FINAL REPORT

Contract number: HPSE-CT2001-00089 (**DEMPATEM**)

DEMAND PATTERNS AND EMPLOYMENT GROWTH: CONSUMPTION AND SERVICES IN FRANCE, GERMANY, THE NETHERLANDS, SPAIN, THE UNITED KINGDOM AND THE UNITED STATES

Starting date: 1/7/2001 End date: 31/12/2003 (29/2/2004)

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24 June 2005

Project financed within the Key Action *Improving the Socio-economic Knowledge Base*

Contents

Abstract

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. Demand patterns do affect employment levels, but compared to the *level* of demand the effects are small. Higher American employment relates to higher income and demand, achieved by higher participation and longer working hours.

With the help of four strands of research:

- macroeconomic analysis of aggregate demand components,
- micro-econometric analysis of individual consumer behaviour and household composition effects,
- input-output analysis of employment effects of goods and services production, and
- meso- and microeconometric analysis of employment, productivity and wages, particularly in market-based consumer services,

the **DEMPATEM** project has studied the evolution over recent decades of employment in the USA on the one hand and five countries representing the European side (France, Germany, Netherlands, Spain and UK) on the other hand.

The most important stylised results resulting from this integrated examination are:

- the entire employment gap is strongly skewed as it virtually concentrates on consumer services and is absent in manufacturing, agriculture and business, transportation and communication services;
- the consumer-services gap has a long history and has now become exposed by very strong productivity-oriented declines in European agriculture and manufacturing in

recent decades; the growth of services employment in Europe roughly equalled US growth over the period but could not make of for the decline in other sectors;

- the market-provided fraction of this skewed gap, that is in trade, hotels and catering (the remainder is in education, health care etc.), cannot be explained by constrained wage differentials in Europe – including those for the low skilled – but relates primarily to the gap in consumer-demand levels;
- the growth of services employment reflects universal, real demand growth that goes beyond Baumol's disease; US demand growth is more strongly job-creating and productivity gains are less strongly job-destroying;
- the employment intensity of services and manufacturing is roughly equal; net effects of structural change on job creation and destruction are generally small;
- differences and changes in household composition, including the presence of a second earner, are found of minor importance.
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The results deviate from what seems to be the dominant view in the literature that primarily puts the blame for Europe's employment disadvantage on institutional arrangements regarding wage formation. However, various outcomes (rapid declines in agriculture and manufacturing going together with productivity growth, similar services growth, lacking role for wage differentials) provide food for thinking twice about drastically shrinking or even abandoning the European Social Model as they offer good reasons to doubt the alleged inflexibility of the European economies and/or its employment effects.

For reducing the employment gap the demand for goods and services deserves far more attention than it is currently warranted. As far as the demand gap relates to the inverse gap in leisure time – potentially an economic success – it is imperative to conduct further research into the preferences for leisure instead of paid work in Europe.

Executive Summary

Starting from the observation that a considerable employment gap has opened up between the USA and Europe in recent decades the **DEMPATEM** research project set out in July 2001 to consider the potential causes of this development if viewed from the demand side, in particular from the role of patterns of product demand. Taking five countries (France, Germany, Netherlands, Spain and UK – they comprise 70 % of the EU15 population) to represent Europe the research aimed to find answers to the following questions:

- Particularly, is consumer demand higher and growing more rapidly in the US?
- What is its impact on the production of services?
- What is the role of the pattern of consumption in this?
- What determines the patterns of consumption? What role do household characteristics, income inequality and consumer attitudes play?
- How does consumer spending on services translate into the structure of production?
- What is the role of productivity and wages on employment in these industries?

The answers were delivered in November 2003 on the basis of combining four different strands of research:

1. Analysis of **aggregate demand** components using data from input-output and national accounts statistics, with a special focus on private consumption;
2. 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;
3. Analysis of the **employment effects of demand patterns** considering the entire production chain in vertically integrated sectors based on input-output data;

4. Analysis of the **employment structure of services in relation to productivity and wages**, focused on the main employment gap in private-sector services namely the distribution sector (trade, hotels and restaurants).

First, the aggregate analysis confirms 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 reveals 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 of similar magnitude in the USA and in Europe. Europe has a larger public sector because many services for individual consumption are provided through public channels. Generally, prices increase 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 rises on both sides of the Atlantic.

Second, the analysis of household expenditure surveys shows 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 are achieved on the basis of micro data on expenditures and households characteristics that were internationally standardized in the project and limited to those expenditures (between 55 and 75 per cent of total) which are not affected by the institutional differences of public/private provision.

Third, the analysis of product demand on employment based on vertically integrated sectors, which with the help of input-output analysis take the whole production chain into account, indicates that the employment-intensities of services and goods demand are roughly equal. The changing mix of consumption is, in general, 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 is more strongly job-creating and productivity gains are 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 demonstrates that the employment gap largely coincides with services employment. However, strong declines in European agriculture and manufacturing, are largely responsible for the establishment of the gap in recent decades. The services gap per se grew relatively little and notably decreased in recent years, on a head-count basis.

Within services, market-provided 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 a quantile-regression approach to the wage structure of retailing relative to the rest of the economy provides no convincing evidence that, in comparison to Europe, US retailing benefits from higher wage flexibility offering possibilities of paying lower wages. Notably, no particular contribution is found for pay differentials at low levels of skill or at the bottom end of the wage distribution.

More rapid productivity growth in European distribution does 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.

Methodology

The objectives of the research have remained unchanged but the research methodology underwent some adaptations during the project. The initial intention to make the four strands of research fully match each other at their interface had to be dropped for theoretical as well as practical reasons.

On the theoretical side, first, the microeconometric analysis of household spending could not make use of an income variable in the same fashion as in other parts of the research. Second, in the analysis of employment and analysis existing international comparisons of

productivity at the level of individual industries appeared to be seriously flawed. This problem could be mended for the distribution sector (trade, hotels and catering) only. On the data side, the strong international divergence in the public provision of certain services necessitated a significant restriction in the coverage of the consumer budget analysis leaving out health and education. Also a very considerable effort had to be spent on the internationally uniform treatment of the data, particularly because consumer household budget surveys proceed differently in different countries. This concerned the spending on housing in particular. This problem could be mended for aggregate spending with the help of imputation but as a consequence this process housing expenditures had to be left out of the microeconometric analysis.

Fortunately, these limitations do not block the realisation of the research objectives. First, the individual household budget which was used in the consumer analysis generates results that come sufficiently close to those concerning incomes in other strands of the research. Second, the distribution sector for which productivity levels can be compared indeed, is the quintessential industry where the market provision of consumer services and the (in)flexibility of low wages come together in all six countries, and its study is at the core of the analytical debate. Third, health and education services depend on a mix of public and private provision in all countries including the USA, and an adequate study of this mix would necessitate an entire research project of its own. However, the employment outcomes are clear and there is little doubt that these do not depend on labour market inflexibilities, the usual culprit of the jobs gap. The exclusion of housing expenditures has very little effect on the employment analysis as hardly relate to it. Their determination is a general problem as they equally rest on imputation in the budget surveys that do comprise the category. A separate study of their significance for the international gap in spending on services is warranted because of their strong quantitative significance – also for national accounts statistics which by the same token depend on imputation.

The **DEMPATEM** project provides a comprehensive study of the employment gap which has developed between the USA and Europe since the 1970s. The gap largely coincides with a lower employment rate of service employment in Europe. Therefore, the research was as much a study of the scientific explanations for the role of services in the economy.

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?

The general research question concerns the impact of product-demand patterns on the level of employment and their potential explanation for the transatlantic employment gap.

The concise result is: yes, demand patterns do affect employment levels, but compared to the *level* of demand the effects are 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.

Policy implications

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.

European manufacturing and agriculture have changed extremely rapidly without much social turmoil and the type of employment most sensitive to potential constraints on (low) wages (i.e. retailing, hotels and catering) employment shows similar wage differentials in Europe and USA. Those results provide good reasons to doubt the almost exclusive focus on furthering wage flexibility as a means to stimulate European employment growth to the disadvantage of the attention paid to product demand.

1. Background and Objectives

In the 1960s employment-to-population rates in Europe were higher than in the United States. By the 1990s, however, the United States was leading many – though not all – European countries by about 9 percentage points. The difference in employment trends between Europe and the United States seems to be related to the relative role of services, low-paid as well as high-paid. The main objective of this research is to examine the extent to which employment growth over the last two decades has been driven by a change in the demand for services. The countries under investigation are France, Germany, the Netherlands, Spain, the United Kingdom and the United States. The time period is from the mid 1970's to the end of the 20th century.

Though a stronger decline in agriculture and manufacturing has also contributed to Europe's employment problem, the differences are largest in the service industries. Given the limited prospects for growth in manufacturing employment and the increasing role of the service sector it seems most forward-looking to focus on services.

Differences in overall rates of economic growth are insufficient to explain the diverging employment trends. There is little difference in the GDP growth rate across the Atlantic, while European growth per capita usually exceeds the American rate. Instead the trends seem to be strongly related to differences in the relative structure of the economies. Service industries play a much larger role in the US. Moreover, the European countries that are successful in employment creation have achieved this by the expansion of service-sector employment. In countries like Denmark and the Netherlands the growth of private consumption has contributed significantly to economic growth in recent years, and its role in the UK has always been an important one. France, Germany and Spain, on the other hand, have experienced below-average growth in important service industries. The employment in services shows a clear lead for the US over most European countries (see Table 1.1), but it is controversial how this difference should be interpreted.

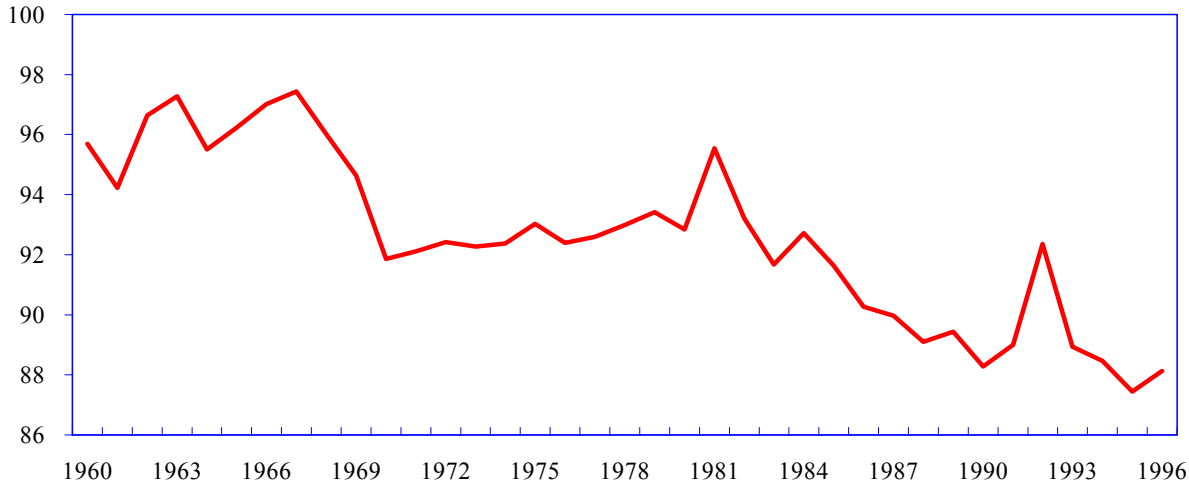
Table 1.1 Employment-to-Population Rates in Services, 1997

	US	*EU*	*France*	*Germany*	*Netherlands*	*Spain*	*UK*
Total	74.0	60.5	60.1	61.8	66.7	48.6	69.5
All Services	54.1	39.7	41.4	38.4	48.9	30.0	50.4
Trade	12.1	9.1	8.1	8.8	11.0	8.1	11.0
Retail	7.5	5.6	4.3	5.7	5.9	5.0	7.4
Hotels/Catering	5.4	2.5	2.0	2.0	2.2	3.0	3.3
Transport	4.1	3.6	3.8	3.3	4.0	2.8	4.6
Finance	3.3	2.1	1.9	2.2	2.4	1.3	3.1
Business	7.8	4.6	5.2	4.3	7.0	3.0	7.0
Communal	21.4	17.8	20.4	17.8	22.3	11.8	21.4

Source: European Commission, Employment Rates Report 1998, Table 3

An argument frequently invoked has been that the more compressed pay structure in Europe, particularly the relatively generosity of low pay by contrast with the US, raises relative prices in the European economies, hindering the expansion of demand for certain services. However, Richard Freeman and others have shown that the wage in German retailing, relative to the German average, differs little from the American level. A similar point has been made for the Netherlands. Moreover, although inter-industry wage differentials are generally small, intra-industry differences and differences in average wages between industries due to differing employment mixes can be considerable in Europe, although usually not as large as in the US. A compressed wage distribution over individuals does not necessarily imply an equally compressed structure over industries or firms (Salverda, 1997) and a compressed structure of prices for that reason. Also the fact that European wage inequality remained pretty stable over the 1980s and 1990s, is in itself insufficient to prove that levels of low pay did not fall (Salverda, 1998). Product demand (viz. the demand for, in this case low-paid, services) may be equally important and relative wages and prices may not be the only incentive triggering demand. There seems to be a major and increasing divergence of private consumption levels between much of Europe on the one hand and the US on the other. Americans have long had higher incomes, but they also have higher levels of consumption out of income – increasingly so since the early 1980s (see Figure 1.1). Particularly the much higher American employment shares of retailing and retailing, which are service industries entirely dependent on consumer demand, seem to underline the relevance of this gap (see Table 1.1).

