2	2.8
1979-90	1.8	2.2	0.3	1.3	1.7	-0.4
1990-99	0.5	0.7	-3.9	2.2	2.5	0.2
Netherlands (per FTE)						
1970-79	3.7					
1979-90	1.7					
1990-99	1.4	1.7	-0.4			

Source: Mary O'Mahony (2002) and Netherlands author's calculations from STAN 2003

This pattern, however, did not persist into the 1980s when productivity in distribution services grew at very comparable rates in Europe and USA. So there is no suggestion that distribution-services employment in Europe was being inhibited by "excessive" productivity growth as compared to the USA. In the 1990s the contrast is even stronger. Productivity in US distribution services steamed ahead, 2-3% per year faster than in France, Germany and Netherlands, under the pressure of Walmart and aided by the introduction of new technologies (see Nordhaus 2002, McKinsey 2002). French and German productivity growth was also distinctly *slower* than in the UK where labour market deregulation had proceeded far down the American road. In Europe labour productivity growth in distribution services has also been distinctly slower than in manufacturing, which is not the case in the USA (or in the UK in the 1990s). If inflexible labour markets were preventing the employment of low–wage labour in Europe this would be expected to have a stronger impact in distribution services than manufacturing. This should then show up in distribution-services productivity performing *more* strongly in Europe relative to manufacturing than was the case in the more

flexible USA and UK – the opposite of the observed pattern. Obviously many other factors influence productivity but this set of productivity data does not provide unambiguous support for the view that rigid labour markets inhibited employment growth in European low-skill services[31].

Inflexible labour markets by raising labour costs could encourage capital/labour substitution and therefore labour productivity growth. Was capital/labour substitution stronger in the low-paid service sectors in Europe than in the USA? The O'Mahony data set provides disaggregated capital series constructed around a common set of assumptions and we reproduce (Table 6.5, right panel) data on the growth of the capital/labour ratio.

In the 1970s the capital/labour ratio grew distinctly faster in distribution services in Europe than in the USA (a similar pattern to that for labour productivity noted above). This trend continued in France in the 1980s, but not in Germany; even in France the rate of capital intensification was less than in the UK where deregulation was proceeding apace. In the 1990s the growth of capital intensity was less in France and Germany than in the USA and much less than in the UK. Labour input is measured in terms of employment rather than total hours worked because this is probably the better measure of the capital intensity of the production process[32]. Given the faster decline in hours of work in Europe, measuring capital intensity in relation to total hours worked increases the sharpness of the rise in Europe in the 1970s especially. But by the 1990s adjusting for average hours makes little difference to these international comparisons and the conclusion stands of at least no faster increase in capital intensity in distribution services in continental Europe than in the USA.

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[31]   The qualification about the data set is important. The O'Mahony data set was very carefully constructed for productivity analysis from national and OECD sources (including STAN). However the latest STAN yields a different pattern for productivity growth over the last two decades (France and USA were the only countries with hours data in STAN). The STAN results for the USA for the last period are very surprising and seem to conflict with the national data. But even if this STAN data for France was correct, productivity was growing no faster there than the USA according to the O'Mahony data. The productivity data we have constructed (G&S, see below) shows the same pattern in the USA and France as O'Mahony. This variability of results across data sets underlines how tentative conclusions should be.

Hourly productivity growth in distribution (% pa)	STAN 1979-90	STAN 1990-99	O'M 1979-90	O'M 1979-90	G&S 1979-90	G&S 1979-90
France	2.8	3.1	1.9	0.6	2.8	0.8
USA	1.6	1.7	2.1	3.7	0.9	2.1

[32]   This will be true to the extent that the utilisation of capital is correlated with average hours worked per employee (so that a declining working week is associated with declining hours of utilisation).

Table 6.6 Capital/labour ratios, levels in 1999

x 1000 per person employed (1996 $)

	USA	Germany	France	UK
Distribution services	40	32	55	23
Retail	29	28	54	19
Retail relative to manufacturing	0.34	0.43	0.56	0.31

Source: Mary O'Mahony (2002)

Comparisons of changes in capital intensity will typically be more robust than comparisons of levels, since levels are more dependent on assumptions about asset lives and in addition there is the complication of calculating Purchasing Power Parities for capital stocks. Bearing these provisos in mind, the O'Mahony set allows the following comparisons (Table 6.6) for capital intensity in distribution services in total and in retail.

According to these data the capital/labour ratio is no higher in German distribution services and retail than it is in the USA despite much higher labour costs in Germany. The UK has lower capital intensity as would be expected from its low-wage/low-investment reputation. These data suggest very high capital intensity indeed in France. But if this was mainly a reflection of labour market inflexibilities in France then a similar pattern would be expected for Germany. The only hint in the German data of capital intensification in low–wage services is that the ratio of capital intensity in retail relative to manufacturing is rather higher than in the USA and UK. If inflexibility in labour markets bears more heavily on low-wage services than on high-wage manufacturing (which is rather plausible) then some effect of this sort would be expected. Even so, there is no consistent picture of higher capital intensities in continental Europe nor of the higher or faster growing labour productivity which should be associated with it.

Table 6.7 Hourly product wages

Annual averages (%)

	Distri-bution	*Retail trade*	*Hotels & catering*
USA			
1970-79	1.3	2.2	-1.7
1979-90	2.1	1.9	-0.5
1990-99	2.7	2.2	-1.3
UK			
1970-79	1.7		
1979-90	1.7		
1990-99	2.1	1.8	-1.3
France			
1970-79	4.6		2.7
1979-90	1.2		-0.2
1990-99	0.4		-1.8
W. Germany/Germany			
1970-79	4.6	4.2	1.4
1979-90	2.5	3.6	0.8
1990-99	0.1	-0.5	-3.9
Netherlands (FTE based)			
1970-79	3.9		
1979-90	-0.6		
1990-99	1.8		

Source: calculated from Mary O'Mahony 2002 as the sum of the growth rate of hourly labour productivity and the growth rate of labour's share in value added (adjusted for self-employment) and for the Netherlands from STAN.

Finally we examined the pattern of increases in real labour costs. These are measured in terms of "product wages", that is money wages deflated by the price index for value added in the sector concerned.

In parallel to the results for productivity and capital intensity, product wages in distribution services rose rapidly in France, Germany and the Netherlands in the 1970s and represented a substantial squeeze on profits as labour's share rose strongly. However in the 1980s product-wage growth slowed down, and was even negative in the Netherlands, and was no faster than in the USA and UK. In the 1990s product wages hardly grew at all in Germany and France while moving up relatively quickly in USA and UK with the Netherlands in between. Labour's share as found in National Accounts tended to decline steadily in Europe – by the end of the period it was as low in French distribution services as in British, a finding consistent with the high capital intensity noted above. Germany stands out in Europe in that labour 's share didn't decline in distribution services over the past twenty years – an element of "inflexibility" not shared by France.

6.3 EMPLOYMENT IN DISTRIBUTION SERVICES AND THE GROWTH OF PRIVATE CONSUMPTION

In comparing the evolution of employment across countries it is most helpful to have an internationally comparable measure of production. The national measures of productivity

used in the previous section do not readily lend themselves to international comparison. Existing attempts to measure sectoral productivity by value added deflated by a PPP for appropriate expenditure categories are very seriously flawed. As argued in the underlying working paper such measures depend on productivity in the whole economy rather than measuring efficiency in the sector[33]. Sales of goods are the fundamental "throughput" into distribution services and this suggests a natural if crude measure of productivity in distribution services across countries – consumers expenditure on goods at international PPP prices, per person employed (or hour worked) in distribution services. Moreover measuring productivity by "goods consumption per hour" facilitates a very simple decomposition of the determinants of employment in distribution services into goods consumption on the one hand and labour productivity in distribution services on the other:

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[33]   See Glyn et al. 2004, Appendix C, also for data construction and other caveats.

$$\underline{\text{Hours Worked in Distribution}} = \underline{\text{Consumption of Goods}} \times \underline{\text{Hours in Distribution}}$$

Population of Working Age   Pop of Working Age   Consumption of Goods

Consumption of goods per head of the working population can be thought of as representing the demand for distribution services, in turn reflecting per capita incomes, taxation and savings, choices between goods and services etc. Consumption of goods per hour worked in distribution services is a gross output measure of labour productivity. It does not cope with the subtleties of different types of distribution services, though in principle it can. However this decomposition does allow us to see whether the "employment deficit" in European distribution services is mainly due to low throughput (low consumption of goods) or to high productivity and how these factors have influenced comparative employment trends over time.

The USA already had more employment in distribution services 30 years ago but the differences have subsequently increased rather dramatically as work in distribution services in the USA has grown rather steadily, whilst there has been little overall trend in Europe except in France where distribution-services work has declined. By 1999 work in distribution services per head was 304 hours, 239 in UK, 217 in Germany and 175-180 in France and Netherlands. So the USA had around least 25% more distribution-services work per head of the population than the UK and nearly 75% more than France and Netherlands – truly enormous differences.

The above decomposition focuses on goods consumption per capita and productivity in distribution services. Figure 6.2 shows the former. American goods consumption per capita was around one half greater than the European level in 1970 and if anything the gap has increased. There was some catching by Europe in the 1970s and again in the boom at the end of the 1980s, but Europe fell further behind when the USA boomed in the 1990s. There is an obvious impact of German unification in lowering per capita consumption. The differences between the USA and Europe in per capita consumption of goods are really dramatic. If productivity in distribution services in 1999 was the same in the USA and Europe there would have still have been 50–60% more hours worked in American distribution services than in Europe to service the higher throughput of goods.