Figure 1.1 European Union private consumption as share of GDP
US consumption-to-GDP = 100; current prices



Source: OECD, National Accounts

Naturally, this contention should be examined more systematically. William Baumol has argued that consumption patterns in real terms do not change (that is, the real share of services and goods in final consumption remains constant) but the increasing costs of services convey a shift in nominal consumption and hence employment shares in favour of the service industries (see Summers 1985). So, the US may be suffering from a more highly developed form of Baumol's 'disease' than Europe: the composition of output between goods and services remaining constant in real terms over time whilst the nominal output shares and the employment composition are changing due to the productivity differential between services and goods production. If demand for services and goods remains constant in real terms but relative costs of services rise with the general increase of income (the 'cost disease'), relatively more resources will be shifted into the service sector. The hypothesis seemed to fit well up to the 1970s (see Baumol, Blackburn and Wolff 1985) but it appears that in the 1980s many industrialized countries and especially the US did increase the real share of services especially in private final consumption. Appelbaum and Schettkat (1999) have shown that theoretically the trends observed by Baumol and others require either demand to be price-inelastic or negative demand effects of rising prices in services to be exactly balanced by positive demand effects from rising income. Recent empirical analyses (Ten Raa and Schettkat, 2000) show that the trend towards services also occurs in real terms and that services have been gaining importance

especially in private consumption in real terms and it is here where national differences occur (Russo and Schettkat, 2000). This strongly reinforces the need to pay more attention to product demand.

Although many arguments implicitly rely on product demand, the demand side of the economy has been out of favour in recent economic analysis. If acknowledged, it is usually only at the level of aggregate demand, with demand patterns surprisingly rarely being taken into account. Yet, demand patterns – presumably strongly influenced by the cost structure and the income structure of the economy – will undoubtedly influence employment patterns. The availability of detailed microdata on consumer demand has recently improved substantially, and several datasets giving individual data on consumption will be exploited in our analysis. There is much speculation but little knowledge as to how far the European – American differences in service employment are influenced by differences in consumption and what the determining variables for diverging consumption patterns are. Except for anecdotal evidence there are no studies available that have systematically compared the demand patterns neither between various EU countries nor between the EU and the US. These patterns will reflect the incomes available for spending and/or with differences in household composition (including labour market participation) or they may result from diverging preferences, that is different consumer attitudes across the Atlantic.

It is also highly important and scientifically interesting to investigate the relation between the income distribution and employment patterns, in effect decomposing the economy into sub-economies supplying different parts of the income distribution. “Inequality may be reproducing inequality” so to speak. Naturally, high-income households may be buying low-income services. But it is not simply that. As was sometimes remarked in the famous American debate on the minimum wage hikes, stirred by Card and Krueger, a higher income for minimum wage earners may lead to higher spending on products of the low-paid, for example hamburgers. Conversely, the high-paid may also be consuming high-paid services. It is also not known whether the incentives established by different institutional systems (for example, differences in value added taxes, non-wage labour costs) are leading to differences in consumption.

DEMPATEM's work scrutinises differences in the demand structure of the major EU economies using the US as a benchmark. It analyses the final demand structure at a more aggregated level distinguishing various categories within private consumption. The consumption of private households is analysed in detail to allow identifying determinants of consumption behaviour, such as household composition and income and (as the remaining category) consumer attitudes. For example, Americans may be more inclined than Europeans to buy services instead of doing-it-yourself. Naturally, the labour market participation of members of the households and the hours worked, that is, the largely different female participation rates is accounted for as this may leave less time for private household activities after deduction of the time spent in paid employment.

Differences in consumption patterns may produce very different effects on employment, depending on both the input-output structure of the economy and within-industry employment patterns. As to the former, the production structure and use of intermediates must be expected to differ between countries. It is to be investigated how far services consumption actually affects employment in consumer industries, and to what extent it affects other industries. That is, how far do the production functions for vertically integrated sectors differ across countries, and does this affect the employment structure as measured by the industry concept of the National Income and Product Accounts (NIPA)? Low-wage employment is concentrated in service industries (OECD 1996) but does demand for services create only low-wage jobs? To answer these questions requires knowledge of the inter-industry production structure (input-output data) bringing us back from consumer-oriented services to the wider question of the larger service sector in the US. Conventional NIPA statistics classify workers by industry, i.e. if manufacturing firms perform services in-house the employees performing these tasks are counted as manufacturing employees. However if the very same service is outsourced to a specialized service firm, the worker performing the same task will be classified as a service worker. Therefore, different degrees of inter-industry specialization may alter the relation between final demand structure and industry structure. For example, if the share of services and manufacturing in overall demand remains unchanged but manufacturing firms are outsourcing services to specialized service firms, service employment will rise and manufacturing employment as measured in the NIPA statistics will decline. Although firms are outsourcing to achieve efficiency gains, the changing structure of employment is

a pure statistical effect. A common argument is that the differences in service employment shares between the US and the EU are due to differences in specialization – US firms make better use of specialization gains than their EU counterparts. Recent analysis (Ten Raa and Schettkat, 2000) shows that outsourcing is taking place but that it is overestimated as a source of service-sector growth. Furthermore, European economies seem to be as specialized as the US; i.e. European firms seem to be able to capture efficiency gains related to specialization. There are no dollar bills on the European boardwalks, to paraphrase the late Mancur Olson. Moving on from the role of consumption, a further aspect of the role of services is the recent evidence for the UK that the services sector has been a major source of new demand for other services. Business services have been the fastest-growing area of employment, with much of the output supplied to other service producers (Gregory *et al.*, 2001). These services-to-services supply chains are a new and potentially important area for exploration, particularly as they generate many high-paid service jobs. It is examined in particular how this development relates to consumption patterns.

Finally, within-industry differences are relevant for international employment differences. The I-O analysis targets aggregate employment outcomes at the industry level in relation to demand; consumer spending analysis aims at understanding the patterns of demand. Similar levels of demand in different countries that result from this analysis may however relate to different employment outcomes, at the overall level as well as for specific groups such as women or youth or the low-skilled. It will be important to extend the I-O analysis to encompass the employment aspect of the derived demands for output back along supply chains.

For example, higher shares of low-skilled low-paid labour may go together with a greater number of jobs. In particular, services may be produced at different levels of productivity and therefore employment. A well-known example is the French Toys–R–us shops that employ thirty percent fewer employees than their American counterparts (Nickell, 1999). Now either productivity may be higher or certain (additional) services may not be produced (which European consumers perhaps find too costly and/or do not appreciate). Productivity can differ because of a different choice of technology, that is a different process of capital-labour substitution, and/or a different supply of skills – the European low educated often being much better skilled according to the International Adult Literacy

Survey of OECD and Statistics Canada. Productivity and the composition of employment could also differ because of the diverging availability of labour (by gender, skill, age) and/or diverging preferences of labour supply (e.g. concerning working time). Pay differentials, again by gender, skill or age may also affect the structure of employment. Higher rates of part-time work, which adapt the actual presence of the work force better to the peaks of consumer demand and skip idle hours, can also affect productivity positively and employment (hours worked) negatively.

Evidently, there is a two-way process at work with many interactions between consumer demand and employment going both ways. The present project does not address all these complex issues of interaction but focuses on a detailed study of microeconomic data on employment and labour supply – distributions of skills, of earnings and of working time – to establish the structure of employment for the service industries. Special attention will be paid to retail trade which is both the largest consumer industry and the largest low-paying industry and which also shows a substantial US-European employment gap (at the NIPA-level that is – it remains to be seen what its role is after the input-output analysis). The output of the research will subsequently be available as an input for other studies that focus on such further interactions.

The list below summarizes the questions to be examined, all in international comparative perspective:

- Particularly, is consumer demand higher and growing more rapidly in the US?
- What is its impact on the production of services?
- What is the role of the pattern of consumption in this?
- What determines the patterns of consumption? What role do household characteristics, income inequality and consumer attitudes play?
- How does consumer spending on services translate into the structure of production?
- What is the role of the productivity and wages on employment in these industries?

To address the issues sketched above a broad, international team of researchers was established bringing together macro- and micro-economic expertise as well as expertise

on consumer behaviour, wages and employment change or structural economic change. Based on this, each contributed in his or her own field of expertise primarily for the sake of scientific research. Clearly, this research might generate results with important implications for economic and labour-market policy making; these, however, were not necessarily shared as a common aim between the participants to the research and not all individual participants would automatically subscribe to all conclusions drawn in this respect.

2. Methodology and Results

This chapter, after a quick further consideration of the employment gap, discusses the hypotheses that could explain it, particularly the contribution of services, and presents the strategy of the **DEMPATEM** project to investigate the hypotheses as well as the results.

2.1 US-Europe differences in employment

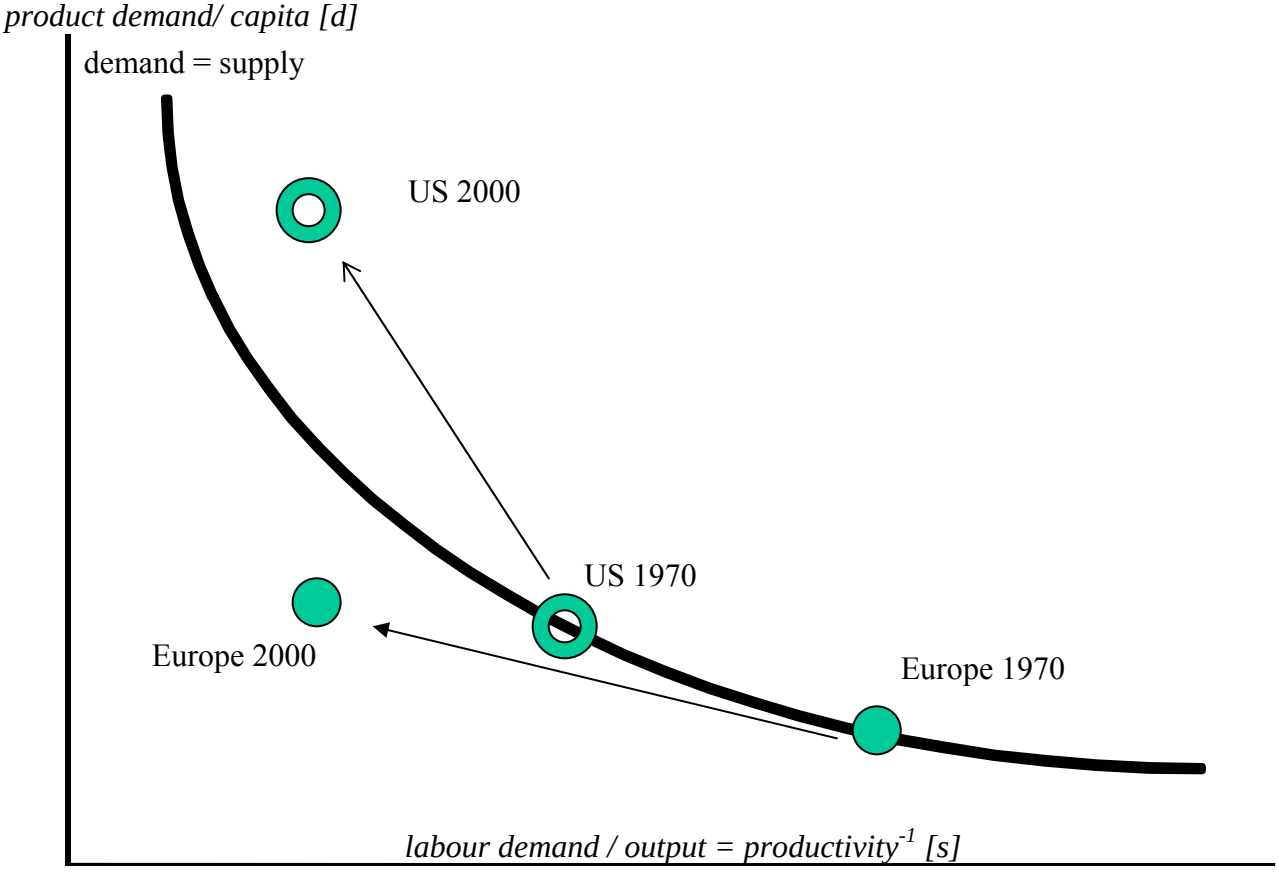
By the turn of the century the share of the employed among the working-age population in the USA was about 10%-points higher than in many (although not all) European countries. When measured in working hours instead of persons the differences in employment trends were even more pronounced (see Schettkat 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 of working age were employed in service industries compared to 47 % in France, 43 in Germany, and 52 in the UK. It is not surprising that 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).