Figure 6.2 Consumer spending on goods (x1000, international prices PPP)
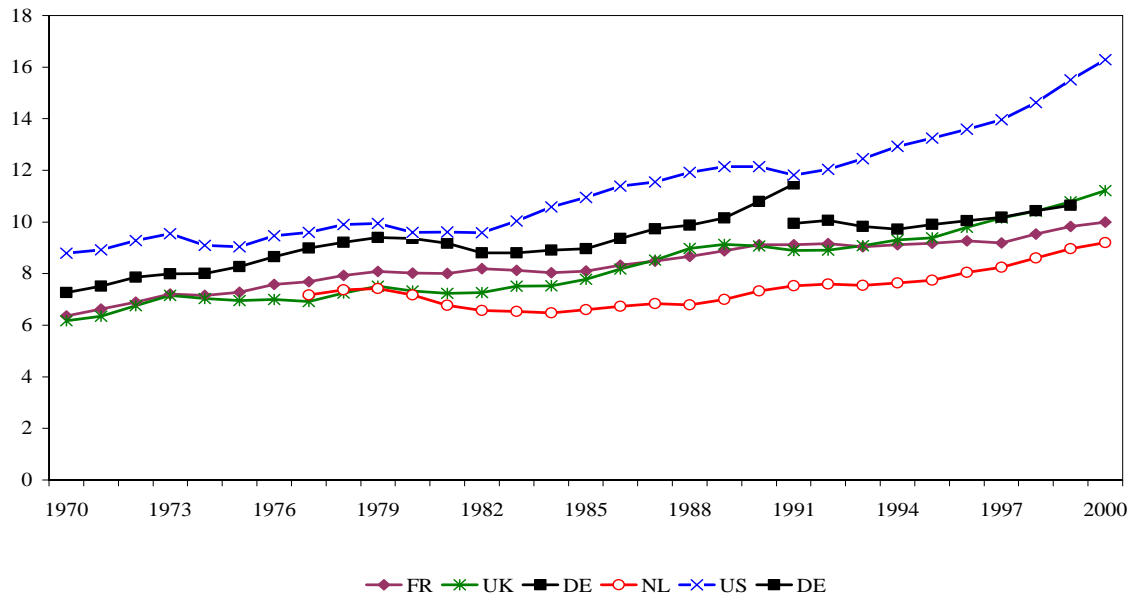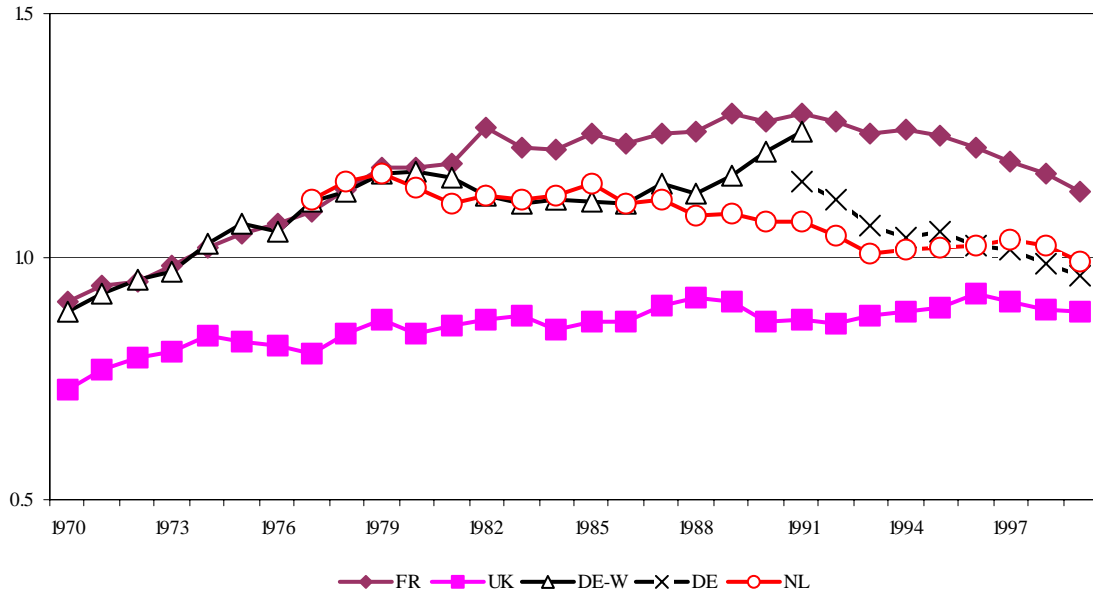*per head of population aged 15-64*

Figure 6.3 Labour productivity in distribution services relative to USA, USA=1
Goods consumption (volume, PPP) per hours worked in distribution services

Our internationally comparable measures of labour productivity, consumption of goods in PPP prices per distribution-services hour worked, are shown relative to the US level in Figure 6.3. After some catching up in the 1970s it seems that productivity levels in

Continental Europe were close to those in the USA by 1980 though still well below in UK[34]. French productivity then rose somewhat above the US level, but Europe fell back in the 1990s as productivity in distribution services boomed in the USA.[35] High French productivity exacerbates the employment gap with the USA, whereas lower productivity in the UK offsets the impact of lower consumption per head.

The influence of rising productivity relative to the USA before 1990, and the persistent very low level of goods consumption stand out as the dominating influences on employment in distribution services. In the period 1990-1999 consumption per head of the population of working age grew around 15% slower in both France and Germany than in the USA – it was only slower growth of distribution-services productivity in Europe that prevented a major further widening in the distribution-services employment gap over that period.

Across the four European countries as a whole it is clear that goods consumption per capita is now the most important proximate factor behind lower employment in distribution services. Does this just reflect lower per capita GDP, or a smaller consumption share or a bias within consumption against goods? The latter possibility can be dismissed immediately. Europe shows a consistent tendency for goods to constitute a *higher* proportion of total consumption than in the USA. One likely explanation of the higher goods share in Europe is the greater provision of services by the state (which means that expenditure on such services is not observed as part of household consumption). Some convergence towards the American level means that by the end of the period the impact of goods bias was pretty small. Turning to the second influence on goods consumption, the ratio of total consumption to GDP is distinctly smaller in Europe and here the differences have fanned out with the UK moving towards USA during the consumer boom of the second half of the 1990s, whilst the Dutch share fell further.

The twin influences of the consumption share and goods share of consumption can be helpfully combined into consumption of goods as a ratio of GDP – this combined measure makes sense since the effect of a high share of state provision of services will tend to both reduce the share of consumption in GDP and (as a partial offset) increase the share of goods in personal consumption (as some services are now financed by the tax system). The results are interesting (Figure 6.4): for Germany and the UK goods consumption is only a little lower as share of GDP than in the USA, whilst for France and especially the Netherlands the differences are large and contribute materially to low employment in distribution services.

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[34]   The broad pattern of productivity trends over time is consistent with that based on the standard measures of national productivity, which are not internationally comparable in terms of levels.

[35]   Nordhaus (2002) shows that about one half of the acceleration in US labour productivity growth in the "New Economy" period of 1995-2000 took place in wholesale and retail. Part of the explanation lies in the boom in the "volume" of computer sales (measured using hedonic price indices), but part probably does reflect "genuine" productivity gains reflecting very heavy IT spending in that sector.

Figure 6.4 Goods consumption out of GDP (volumes, PPP), relative to USA
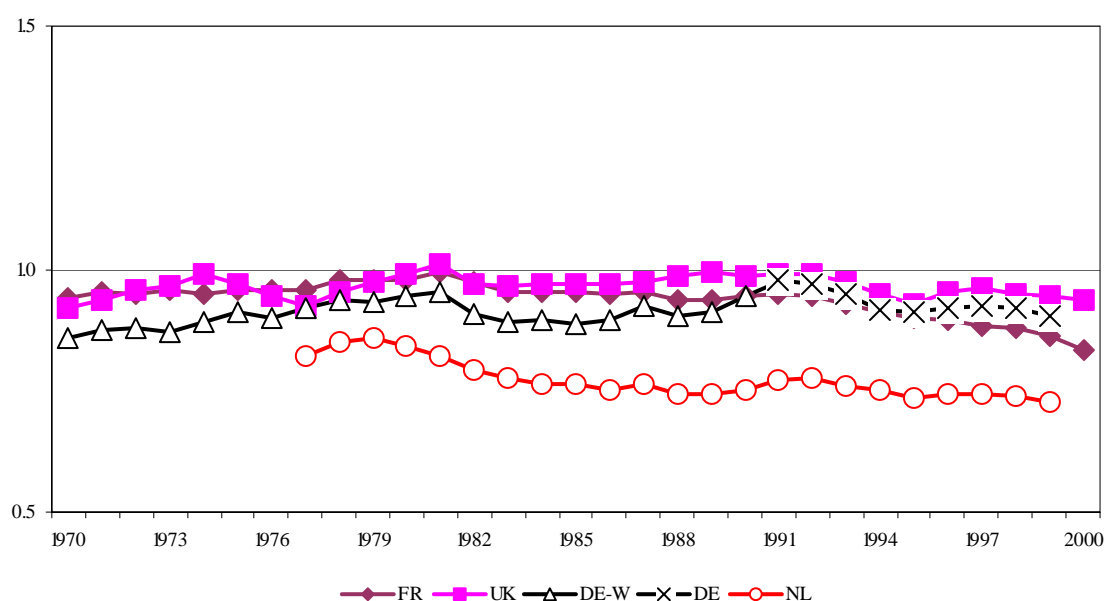
This leaves per capita GDP as the final influence on goods consumption and therefore distribution-services employment. The decline in German GDP per capita with unification contributed to a convergence within Europe and by the end of the period American GDP per capita was about one-third above all the European countries. This was the dominant factor behind lower consumption of goods per head in Germany and UK, exacerbated by lower shares of consumption of goods in GDP in France and particularly in Netherlands. Obviously GDP per capita reflects many factors but the dominant ones in these cases are low employment rates and hours of work overall, with economy-wide hourly productivity levels being fairly similar.

A simple way of summarizing these results is to tabulate (Table 6.8) a decomposition of differences in distribution-services employment compared to the USA into differences in per capita; GDP, goods consumption as a share of GDP and labour productivity. Distribution-services work particularly in Netherlands and France is held back by the low ratio of goods consumption, in France by high productivity and throughout Europe by low per capita GDP.

Table 6.8 Summary of distribution-services work per head of population, 1999

Compared to USA

	Hours Worked in Distribution to Population	GDP to Population	Goods consumption to GDP	Distribution Productivity (USA compared to country)
Germany	0.717	0.709	0.903	1.121
France	0.574	0.710	0.863	0.937
UK	0.790	0.698	0.945	1.197
Netherlands	0.594	0.762	0.728	1.074

We noted earlier that our measure of labour productivity as goods consumption or "throughput" per hour worked is a rough one. More sophisticated measures, which mostly have severe conceptual limitations, can give rather different answers as the background working paper shows. They typically give France a bigger productivity lead over the USA in distribution services than that shown above. If such a measure (for example Van Ark's double-deflated estimate) was preferred, how would Table 6.8 be altered? Obviously the last column would be different (a lower number in the French row for example) and to complete the decomposition an extra column would have to be added to reflect "service added by distribution services per consumption good sold" which would precisely offset the different productivity number (one could think of this "true productivity" as reflecting goods sold per hour plus the extra factor "service per good sold"). Even though such service differences may well exist, it is hard believe that it will be well captured in the measures available, and so it seems clearer stick with the simpler analysis presented here.

This section highlighted the central importance of the level of consumption in shaping differences in distribution-services employment between the USA and Europe. Total volume of work in distribution per capita is much higher in the USA because per capita consumption is much higher (see Gordon 2002) This discrepancy has grown as productivity in distribution (as best we can measure it) caught up to US levels in the 1970s and US consumption per capita drew further ahead in the 1990s. By contrast the gap in the share of distribution in total employment (not shown) was both smaller and much more stable and appears to reflect systematic structural features making for a low share of goods consumption in Europe with productivity levels in distribution relative to the national average, playing a relatively minor role.

6.4 CONCLUSIONS ON WAGES, PRODUCTIVITY AND DEMAND IN THE DISTRIBUTION SECTOR

The services employment gap has been concentrated in distribution and community and personal services and particular attention has been focused here on the role of labour market rigidities in inhibiting the growth of the former. The detailed examination of the wages and employment in retailing suggests that differences between the USA and Europe are not consistently in the direction anticipated by the rigidities/wage-compression hypothesis; the wage penalties for employment in retail are not much greater in the USA and pay differentials for low skills are relatively unimportant. On the more macroeconomic level European distribution did initially suffer from rapid growth in product wages and a profit squeeze and this may have held back employment growth in France in particular, but in the 1990s in particular productivity grew considerably faster in distribution in the USA and

product wages grew relatively slowly in Europe. Finally we showed that the much higher level of goods consumption per head of the population (the "throughput" in distribution) as compared to Europe was the dominating influence in explaining the much higher levels of employment in US distribution. Even in France where it appears that labour productivity in distribution may be somewhat higher than in the USA this factor is much less important in explaining low employment than is low goods consumption. This suggests that the lower level of services employment in Europe may be more importantly explained by the macroeconomic influences explaining low levels of consumption rather than specific constraints on the services sector itself.

7   CONCLUSIONS

7.1   DEMPATEM'S SPECIFIC CONCLUSIONS

First, we return to the DEMPATEM questions that were mentioned at the end of the introduction and list the answers that we have found. We end with a number of general observations.

The DEMPATEM questions

1) Does the higher share of service industries in employment in the USA derive from a larger role of services in the structure of final demand, and is this gap growing?

The USA have a higher share of services in final demand of about 10%-points but all countries show a trend towards more services in final demand.