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

[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.

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 reflected at the aggregate level almost entirely differences in labour input, but for the UK and Spain there remained 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 2.1.

Figure 2.1 US and European economies in stylized demand-supply space, 1970, 2000



Source: for detailed values see Schettkat 2004.

The solid line in Figure 2.1 represents constant employment rates (the number of employed divided by population in working age) at different levels of productivity (iso-employment 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, 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 US 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 2.1 shows employment measured by employment-to-population ratios (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. 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.

Table 2.1: 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.

2.2 Hypotheses explaining the growth in service employment

Setting up the project as a whole, developing the overall methodology, checking the coherence of the separate research tasks and bringing together the results was the responsibility of the two coordinators, Ronald Schettkat and Wiemer Salverda.

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

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

expand in the USA., whereas rigid European wage and labour market structures impede the expansion of service employment and result in high unemployment especially among low-skilled workers. This hypothesis fits the aggregated trends fairly well and it 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 (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 actually be observed, 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 to 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.

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[3] Or at least on income and price effects balancing each other (Appelbaum and Schettkat, 2001)

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

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, • = overall economy

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

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

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 are in 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 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 2.1). 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 2.1).

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[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).

[7] $\frac{E_s^{US}}{E_\bullet^{US}} - \frac{E_s^{EU}}{E_\bullet^{EU}} = \alpha^{US} * \beta^{US} - \alpha^{EU} * \beta^{EU}$ 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.

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.

Figure 2.2 Major stylized hypotheses for the explanation of rising (or higher) service employment as summarized in demand-supply space

$\alpha\uparrow$	Relative demand for services increases **Fisher/Clark, income hypothesis**
$\beta\downarrow$	Relative productivity of services declines **Baumol, cost disease hypothesis**
$\beta\downarrow$ and $\alpha\uparrow$	Relative service productivity declines but also demand patterns shift in favour of services **Fuchs, composition hypothesis**
$\beta\downarrow$ 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**

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

2.3 The DEMPATEM research strategy

Obviously, which one of the hypotheses actually holds is an empirical question the **DEMPATEM** project has tried to answer. However, even if the structure of real demand turns out to be constant over time, the question remains at which level this 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, and exports) and differences in service shares within these components, which again may be caused by differences in income levels, tastes, prices, household composition, and 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.

2.3.1 Setting up the strategy

It seems to be necessary to go beyond the aggregate analysis and to analyze the full complexity of the causality chains. **DEMPATEM** intended to contribute 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 2.3 and tried to answer specifically the following six major questions grouped according to the three major dimensions.

Figure 2.3 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.

Consequently, **DEMPATEM** analysed the full complexity of the differences in industry structure of employment using the USA as the benchmark country. The six 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?

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 2.4.

Figure 2.4 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

2.3.2 Implementing the strategy

In this context, the research was aimed at understanding the role of the *pattern* of demand, particularly consumer demand, in explaining the differences in the structure and level of employment across countries and over time. For this purpose the research activity was divided into three themes:

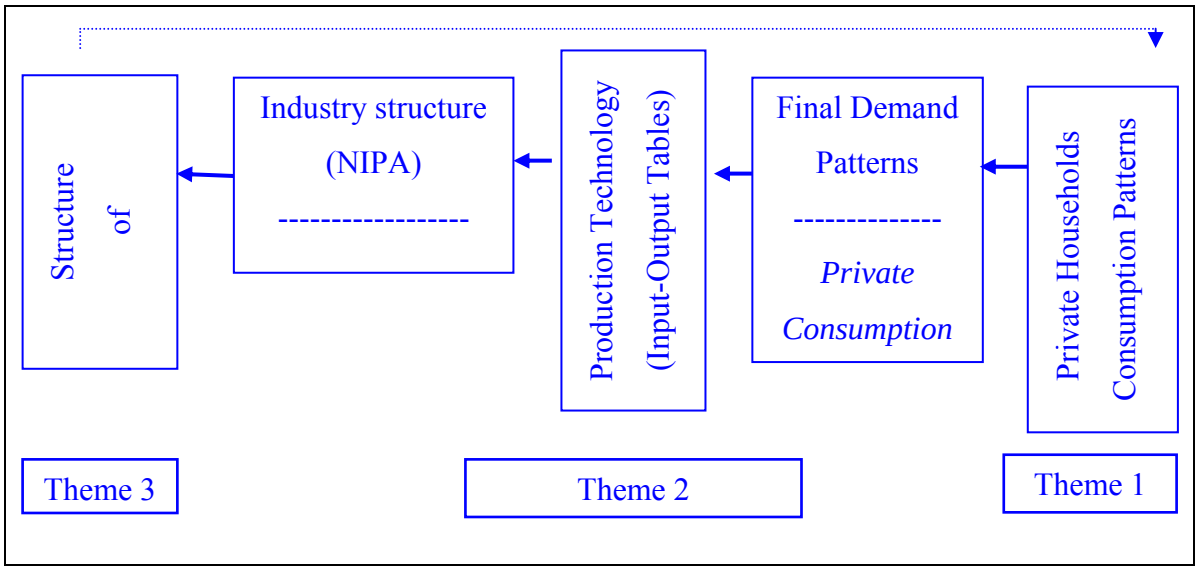
Theme 1: Consumer Demand Patterns

Theme 2: Production Technology

Theme 3: Structure of employment

The structure of the research depicted in Figure 2.5 outlines the links between these themes: we examined the different consumption patterns across countries and over time and linked these through the structure of production with observed employment patterns. In turn employment patterns may contribute to the patterns of consumption.

Figure 2.5 Organisational structure of the research.



It is worthwhile pointing out the basic ingredients from an empirical point of view needed to fill in the blocks. Theme 1 demanded the use of household level budget data to examine expenditure patterns. The emphasis was on expenditures on services. The main objective was to analyse the different expenditure patterns across types of households, between countries and over time. Theme 2 demanded putting structure on the production technology. This was done using the so-called Input-Output tables, which were available from the national statistical offices and the OECD. Gathering these Tables in such a way that the commodity inputs and industry outputs are comparable across countries and time

was one of the main tasks. Researchers working on Theme 3 examined the type of labour in the service industries and in particular examine productivity difference across countries. Individual level data needed to be employed at a later stage to get more detailed information on the structure of employment.

Soon after the start of the project three important issues became clear. First, the analytical approaches that are normally practised by the researchers for each of the three themes were strongly diverging and their mutual understanding and endorsement could not be taken for granted. In spite of the fact that they are all 'talking economics' there was a world of difference here. Connected to this, the natural tendency in each of the three areas to develop its analysis in its own right – drifting to 'pure theory' so to speak – had to be restrained to warrant the fit with the overall framework. This applied particularly to the consumption theme where several approaches were advocated. Second, strong interrelations existed between data treatment and analysis. Data classifications cannot be developed and applied in a vacuum, without a clear analytical backing. Consequently, it took several rounds of discussion and iteration to work out basic conclusions on both theoretical approaches and data classifications. Third, important 'pure' data problems surfaced which had to be addressed as well.

In a later stage it became also clear that initial expectations concerning the analysis of household time use in relation to the US-European employment gap could not be fulfilled. There were three reasons for this. First, one of the coordinators had studied behaviour concerning self-production or outsourcing to the market of household services comparing between the USA and Germany with the help of actual time-use survey data (Freeman and Schettkat, 2002). This work had turned out to be extremely time consuming and could not possibly be replicated for more countries within the **DEMPATEM** budget. Secondly, the analysis of the effects of households' employment participation on spending behaviour failed to unearth two-earner effects on the spending pattern, particularly spending on market services such as eating out; instead such effects may work via the level of household income and the acquisition of goods (e.g., a second car to enable going to earn a second income in the household) may be as important as that of services. Finally, a special attempt to relate household (Tijdens, 2003) was too specific coherently fit into the framework of the four levels of **DEMPATEM** research. Instead, an update of Freeman and Schettkat's work was contributed to the book manuscript (see Box 4.1).

Consumer budget surveys

The aim of using the survey data was to examine spending behaviour of individual households and relate this to particular household characteristics. Each of the budget surveys has information on household expenditures on commodities at the most detailed level such as household expenditures on bread, cars or insurances, often for up to a thousand different commodities. These detailed expenditures were at the basis for obtaining aggregated commodity categories.

The treatment was time-consuming because of the sheer lack of international comparisons of the aggregate commodity categories as used in the different countries. The focus of the treatment was the extent to which spending patterns relate to compositional differences or divergences in behaviour and this demanded an agreement on a uniform approach to spending categories on the one hand and household characteristics on the other to ensure cross-country comparability. Information about the structure of a country's household population was important for considering compositional effects at the aggregate level, on the one hand, and for analysing spending behaviour in relation to such characteristics at the individual level on the other hand.

As no systematic compositional data appeared to be available the design of the household classification had to start from scratch. Initially this was hampered by a substantial gap between Spain and the other countries, about half of Spanish households being classified in the 'other category'. Various adaptations finally generated a satisfactory result that was virtually complete for each of the six countries for the selected years.

Long discussions were held about one important characteristic: household income. Within the consumption group the data on incomes and savings were generally deemed unreliable. From the point of view of the overall coherence of the project, however, the use of incomes was strongly stressed. The solution was to analyse incomes and savings separately at the macroeconomic level. For the budget surveys, a breakdown of spending patterns by quintiles of incomes as defined by expenditures was made – after the first period – with results that showed important differences in spending but also in characteristics, which complicated drawing simple conclusions.

Very substantial efforts were spent on the patterns of expenditures. The objective was to get an overview of the expenditures on goods and services in the different countries, and

their trends over time. This required comparability across countries. To achieve cross-country comparability we needed to understand in great detail the differences in the commodity classification across countries. The fact that we used as a basis for aggregation all commodity expenditures at the most detailed level, made it possible to aggregate in a similar way for all countries.

One of the main problems this project was faced with at the start was that the commodity classification underlying the sectoral classification of the Input-Output Tables was only on a very crude level comparable with the commodity classification based on household budget data. For this reason the budget data needed to be tailored as far as possible to adapt to the IO classifications.

The aggregation procedures were extensively discussed and agreement was reached on two sets of breakdowns: first the so-called naïve tables comprising all types of spending and, second, the restricted tables. The latter exclude three types of spending: i) health and education because private contributions vary significantly between countries, depending on the institutional set up; ii) spending on housing because of the large differences across countries in the calculations of rental values; and iii) spending on durables in all relevant categories for theoretical reasons. This illustrates that the two debates, on data classification and analysis, were most intricately related for the theme of consumption. Private expenditures on health and education depend on the institutional settings in a country and for this reason these expenditures were treated separately across countries. Durable goods are investment goods and were treated differently from non-durable goods and services. This left us with private household expenditures on non-durable goods and services that are comparable across countries. For both types of tables a uniform classification was established. The leading principle was the distinction between goods and services. The housing category was particularly demanding as in some countries imputed rent for proprietor-inhabited houses was included, and the methods for constructing this varied considerably across countries, while in others it was not. It was decided to include it in all countries for descriptive purposes only and leave housing out in the restricted tables that are meant for further analysis. Notably, the share of housing in total consumer spending appeared to be very large and increasing in all countries. The consistent application of the classification requested the use of the diary portion of the

American budget survey implying a time-consuming return to the basic data as, amazingly, this part is usually left out.

On the basis of this work, the **DEMPATEM** project claims to be the first to generate such a precise and internationally consistent and also illuminating mapping of consumer spending on the basis of household survey data. Generally, there is a staggering lack of adequate international comparisons of these survey data. Apparently, the linking to the other two themes incites a use of these data outside the beaten path.

A final important data problem concerned prices. Generally, all budget survey data is available in current prices only. Consequently, it is impossible to tell the monetary (prices) from the real (preferences) part in apparent behavioural changes over time or across countries found in counterfactuals.

A remaining problem, that cannot be solved, was that the consumption classification of the Input-Output Tables included imports, which cannot be separated in the budget survey data.

Input-output tables

On the input-output side the data problem was different. These are tabulated data by definition and their provision depends fully on the statistical offices and the tables are more difficult to get recently as the statistical offices have become less inclined to spend the effort. The implication was that the published material determined the detail available to the project. Industrial sectors could be merged on the basis of this, with loss of detail as a consequence, but not split. This provided an important constraint on international comparisons. Fortunately, for the earlier years i.e. the 1970s up to 1990, the OECD had published tables provided on request by the statistical offices following a uniform format. This singled out the coverage of the 1990s as the first problem to address. It was known that the OECD was working on a new internationally comparable set for the mid-1990s but its delivery was quite uncertain. It took until February 2002 to secure provisional access to these outcomes. Because of the insecure perspective it was decided earlier to investigate national tables, which often have much more detail. The new OECD tables, when they became available, were not fully consistent with the older set in two respects. First, the breakdown by industries was based on another revision of the ISIC implying some shifts between industries and it was also somewhat more detailed now, esp. for

business services (which are less important for private consumption); second, only current-price tables were available posing another pricing problem. Finally, the new tables distinguished better between domestic production and imports. Summarising, the data problem encountered for the input-output analysis was more a matter of delays and forays into the national data.

The industry classification at the output side of the Input-Output Tables was according to the ISIC and could, roughly, be compared with industry-level information on employment from labour force surveys in the different countries.

Employment data

Regarding the data the employment theme group had two tasks, first to provide the input-output group with employment data by industrial sector for determining employment elasticities, with a breakdown by characteristics such as gender, age and education. This task depended crucially on the industry breakdown of the input-output tables and the available years. The precise industrial classification for the 1990s became available with much delay at the end of the period only. The breakdown implied the need for microdata as tabulated data have insufficient detail. But also microdata are not easy to get for the earlier years and suffer from imperfections, particularly with regard to education and training. Such data are available from national sources only, which therefore have to be supplied by the project partners. The co-ordination problem this involved was underestimated as at first it was thought that the datasets would be supplied for treatment in Amsterdam and Oxford. However, it turned out that most of the work had to be done locally. This required a revision of the project budget which the Commission approved.

The second task was to analyse international productivity differences to understand employment differences that can exist in spite of identical spending patterns. Here principal analytical problems abounded. The availability of data was not the first problem, as they could be taken from national accounts and the OECD's related STAN database, but their significance was. The major problems here were the breaks in the series because of the changes made in the national accounts system in the 1990s and the unification of Germany. These hampered consistency over time and timely availability. Productivity data from other sources are usually related to the national accounts system and thus showed the same shortcomings.

Macroeconomic data

Although the macroeconomic data feeding the general overview can be considered a separate issue, they are usually based on the national accounts sources just mentioned and the OECD's databases for industrial analysis which is based on these.

Table 2.2 Years available for datasets

DE	FR	NL	ES	UK	US
1. input-output data (OECD)					
1970s-1990 database					
	1972	1972		1968	1972
1978	1977	1977		1979	1977
	1980	1981			1982
1986	1985	1986		1984	1985
1990	1990			1990	1990
1990s database					
1995	1995	1995	1995	1998	1997
		96, 97, 98			
2. consumer budget surveys					
Einkommens - und Verbrauchs-Stichprobe (EVS)	*Enquête Budget de Famille (EBF)*	*Consumenten Budget Onderzoek (CBO)*	*Encuestas de Presupuestos Familiares* (EPF)	*Expenditure Survey (FES)*	*Consumer Expenditure Surveys (CEX)*
1978	1980	1979	1980	1980	1980
1993	1989	1989	1990	1990	1990
*1998	1995	1998	*1998	1998	1997
3. national employment and wage surveys					
Beschäftigten Stichprobe	*Enquête Emploi*	*Loonstructuu ronderzoek*** *		*NES*****	*CPS*
≥ 1978	1981	1979		1975-2000	1960s
	Each	1985		Each	Each
	Consecutive	1989		Consecutive	Consecutive
	Year	1996			Year
	To			*BHPS***** *	To
	2001	*LFS****		≥ 1991	2000

*) May not be available on time
**) Very small dataset, break for German unification
***) No self-employed
****) No wage data
*****) No educational variables available
******) Very small dataset

Years

Before continuing with the analytical aspect is should be observed that the years' coverage perforce came to differ between the three themes. From the outset it was clear that individual years had to be chosen from the relevant period. An inventory was made of the available data sources and it was agreed that the empirical analysis for all three themes would be carried out for three points in time: the late 1970s/early 1980s, the late 1980s/early 1990s and the mid/late 1990s.

Table 2.2 describes the precise years selected for use. For input-output these were the only years available with a few exceptions for the 1990s. For the consumer budget surveys often more years were available but it would have far exceeded the possibilities of the project to use each and every year and also have made little sense given the limitations in the other fields. Notably, tabulated data had to be used for household consumption for the earlier years for Germany as microdata were available for 1993 only. For employment data covering all or most industrial sectors availability differed between countries and years were selected as close as possible to those available for the other themes, primarily input-output. The project had to live with this imperfection, assuming that structures will differ little over a few years. Finally, the macro-economic data taken from the system of national accounts were often available for all individual years since 1970, although sometimes breaks had to be mended.

The rest of Chapter 2 discusses the analytical issues. Starting from a summary consideration of the concept of services and its share in employment (Section 2.4) it consecutively considers aggregate demand (Section 2.5), consumer demand in relation to consumer households (Section 2.6), the structure of production (Section 2.7) and employment in relation to wages, productivity and consumer demand (Section 2.8).

Chapter 3 lists the conclusions.

2.4 Service-sector expansion

The results on the service sector reported in this and the following section were the prime responsibility of **DEMPATEM**'s Aggregate Analysis group: Ronald Schettkat, with the

assistance of Lara Yocarini and Joep Damen, but it also takes into account some of the findings of the input-output group.

'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 supposedly 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, Section 2.7 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.

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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)

'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).

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 been fully 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.

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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.

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 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 assumptions (e.g. the income elasticity of demand in the consumption theme, employment elasticity in the input-output theme).

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

[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.

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.

Figure 2.6 Predicted service share in US employment and actual values UK, Netherlands, Germany, France and Spain (1960, 1970, 1980, 1990, 2000)

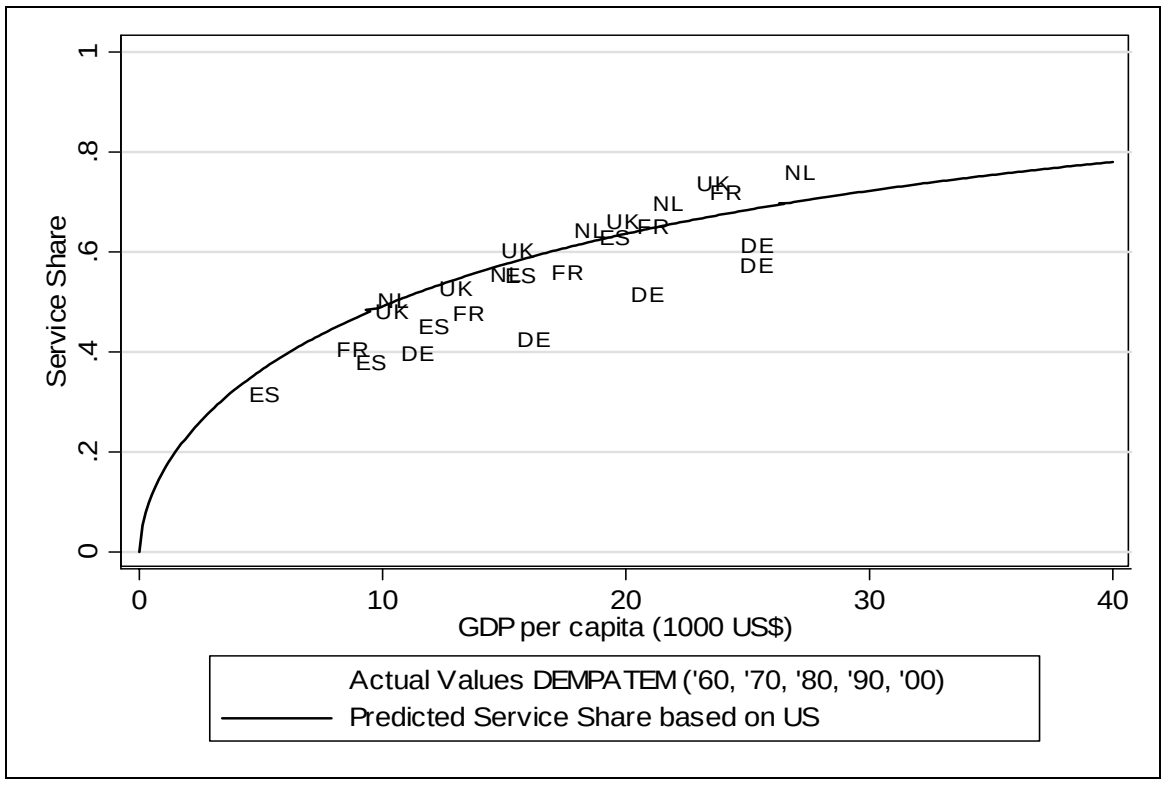


Figure 2.6 shows estimates produced with the Fuchs model for more recent American time-series data and the actual position of the European **DEMPATEM** countries. The figure shows that countries such as the Netherlands, France and the UK reach even higher service employment shares than the predicted 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 e.g. in the Netherlands), these employment shares will overestimate the size of the service sector. 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).

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.

2.5 Demand trends

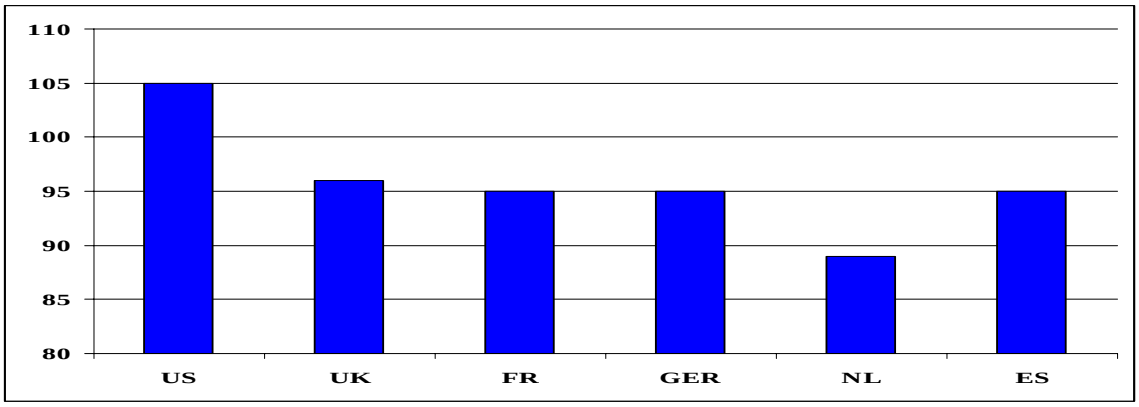
2.5.1 Relative prices of services and price trends

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 2.7, 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.