There is a clear trend towards a higher share of services in final demand also in constant prices within countries. Using constant instead of current prices flattens the trend towards more services in final demand but it remains upward. The lead of the USA in the service share in final demand occurs in current and in constant prices but it seems stable over time.

The bigger service sector in the USA occurs in different data sets. Also as a share in value added the service sector in the USA is bigger than in Europe.

Overall services rise in relative prices whereas overall goods prices are falling in every country. Some service prices rise more than the average, but not all.

Relative prices for goods rather than for services seem to be lower in the USA than in Europe. This is mainly the result of relatively low prices for health and education in Europe, where they are usually mixed public-private services. Other services, especially 'market services' have substantially lower relative prices in the USA.

Measured in international prices the gap in relative service demand between the USA and the European countries narrows but does not go away.

2) Particularly, is consumer demand higher and growing more rapidly in the US? What is its impact on the production of services?

and

3) What is the role of the pattern of household consumption in this? That is, do American households consume more services than European households and why?

In all countries, private consumption is the most important demand component for services followed by government consumption. Taken together they account for about 80 to 95 per cent of all final demand for services.

Imports (and exports) of services are marginal in overall final demand and in household final consumption.

In the USA the share of private consumption in the overall demand for services is especially high, which favours the share of services in final demand.

Especially the share of services in private consumption grew in the USA.

There is a clear trade-off between private and public expenditures on services depending on the national institutional arrangements. In part American households spend a higher share of their disposable incomes on services because they need to buy services which are provided publicly in Europe.

The share of individual consumption in total public consumption is much higher in Europe than in the USA. 'Pure' collective consumption in GDP is roughly similar in all countries. If anything it is higher in the USA.

There is no clear pattern in the American-European difference of private final consumption. Even in categories where public provision is unimportant (like 'restaurants, hotels') the pattern is diverse. The UK and France have higher expenditure shares, Germany and the Netherlands have lower shares than the USA.

The employment share in services seems to be influenced by the relative service productivity, which may be related to differences in skill structure and/or capital deepening.

Demand per head of the population of working age is about 40% higher in the USA than in Europe, which affects both goods and services.

A higher share in nominal final demand for services between points in time or between to countries may occur because:
  o The taste for services is more pronounced
  o Income is higher (but relative prices and indifference curves are similar)
  o Relative prices of services are lower (but indifference curves are homothetic across countries)

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    o   The structure of final demand components is more in favour of services

    o   Marketization of household production activities is more advanced (this may affect also the final demand components).

4) What determines the pattern of consumption? What role do household characteristics play, including labour participation, income inequality and consumer attitudes?

A uniform approach to consumption patterns – much effort was put into that – shows an amazingly large role for expenditures on housing in all countries, both in levels and in changes over time. This mainly rests on imputed rent for occupier-owned housing and cannot be observed directly. To the extent that this is classified as services this serves as a caveat for any study of the role of growing services.

The composition of the population by a uniform set of households types differs between countries but the differences tend to diminish. The share of singles is increasing universally while that of traditional one-earner couples with children is falling. Amazingly, the share of two-earner couples also fell in the USA.

Joblessness of households is much less in the US; employment participation rates differ substantially more between the USA and Europe for singles than for couples.

Changes in consumption patterns have more to do with rising levels of expenditures and shifts in relative prices and preferences than with the changing composition of households. Price effects, which support Baumol's view, are quite substantial in some countries but not in all. Demographic changes accounted for 10 to 20 per cent of the observed change in consumption patterns.

The analysis of the budget surveys confirmed that services are a luxury as their demand grows with increasing budgets, but this does not apply to all services; also, various goods are luxuries as well while mainly the spending on food and beverages has a declining share.

Rising income inequality between households had virtually no effect on the patterns of consumer demand. In most countries, including the US, households with low expenditures registered a larger increase in real total expenditures.

Household participation in employment explains very little indeed of the changing patterns of consumer demand, in spite of the substantial differences across countries and the rapid changes occurring in some countries.

5) How does consumer spending on services translate into the structure of production and employment?

On the basis of vertically integrated sectors (VIS) the relative employment-friendliness of demand in individual sectors remained fairly constant over time within individual countries and fairly similar across countries. The European economies are, however, rather more similar to each other than to the USA.

Strikingly, the employment-intensities of services and manufacturing are broadly equal, when measured on a VIS basis.

Demand originating in both manufacturing and services is increasingly generating jobs located in services.

Within the individual economies the changing patterns of final demand have been employment-friendly in the European economies, but employment-neutral in the USA.

The changing pattern of consumption has been significantly less employment-friendly everywhere. The changing mix of consumption has, in general, been only a minor source of employment growth within each economy.

The final demand mixes of the UK, the Netherlands and Spain would generate higher employment in the USA than the American pattern. Only the demand patterns of France and Germany would reduce it, and then only marginally.

The consumption patterns of France and Germany would reduce US employment by 5 to 7 per cent. The patterns from the UK and Spain would have little effect.

The US mix of final demand applied to the European economy would result in lower employment.

If the US consumption mix were adopted in Europe employment would increase. The employment gap would be eliminated in the UK and cut by one-third in France and Germany.

The *level* of demand, including its changing mix, is the major source of employment growth.

Structural change, along the supply chain, including outsourcing, both creates and destroys jobs. The net effect is small.

In the USA demand growth has been more strongly job-creating and productivity gains have been less strongly job-destroying than in the European economies, opening up the employment gap.

6) What is the structure of employment in these industries by skills, gender, age, and pay? And how does this depend on female labour supply?

Services are of prime importance for the present employment gap, but mainly because European employment in manufacturing and agriculture shrunk much more than in the USA. Also in a historical perspective these two sectors shrunk much faster than in the USA.

The services gap per se grew relatively little and notably decreased in recent years.

The services gap is located primarily in community and personal services and in distribution services (trade, hotels and restaurants). The former is a mix between public and private financing of demand, the latter is purely private in all countries.

In distribution services the effects of wage (in)flexibility and skills, productivity and consumer demand come together, retail trade is the part where this holds most strongly.