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.

Figure 2.7 Prices for consumer services relative to goods prices in the DEMPATEM countries



Source: computations are based on OECD 2002.

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).

[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.

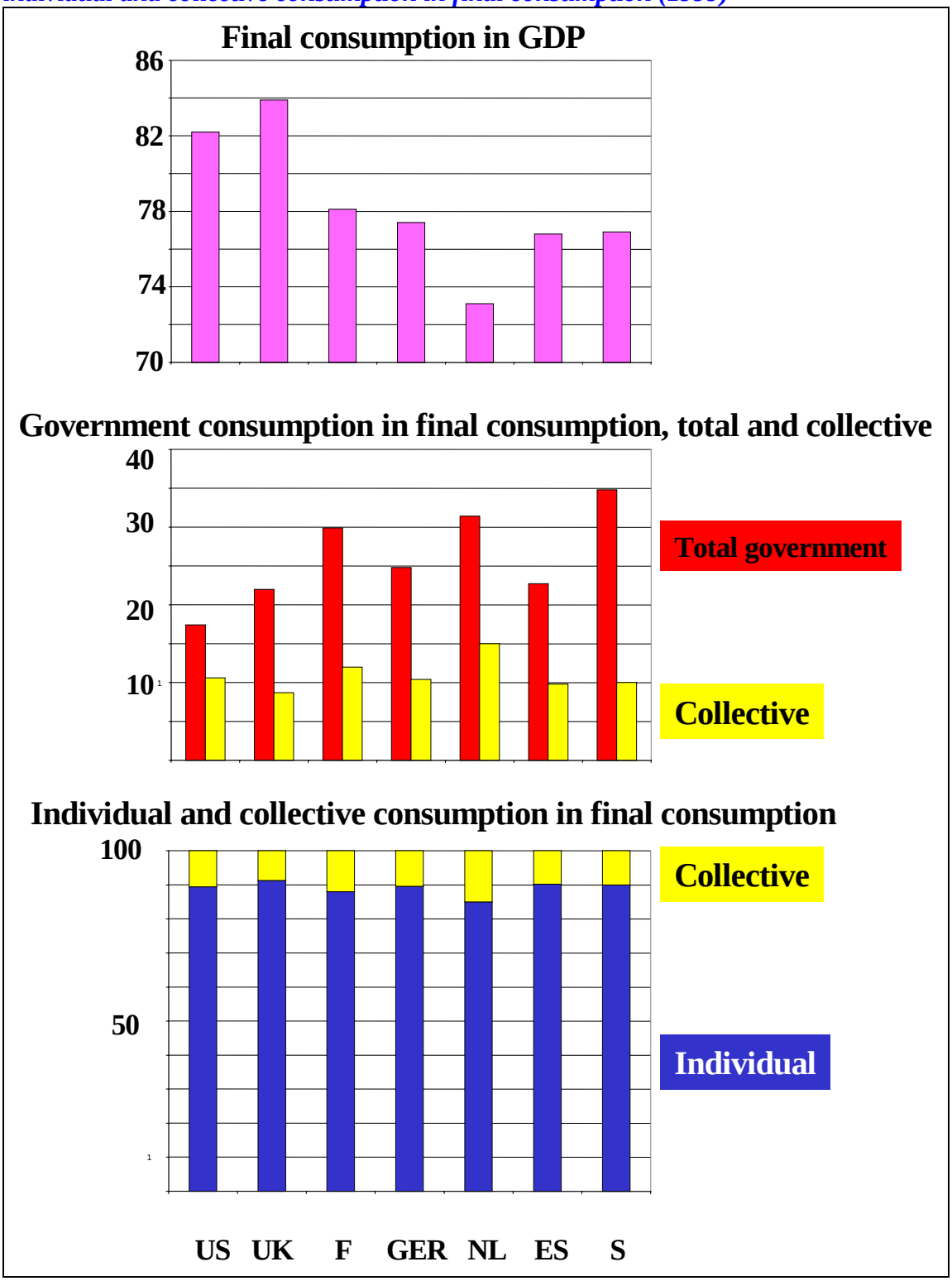
2.5.2 Public versus private demand

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 2.8, 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 2.3, 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 2.8, lower panel). The USA now looks like a typical European state with a level of collective consumption similar to Sweden! However, considering that 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 2.8 Share of final consumption in GDP and government consumption, individual and collective consumption in final consumption (1999)



Source: computations based on OECD 2002

Table 2.3 Share of government consumption in final demand of detailed service industries, 1995.

	US	UK	FR	DE	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

Government expenditures are almost entirely concentrated in services as the OECD input-output data reveal (Table 2.3). 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 2.3 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

[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).

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 2.4 Shares of agriculture, manufacturing, and services in final domestic demand, current and constant prices

		Constant prices			Current prices		
		Agriculture	Manufac-turing	Services	Agriculture	Manufac-turing	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

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 consumption is higher in Europe because governments provide individual services, not

[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).

because 'true' collective consumption is higher in Europe. For collective consumption the USA looks like a typical European country.

2.5.3 Services in the components of final demand

Table 2.4 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 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 2.4). 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 2.5). 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.

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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).

Table 2.5 : The weight of demand components in overall final demand (current)

	Final Demand	Consumption			Invest-ment	Changes in stocks	Ex-ports	Im-ports
		Over-all	Pri-vate	Pub-lic				
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

Looking at this issue from another perspective and asking what share the three broad sectors have within the final demand categories (Table 2.6) 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 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 2.6 The distribution of final demand across agriculture, manufacturing and services (current prices)

	Final Demand	Consumption			Invest-ment	Changes in stocks	Ex-ports	Im-ports
		Over-all	Pri-vate	Pub-lic				
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

2.6 Private households' demand for services

The aim of the study made by **DEMPATEM**'s private-consumption team (Adriaan Kalwij, Laura Blow, Marijke van 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

[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.

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 cause 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, the budget share of services 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 costs that increase relatively fast (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 will 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 too. These two effects cannot be separately identified in this study and are considered unexplained or residual effects.

For the study the national microdata available from consumer household budget surveys were utilised for each of the six countries[18]. The team has gone to great length to treat the

[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

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 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, on the one hand, the consumer budget surveys in the countries and, on the other hand, the data sources used for other parts of the **DEMPATEM** project, particularly the input-output tables exploited for studying the structure of production.

We summarize how that has been done in the next 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 underlying material, including detailed results and explanations, can be found in separate reports for each of the six countries, an summarising report, and a methodological paper (see **DEMPATEM** Working Papers 1-9).

2.6.1 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., labour force statistics are. Evidently, the fact that the nature of the goods and services that can be acquired for consumption by private households is broadly identical across countries implies a certain degree of natural standardization. However, there is a whole

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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.

series of important issues to which this not automatically applies and for which solutions had to be found in the project.

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 a small change. Second, again 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 fundamentally between countries – ranging from exclusively private provision, i.e. via the market, at one extreme and exclusively public provision 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 economically important and a substantial part of household spending may relate to it. Imputed rent for owner-occupied housing is the primary 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 good example – if they exist they should be added to both sides, income as well as spending. Usually, income is

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

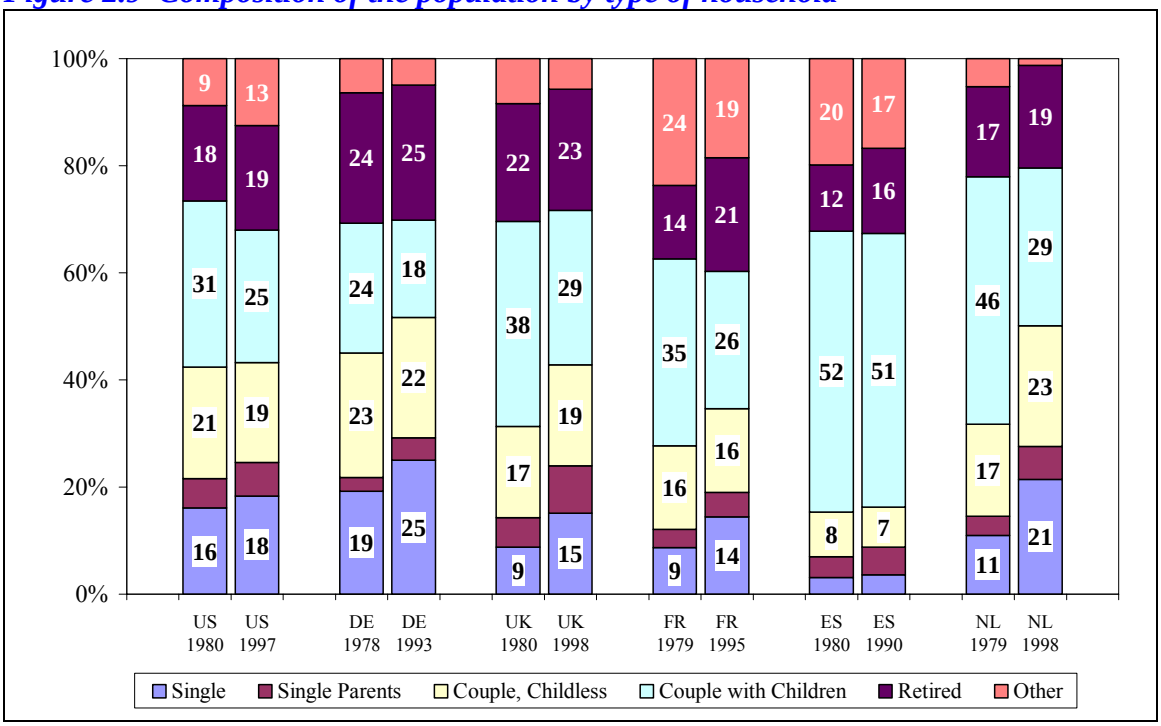
underreported in this type of surveys as they are not targeted to measuring this accurately. Consequently, we could not use money incomes for explaining spending patterns nor was it possible to study the savings behaviour of households. As an alternative we used total expenditures and will talk about budget effects instead of income effects.
In addition to this, some survey properties of a more general nature 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 annual surveys.

All this has led us to a two-step approach. First, we determined uniform, broad 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 of consumer spending. These notably excluded the commodity categories that may 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.

2.6.2 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 labour market aspects. 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'.
All statistics reported below are weighted sample statistics providing a representative picture of the national population.

Figure 2.9 Composition of the population by type of household



Households

On the demographic side 17 categories are distinguished. 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 2.9).

Average household size decreased 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 also – except for Spain – an increase in the share of singles in the population which inflates the number of households. Transatlantic differences were small, albeit the growth of singles was more limited in the USA. This growth 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.

Table 2.7 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

Table 2.8 The categorization of commodities

Comprehensive categorization	**Taken out for the restricted domain**	
1. Food and non-alcoholic beverages		part of durables
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		
9. Food and beverages away from home		
10. Holiday Services		
11. Housing	x because of imputations	
12. Household services		
13. Health goods and services	x because of public/private provision	
14. Personal services		
15. Public transport services		
16. Private transport services		
17. Communication services		
18. Education and training services	x because of public/private provision	
19. Entertainment services		
20. Miscellaneous services		
SERVICES		

The involvement of households in paid employment was also investigated. Joblessness appears to be rather high in the Netherlands (18%), though it has remained unchanged since the end of the 1970s, 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 population share of singles[20] in the USA is not much different from Europe. Tables 2.7, first line, shows percentages between 19 and 29 for France, the UK, the USA, the

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

Netherlands and Germany with only Spain as an outlyer at 9%. However, the fourth line shows that this category has a substantially higher level of employment participation in the USA compared to the European countries. This ranges from 60 per cent in Spain and the Netherlands to almost 90 in the USA. For couples with or without children, by contrast, the USA is not performing significantly 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 population share of couples with children and two jobs declined in all countries except Spain and the Netherlands. Their share is low in Germany and the Netherlands and high in the UK and the USA.

We conclude that with regard to households Europe and the USA share a number of trends: declines average size and declining shares of couples and two-earner households with children and, in the opposite direction, increasing shares 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 a list of categories was designed that reflects common views on spending patterns and is geared to the distinction between goods and services at the same time. This resulted in 20 categories covering all spending, what can be called the 'comprehensive' 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 (and by implication would relate to these in the same way as to other categories). This concerns education, health care and housing. At the same time we took out durable spending from all remaining categories. The remained was termed the 'restricted' pattern of household spending, comprising non-durable universally market-provided goods and services. Table 2.8 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.

Figure 2.10 The effects of restricting the spending pattern

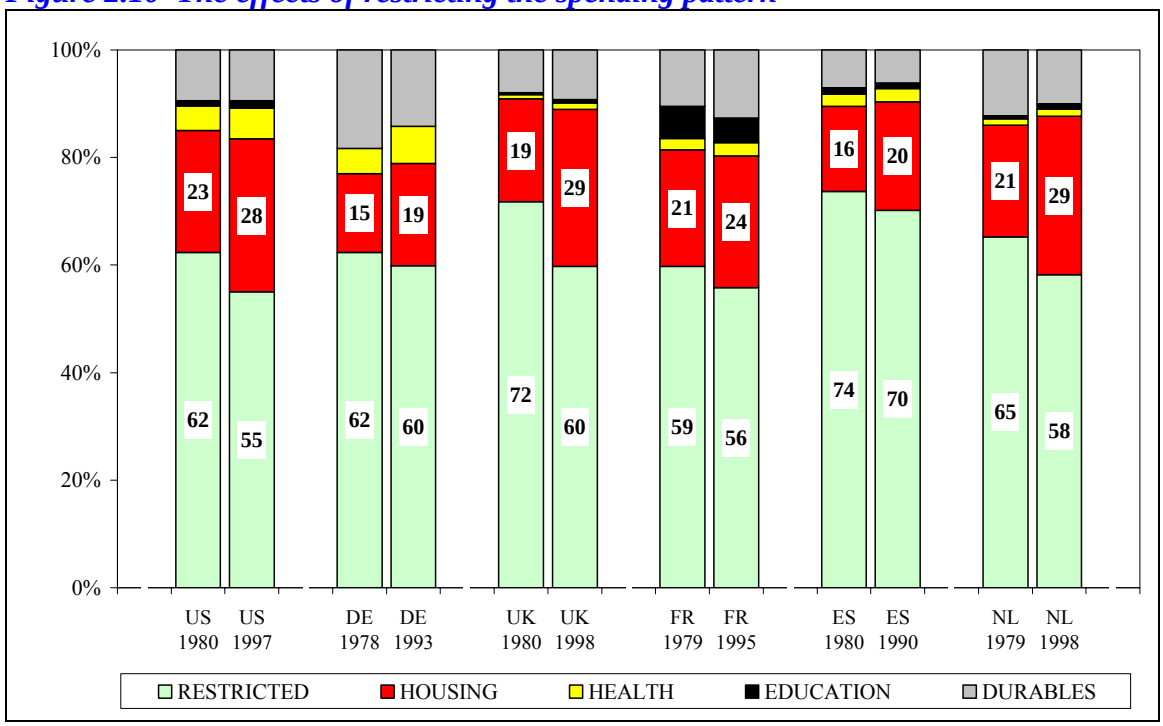
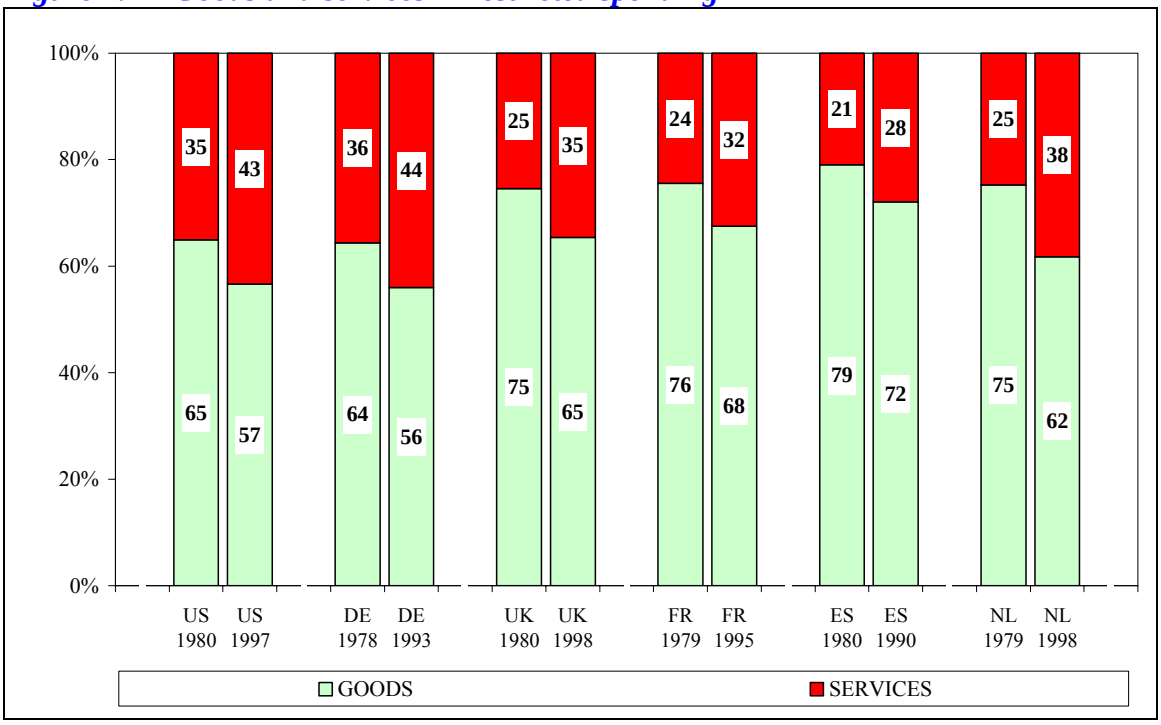


Figure 2.10 shows the quantitative effects of the restrictions at the aggregate level. A number of highly interesting conclusions can be drawn on the four excluded types of expenditures.

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. Housing appears to be a very substantial category of expenditures, capturing up to nearly 30 per cent of the total household budgets. Housing expenditures also show substantial increases over time 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 use imputed 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 the constructed variable of rent imputation.

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. To the famous definition of services that one cannot drop them on one's feet can be added that most certainly they can also not be stored and kept for future use; therefore taking out durables implies a shrinking of the goods categories solely. The elimination of education, health care and housing mainly affects services.

Figure 2.11 Goods and services in restricted spending



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 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 spending beyond the restrictions could be explained with sufficient scientific rigour from individual household behaviour in a cross-country comparison.
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 2.11 depicts their shares in total restricted expenditure.

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 show 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.

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 2.12. Their combined share is clearly smaller in Germany compared to the other countries. 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 2.9 summarizes the results.

Figure 2.12 Shares of three wage-cost intensive services in restricted spending

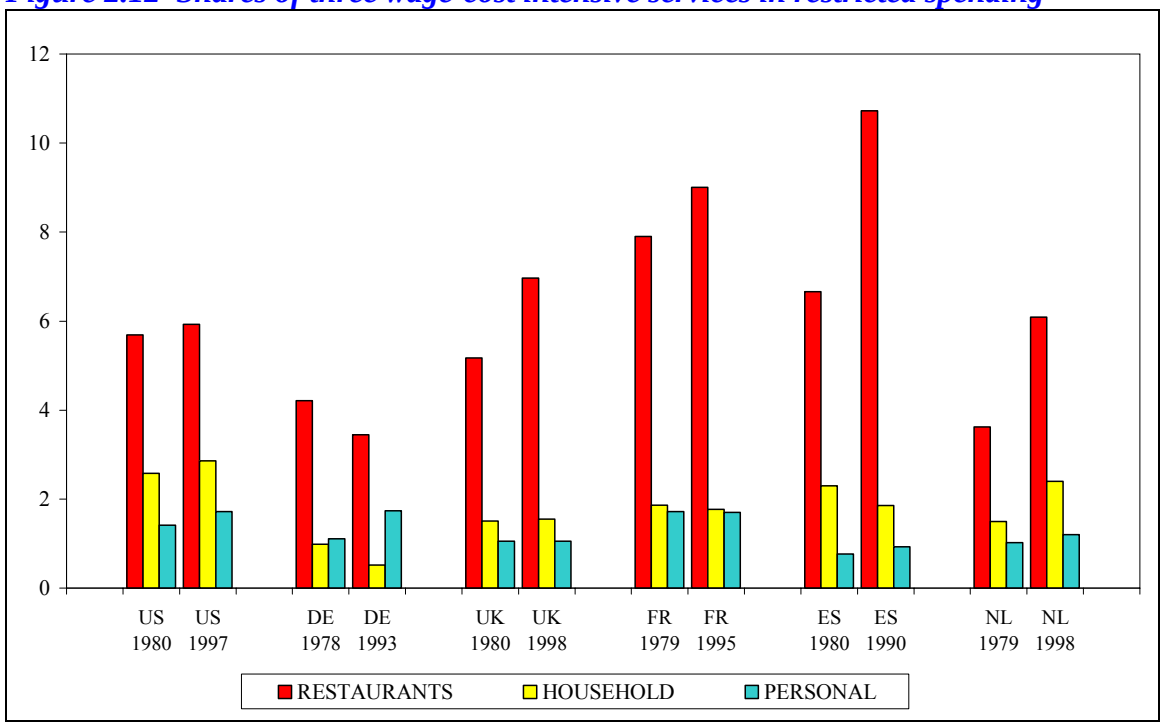


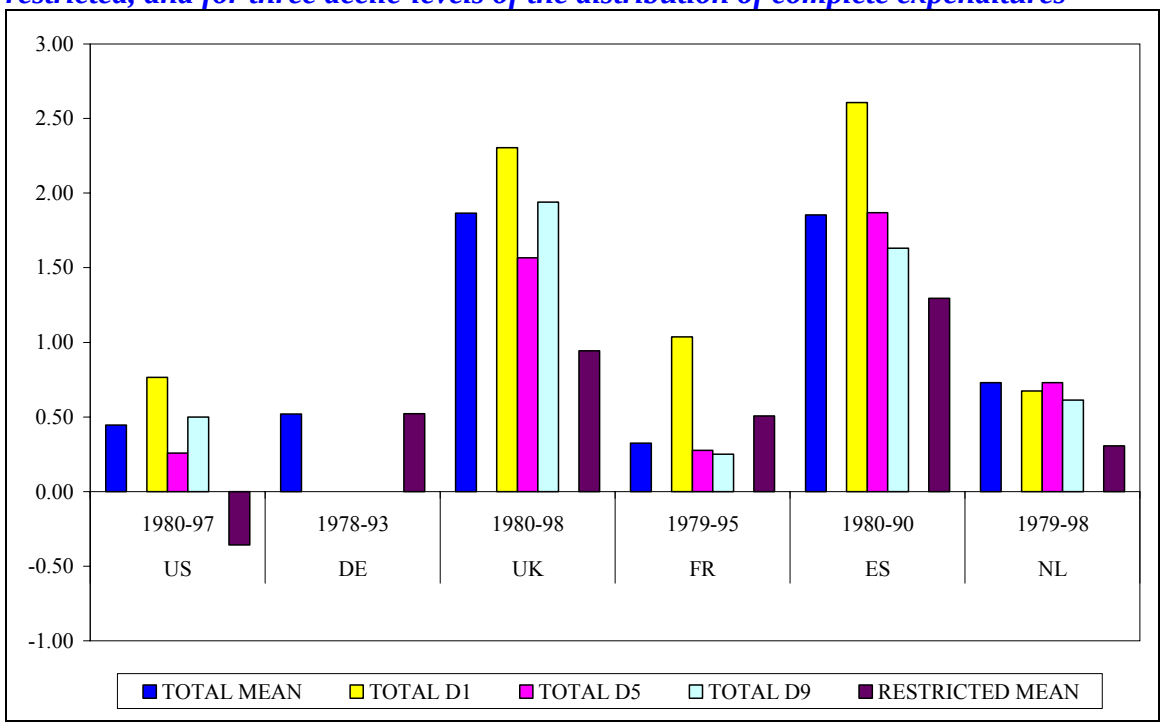
Table 2.9 Average annual changes of relative prices

Country	**US**	**DE**	**UK**	**FR**	**ES**	**NL**
Period	**1980-1997**	**1978-1993**	**1980-1998**	**1980-1995**	**1980-1990**	**1979-1998**
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 increased sharply 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 as 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 2.13 shows the annual growth rates.
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 points 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 (note that the population of households changed at the same time: smaller size and more singles). This should be kept in mind when interpreting the sign of findings below.