In retail employment all countries have high concentrations of the low skilled, women, youth and part-time workers. The extent of concentration differs internationally but it seems stable over time in the individual countries. Women play a particularly large role in Germany and the Netherlands.

Average pay in retail relative to the national average is not widely different. Subsequent estimations of the wage structure of retailing relative to the rest of the economy provided no convincing evidence that American retailing can profit from higher wage flexibility. Notably, no particular contribution was found for low- skill pay differentials nor for pay differentials at the bottom end of the wage distribution (2nd decile). Differentials higher up the skills ladder are more important. Employment composition effects, especially regarding part-time work and experience, make an important contribution to international

differences. However, they are more important for the Netherlands and the UK than for the USA.

Productivity levels that were estimated for distribution showed a rapid growth in Europe during the 1970s but no further increase compared to the USA since. In France the level of productivity seems to be higher and thus contributes to the employment gap.

The much higher macroeconomic level of goods consumption per capita in the USA as compared to Europe is particularly important for explaining the volume of retail employment across the countries. This substantially mitigates the contribution as a potential constraint of wages and productivity.

7.2 GENERAL CONCLUSIONS

Professor Jan Tinbergen described economic development as a race between productivity gains, the supply side, and demand expansion. If the latter dominates employment expands and this seems to be the case for services. Although service prices rise more than goods prices – an indication for lower productivity growth in services – the demand share for services rose in all countries. This is one fact of the DEMPATEM research established with various methods and data sources at the aggregate and at the micro level. Higher income per capita seems to lead to a higher demand for services even if price trends are eliminated, which is challenging earlier findings that the service share in final demand in real terms is constant. Clearly, American private households spend a higher share of their income on services but in part this differences is an accounting artefact because European households receive some services through public provision.

All 'DEMPATEM' countries are experiencing similar trends with respect to service-sector expansion and a relative decline of manufacturing. Figure 7.1 summarizes these trends in supply-demand space for industry (manufacturing plus construction and utilities) and services. All countries experienced productivity increases in manufacturing and in all countries the supply effect was not fully compensated for by expanding demand, which resulted in lower manufacturing employment (per head of population) in all countries (i.e., all countries are below the iso-employment curve of the USA in 1970, the solid line). Since many European countries were above the US 'manufacturing iso-employment' curve in 1970, the decline of manufacturing employment was stronger in DEMPATEM-Europe than in the USA. However, not the demand for manufacturing goods fell – this increased even slightly – but goods demand expanded less than production capacity (productivity) increased.

For services the pattern is different. All countries experienced increases in service demand of roughly similar rates – that is, they moved up vertically – but in the European countries

productivity gains were stronger than in the USA. Although they reduced average working hours in services, the service-employment rate (persons employed in services per head of population) rose less than in the USA in France, Germany and Spain and at roughly similar rates in the Netherlands and the UK. This left these countries with lower service-employment rates than the USA.

Figure 7.1 Manufacturing and services in stylized demand-supply space, 1970, 2000
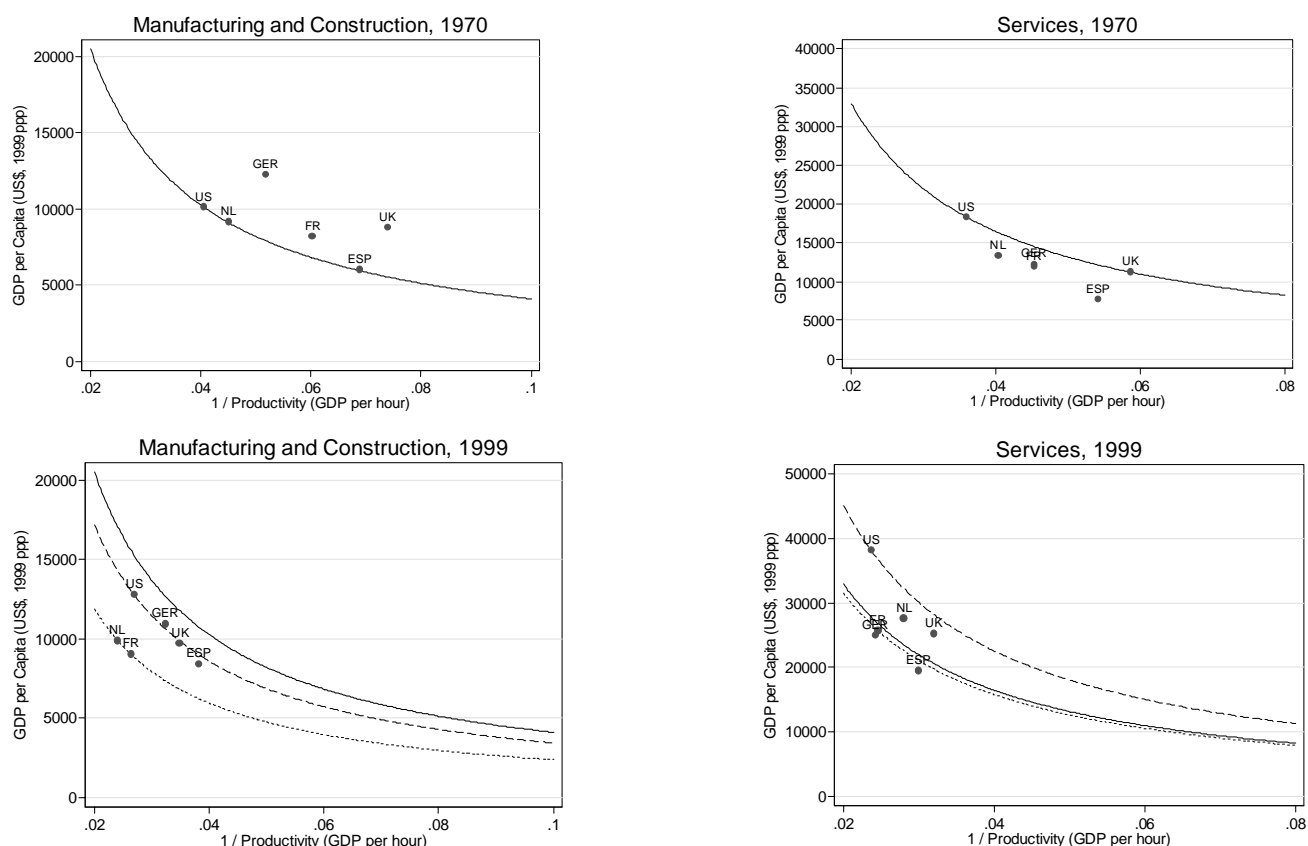
Source: computations are based on OECD data and O'Mahony 2002