Figure 2.13 Annual growth (%) of average household expenditures, complete and restricted, and for three decile-levels of the distribution of complete expenditures



2.6.3 Explaining changes in demand

As the last part of this section on consumer demand, we discuss the possible explanations for the changing patterns that have been observed, particularly for the demand for services:

- 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).

Table 2.10 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

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[21] and

[21] 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.

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 2.10 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, can explain 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 appear to explain very little indeed. This is an amazing finding given the radical 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. In addition, the possible changes may not primarily affect the goods-services division. Perhaps two-earner households buy another car first to go to work before going to a restaurant or hiring domestic services. Finally, the effect to be considered directly below, budget levels (total expenditures), may have eaten away the effect of increased employment.

Table 2.11 Budget elasticities, restricted expenditures

Country	**US**	**DE**	**UK**	**FR**	**ES**	**NL**
Year	**1980**	**1978**	**1980**	**1995**	**1980**	**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

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 2.11. 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 noticed above.

The explanatory role of income inequality was investigated with the help of the Theil index, again based on total household expenditures. The Theil index appears to show very little movement over time and is significantly different from the USA only for the Netherlands. Greater inequality may imply that high-income households can command more low-paid services. However, 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.

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 appear to be rather large in our findings. In the UK prices explain almost two-thirds of the 9 percentage-point increase in spending on services. There are also major effects for France and Germany. For the three other countries, however, the effects are more limited – less than one-third in Spain and the Netherlands and somewhat more in the USA. Apparently, 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 a consistently defined consumption pattern seem to have to do more with rising expenditures and shifts in relative prices as well as in preferences than 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 these 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 in other parts of the project.

2.7 The inter-industry division of labour

This part of the study was conducted by **DEMPATEM**'s input-output team: Mary Gregory and Giovanni Russo, with the assistance of Justin Van de Ven and Sarah Voitchovsky[22].

2.7.1 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?

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

2.7.2 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 input-output team performed a series of simulations varying product-specific final demand by standardized amounts within each country. The **DEMPATEM** Working Paper #10 provides more detail. 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 effects of additional spending across products and years. Table 2.12 summarizes the results, which are comparable within the countries.

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.[23] 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 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 2.14). Over time these patterns look fairly stable, except for Spain, where outsourcing from manufacturing to services increased substantially. It is remarkable that

[23] 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.

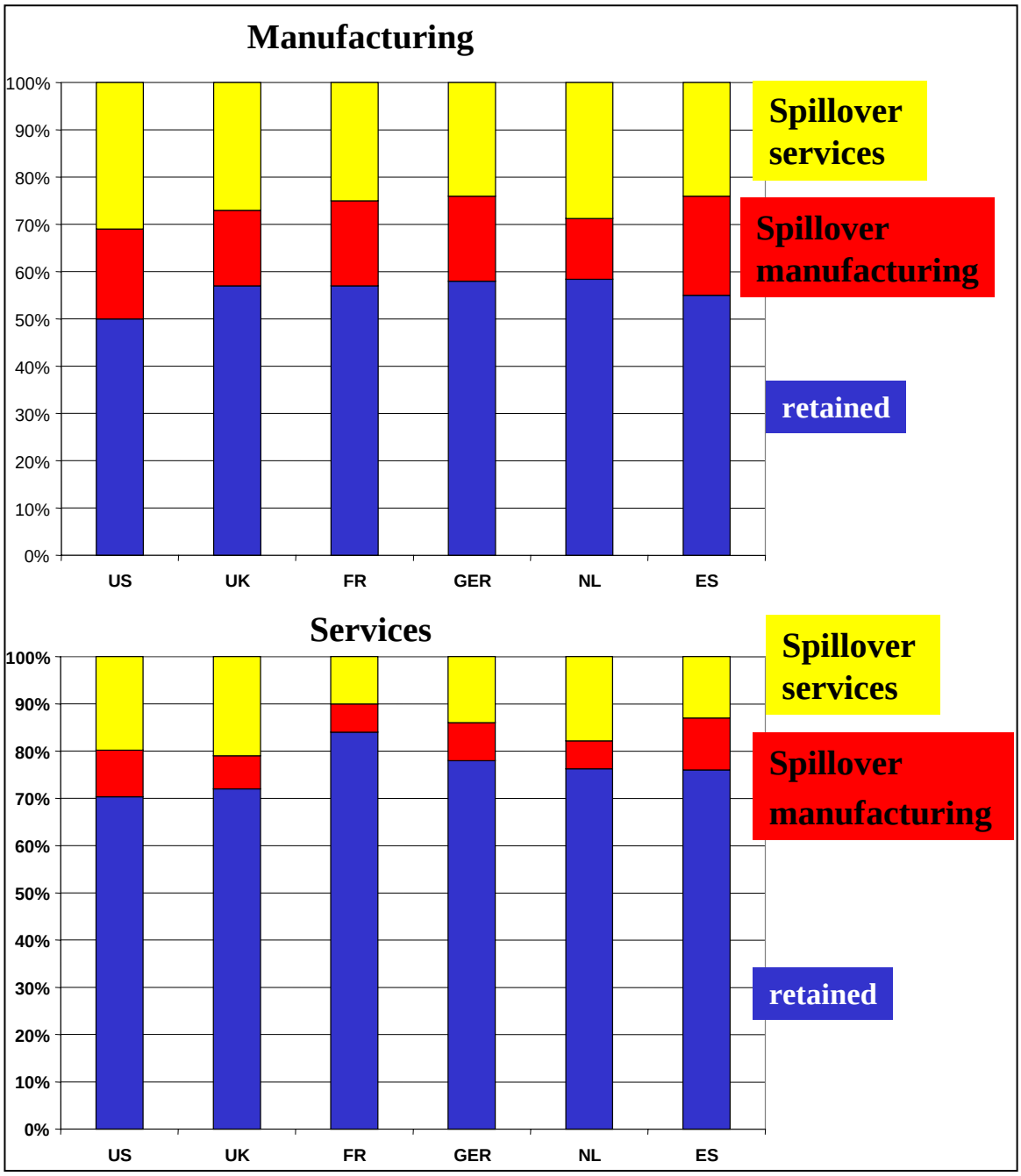
the employment effects of outsourcing from manufacturing differ from the value-added shares actually outsourced from manufacturing to employment, which are higher in Europe than in the USA indicating a different mix of intermediate services on both sides of the Atlantic or that value added per person in US intermediate services is lower than in Europe (Russo and Schettkat 2001).

Table 2.12 Employment Creation of a Standardized Increase in Final Demand for Various Products, Industry (Manufacturing, Utilities, Construction) =100

	US		**UK**		**FR**	
	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
	DE		**NL**		**ES**	
	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

Figure 2.14 Distribution of employment of demand increases, manufacturing and services



Source: based on Gregory and Russo, 2004

2.7.3 Counterfactuals of 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.

2.8 Wages, productivity, demand and the employment gap

Even if consumption patterns (Section 2.6) and production structures (Section 2.7) were the identical across countries employment patterns could 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 sections, 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 section. It is based on the work done by Andrew Glyn, Joachim Moeller, John Schmitt, Michel Sollogoub and Wiemer Salverda with the assistance of Alisher Aldashev, Maxim Bouev, David

Hollanders, and Sarah Voitchovsky. The **DEMPATEM** Working Paper #12 provides more detail about the research and its results (Glyn *et al.* 2004).

The focus is the sector of distribution services. This is based on the following considerations:

- Distribution services is a major contributor to the gap between European and American employment rates.
- 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.
- 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.
- 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 section 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.

2.8.1 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.

Table 2.13 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.

To approach this we have compared the patterns of employment and wages for the USA and four of our European countries using microdata sets[24] that allowed to go back to the end of the 1970s. Distribution services comprise 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 LFS data the employment

[24] 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.

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 the end of the 1970s, grew over the period from 1.3 to 1.7 percentage-points of the population (Table 2.13).

Table 2.14 Employment characteristics in retail, selected years
Per cent of average for the economy, dependent employment, full-time equivalents*

		Women	Youth (15-24)	Part-time (<35hrs)	Skills			Average wage	<1/3	Average wage low skilled
					Low	Middle	High			
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)

Table 2.14 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, employment in US retailing does not seem to be an extreme case. When it comes to skills, however, there *is* a striking difference[25]. 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

[25] 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.

increasingly holding back the employment of the low skilled in this industry which internationally appears as archetypically low skilled.

The right-hand panel of Table 2.14 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 wage 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[26].

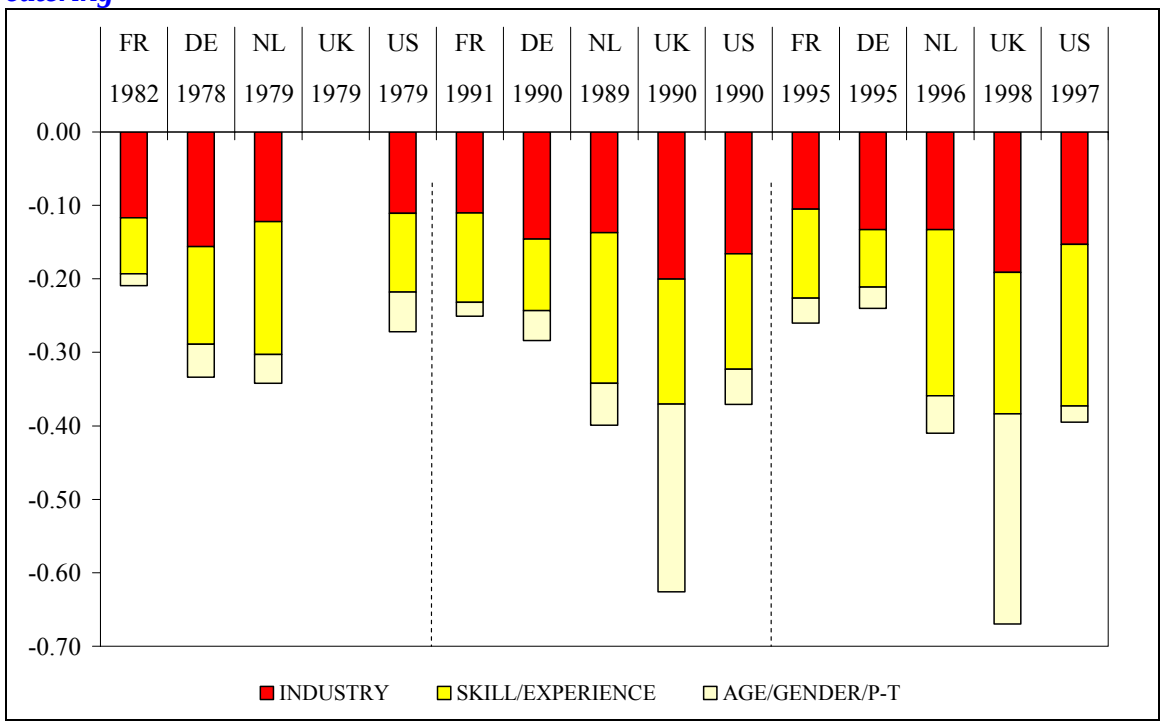
The picture of retailing employment derived from this analysis is far from straightforward. In some respects it fits well with the regulation/wage compression story but the pattern overall hardly meshes in with this. To try and get behind this rather bewildering pattern we turn to a more detailed analysis 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

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

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 2.15 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.