Not so much the increases in per-capita demand in the USA but rather the rise in the employment rate with roughly constant working hours is most surprising. The USA moved to a higher level of demand, which was to a large extent achieved by growing labour inputs, i.e. higher participation rates. In per capita terms, overall actual individual consumption in the USA – using the OECD 1999 PPP benchmark – is about 30 percentage-points higher than in the European countries, roughly in line with the difference in GDP per capita and with differences in labour input (which are roughly divided 50:50 between the employment rates and average working hours). Why did the USA raise its output and labour input, while in

European economies overall hours worked per head of population even declined?[36] This seems to be the major puzzle in comparison to the European economies.

Table 7.1: Consumption levels in 1999 PPPs, USA = 100

	US	UK	FR	DE	NL	ES
Consumer goods	100	68.9	61.1	69.2	59.6	51.2
Consumer services	100	57.8	50.9	54.2	53.5	51.0
Government services	100	117.5	139.1	108.1	192.3	88.7
Collective services	100	74.5	84.7	68.2	111.4	61.9
Individual services	100	190.5	231.7	175.9	246.7	134.4
Actual individual consumption	100	72.1	66.1	70.4	69.5	54.2
Food and non-alcoholic beverages	100	81.5	98.5	91.9	85.3	97.2
Alcoholic beverages, tobacco and	100	154.3	93.1	130.8	92.0	109.6
Clothing and footwear	100	52.6	40.4	50.2	43.7	40.5
Housing, water, electricity, gas and other fuels	100	77.7	85.0	74.7	74.5	50.6
Household furnishings, equipment and maintenance	100	66.7	62.6	79.7	66.3	56.2
Health	100	66.6	83.4	74.3	77.9	49.8
Transport	100	61.5	65.0	73.1	48.6	49.1
Communication	100	51.1	90.9	68.7	61.6	53.2
Recreation and culture	100	87.3	49.6	62.2	65.0	39.1
Education	100	82.0	89.6	64.1	90.1	99.6
Restaurants and hotels	100	45.4	47.3	38.7	42.7	102.3
Miscellaneous goods and services	100	62.7	39.7	57.2	74.5	22.5
Gross domestic product	100	68.7	69.1	69.6	56.8	78.5

Source: computations based on OECD 2002.

In consumer goods the overall difference in consumption per capita between the USA and DEMPATEM-Europe is small, but major differences occur in services. These differences, however, are far from being uniform across the European countries. Except for Spain, clear patterns only occur in housing, health, education and hotels/ restaurants. Europeans spend only about 50% of the US level in hotels and restaurants, while in housing, health and education they consume more (see Table 7.1). These are consumption figures expressed in PPPs, i.e. they differ from expenditures for these products expressed in national currencies. Consumption in PPPs is higher (lower) than expenditures in national currencies if national prices are lower (higher) in the country compared to the reference price. Prices may differ between countries because the wages paid in the relevant industry are lower or because production is more efficient. Therefore, the regulated European health sector may produce more efficiently than the American private health sector, which obviously does not fit the 'deregulated markets are most efficient' ideology. The same seems to hold for many types of insurance (Stiglitz 2003).

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[36] From 1970 to 1999 hours worked per head of the working-age population rose in the US by about 15%, in the Netherlands it remained roughly constant, but in Germany, France, Spain and the UK hours worked per head of population decreased (23%, 26%, 20%, and 15%). However, hours worked are not very precise statistics (see Appendix in Schettkat 2004).

Figure 7.2 Uni-modal versus multi-peaked fitness-institutions landscapes
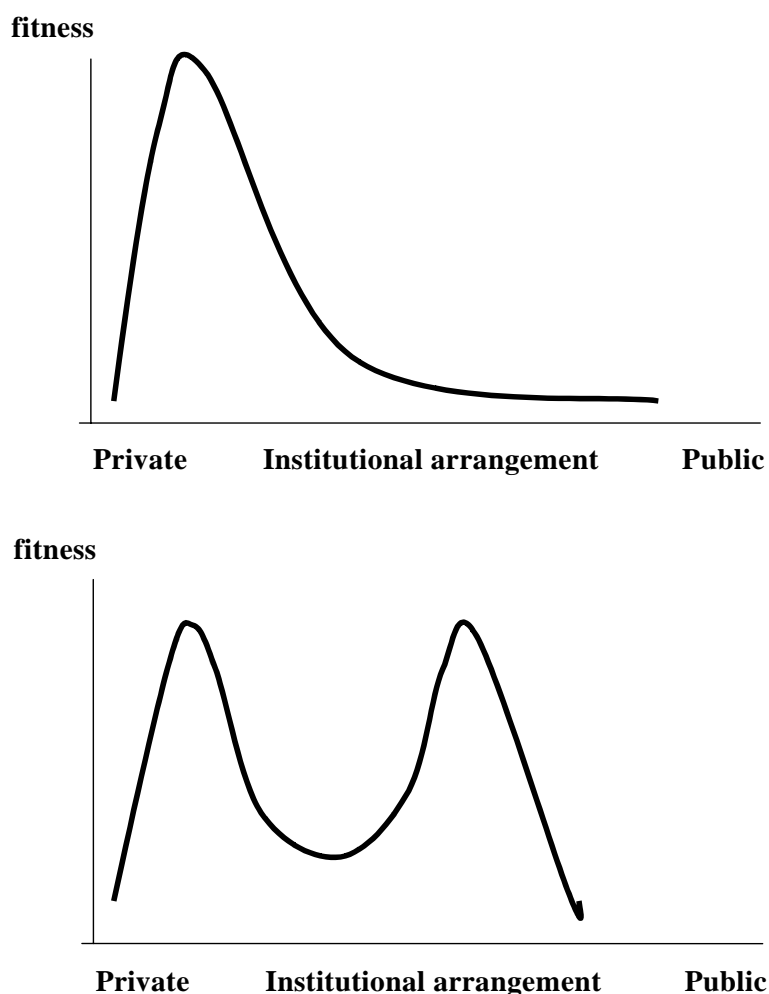
Source: inspired by Freeman 2000.

From the individual's perspective contributions to social insurances can be considered as 'taxes' especially if social insurance leads to a high degree of redistribution among the insured. In a privately organized system the connection between service and expenditure is closer and contributions to private pension insurance are regarded as private expenditures. European economies tried to reduce the expansion of the welfare state with arguments such as 'welfare states become unaffordable', 'welfare states destroy incentives' and 'private initiatives need to be enforced' etc. Even if these claims are right, costs may dominate efficiency gains in the transition period. Only in a uni-modal efficiency-institutions landscape, where only one institutional arrangement is optimal this assertion can hold. If the efficiency-institutions landscape has multiple peaks, that is several institutional arrangements can produce similar outcomes, the transition can be very costly because reaping the gains may require a long walk downhill and through valleys. Figure 7.2 illustrates this.

DEMPATEM has established evidence for commonalities but also for differences in consumption and final demand patterns in the USA and Europe. In their effects on employment, the differences in patterns seem to be quantitatively less important than differences in demand levels. Here an important shift has occurred: In the 1970s the USA achieved a higher per-capita income through higher productivity, but by the end of the last century European productivity had caught up with US levels and the American-European income and expenditures gap roughly corresponded to the labour-input gap. That gap is hard to explain with conventional macroeconomic arguments because it requires substantial changes in labour supply and consumption behaviour (see Freeman and Schettkat 2002). It remains a conundrum why in recent decades the USA raised labour input so much and why the European countries fail to achieve higher levels of participation but these issues are beyond the DEMPATEM program.

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Papers

Aggregate analysis
Ronald Schettkat. with assistance of Joep Damen
Demand patterns and employment structure, an aggregate analysis

Ronald Schettkat. and Lara Yocarini (Jan. 2003)
State of the art in the analysis of structural changes: DEMPATEM in perspective

Interindustry division of labour
Mary Gregory and Giovanni Russo
The employment impact of differences in demand and production structures

Consumer household analysis
Adriaan Kalwij and Stephen Machin
Cross-country changes in consumption and household demand patterns
Laura Blow, Adriaan Kalwij and Javier Ruiz-Castillo
Methodological issues on the analysis of consumer demand patterns over time an d across countries

national reports
Francois Gardes and Christophe Starzec
Household demand patterns in France 1980-1995

Adriaan Kalwij and Wiemer Salverda
Household demand patterns in the Netherlands

Laura Blow for the UK
The UK Family Expenditure Survey

Marijke van Deelen and Ronald Schettkat
Household demand patterns in West Germany 1978-1993

María José Luengo-Prado and Javier Ruiz-Castillo
Demand patterns in Spain

John Schmitt for the UK
Estimating household consumption expenditures in the United States using the Interview and Diary portions of the 1980, 1990, and 1997 Consumer Expenditure Surveys

Employment analysis
Andrew Glyn, Joachim Moeller, Wiemer Salverda, John Schmitt and Michel Sollogoub
Employment differences in services: the role of wages, productivity and demand

Andrew Glyn and Wiemer Salverda
The Distribution Sector and the Provision of Jobs

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Output

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DEMPATEM in Perspective. State of the Art in the Analysis of Structural Changes.

Book in preparation:

The US-European gaps in Demand and Employment

Wiemer Salverda and Ronald Schettkat, ed.

Working Papers: (See list below)

LIST OF WORKING PAPERS

Working papers are downloadable at http://www.uva-aias.net/lower.asp?id=194

1. **John Schmitt,** Estimating Household Consumption Expenditures in the United States using the Interview and Diary Portions of the 1980, 1990, and 1997 Consumer Expenditure Surveys

2. **Laura Blow,** Household Expenditures Patterns in the UK

3. **Adriaan Kalwij & Wiemer Salverda,** Changing Household Demand Patterns in the Netherlands: Some Explanations

4. **Javier Ruiz-Castillo & María José Luengo-Prado,** Demand Patterns in Spain

5. **Marijke van Deelen & Ronald Schettkat,** Household Demand Patterns in West Germany:1978-1993*

6. **Francois Gardes & Christophe Starzec,** Household Demand Patterns in France 1980-1995

7. **Francois Gardes & Christophe Starzec,** Income Effects on Services Expenditures

8. **Adriaan Kalwij & Steve Machin,** Changes in Household Demand Patterns: A Cross-Country Comparison

9. **Laura Blow, Adriaan Kalwij & Javier Ruiz-Castillo**, Methodological issues on the analysis of consumer demand patterns over time and across countries

10. **Mary Gregory & Giovanni Russo,** The Employment Impact of Differences in Demand and Production Structures

11. **Ronald Schettkat (Research Assistance: Joep Damen)** Demand Pattterns and Employment Structures, An Aggregate Analysis

12. **Andrew Glyn, Wiemer Salverda, Joachim Möller, John Schmitt, Michel Sollogoub** Employment differences in services the role of wages, productivity and demand

13. **Ronald Schettkat & Wiemer Salverda,** Demand Patterns and Employment Growth Consumption and Services in France, Germany, the Netherlands, the United Kingdom and the United States Concluding Summary