Figure 2.15 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 2.15 Pay penalties (%) of retailing by level in the wage distribution

	US			**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

Table 2.15 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 *smalle*r 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.

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[27].

Table 2.16 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%)[28]. 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.

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[27] 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

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.

[28] 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 2.16 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*
		US 1979				**DE-W 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**
		US 1997				**DE-W 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**
		FR 1982				**NL 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**
		FR 1995				**NL 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.

2.8.2 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[29], 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 2.17 (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 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.

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 Wal-Mart 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[30].

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[29] Fuchs, 1968, Chapter 5.

[30] 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

Table 2.17 Growth of hourly labour productivity and capital/labour ratios
Annual average (%)

	Productivity			Capital/labour		
	Distri-bution	*Retail trade*	*Hotels & catering*	Distri-bution	*Retail trade*	*Hotels & catering*
US						
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
FR						
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
DE-W/DE						
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
NL (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

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 2.17, 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

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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

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[31]. 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.

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 2.18) for capital intensity in distribution services in total and in retail.

Table 2.18 Capital/labour ratios, levels in 1999
x 1000 per person employed (1996 $)

	US	DE	FR	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)

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

[31] 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).

picture of higher capital intensities in continental Europe nor of the higher or faster growing labour productivity which should be associated with it.

Table 2.19 Hourly product wages, annual averages (%)

	Distribution	*Retail trade*	*Hotels & catering*
US			
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
FR			
1970-79	4.6		2.7
1979-90	1.2		-0.2
1990-99	0.4		-1.8
DE-W/DE			
1970-79	4.6	4.2	1.4
1979-90	2.5	3.6	0.8
1990-99	0.1	-0.5	-3.9
NL (FTE based)			
1970-79	3.9		
1979-90	-0.6		
1990-99	1.8		

Source: calculated from Mary O'Mahony (2002) as equal to 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.

2.8.3 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 # 12 (Appendix D) such measures depend on productivity in the whole economy rather than measuring efficiency in the sector[32]. 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:

$$\frac{\text{Worked in Distribution}}{\text{Population of Working Age}} = \frac{\text{Consumption of Goods}}{\text{Pop of Working Age}} \times \frac{\text{Hours in Distribution}}{\text{Consumption of Goods}}$$

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.

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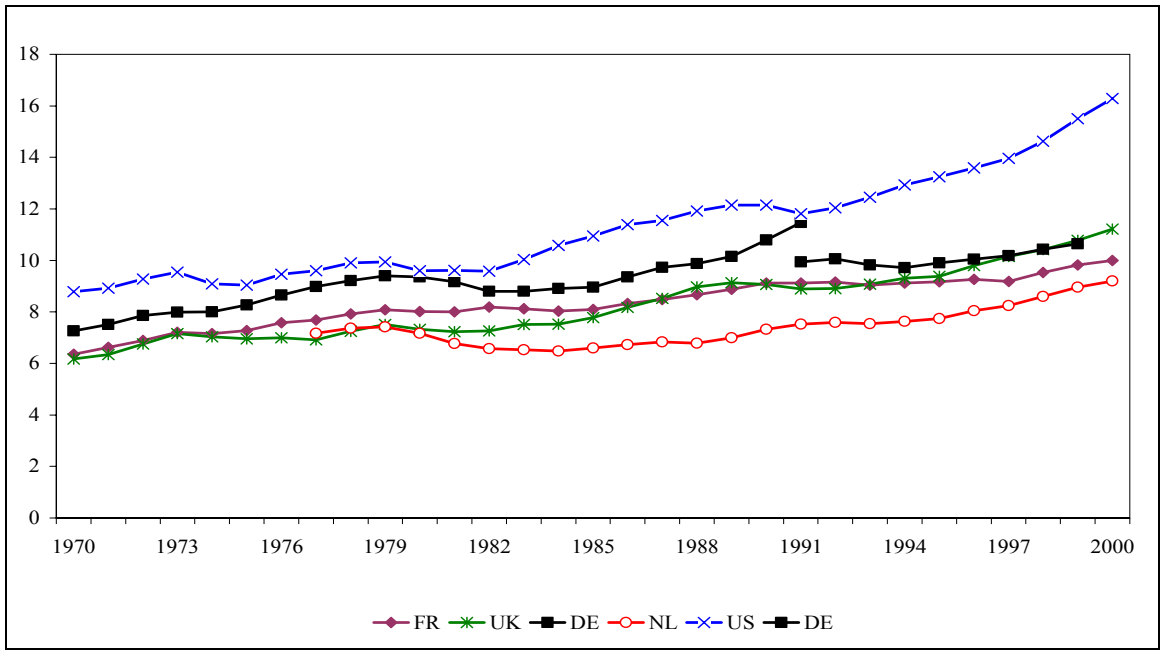
[32] See Glyn et al. 2004, Appendix C, also for data construction and other caveats.

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.

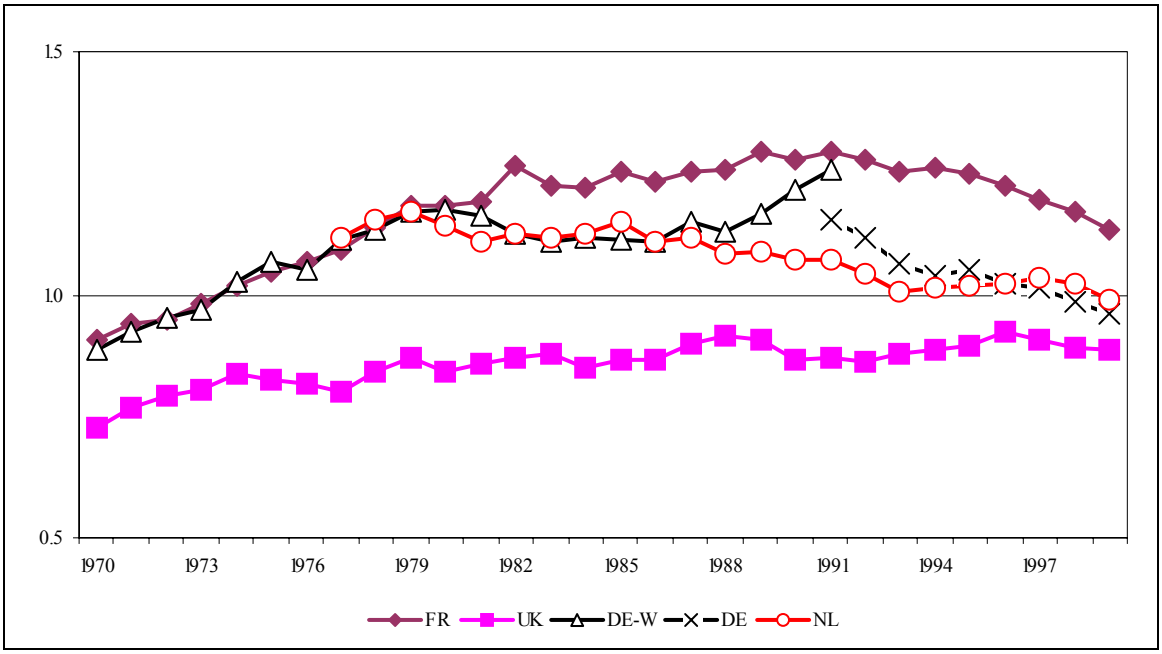
Figure 2.16 Consumer spending on goods (x1000, international prices PPP)
Per head of population aged 15-64



The above decomposition focuses on goods consumption per capita and productivity in distribution services. Figure 2.16 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 up 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 2.17 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 hour worked in distribution services, are shown relative to the US level in Figure 2.17. 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[33]. 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.[34] High French productivity exacerbates the employment gap with the USA, whereas lower productivity in the UK offsets the impact of lower consumption per head.

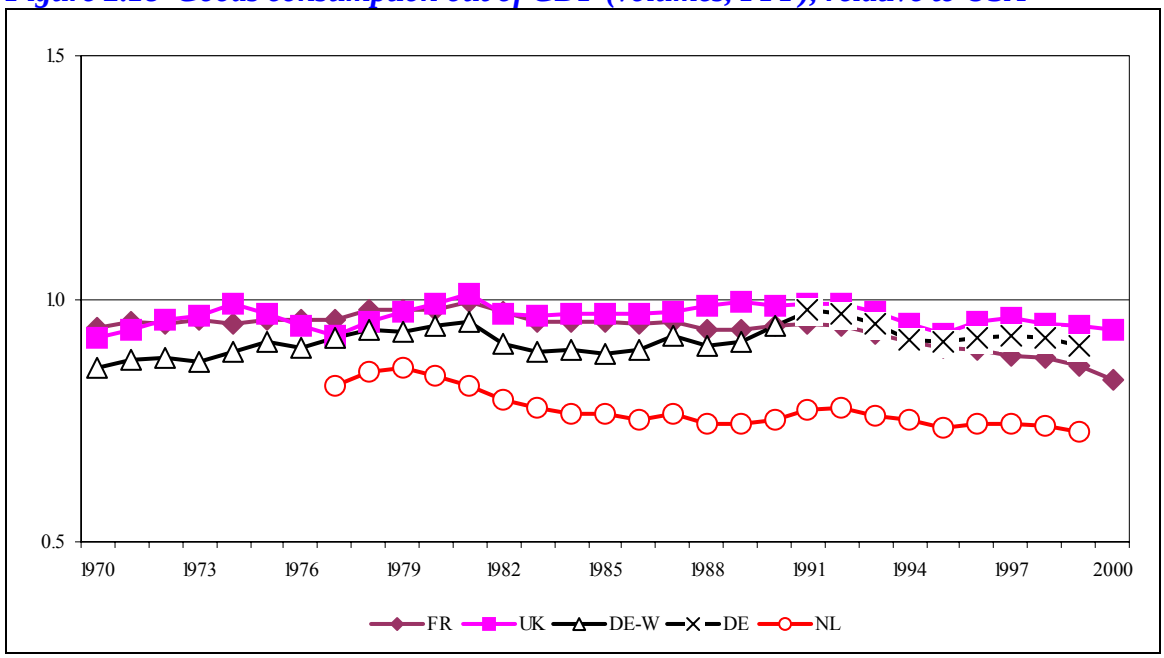
The influence of rising productivity relative to the USA before 1990, and the persistent very low level of goods consumption stand out as the dominating influences on employment in distribution services. In the period 1990-1999 consumption per head of the population of working age grew around 15% slower in both France and Germany than in

[33] 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.
[34] 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.

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.

Figure 2.18 Goods consumption out of GDP (volumes, PPP), relative to USA



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 2.18): 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.

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.

Table 2.20 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

A simple way of summarizing these results is to tabulate (Table 2.20) 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.

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 2.20 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 to believe that it will be well captured in the measures available, and so it seems clearer to 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.

2.8.4 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 wages and employment in retailing suggests that differences between the USA and Europe are not consistently pointing 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 by specific constraints on the services sector itself.

3. Conclusions and Policy Implications

At the end of the work a number of conclusions could be drawn. The first set relates to the specific questions asked by the project at the start, the second set has a more general analytical significance. The policy implications are the subject of the third section.

3.1 Specific conclusions

First, we return to the six major **DEMPATEM** questions which were presented as part of the research strategy of the project in the methodology chapter, Section 2.3, and we list for each the answers that were found.

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 percentage-points but all six countries show a trend towards more services in final demand.
- There is a clear trend towards a higher share of services in final demand. Though using constant instead of current prices flattens this trend 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 larger size of the service sector in the USA is found using different data sets. Also as a share in value added the service sector in the USA is larger than in Europe.
- At the aggregate level services show a rise in relative prices whereas 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 services in Europe, where they are usually provided on a mixed public-private basis. By contrast, other services, especially 'market services' have substantially lower relative prices in the USA compared to Europe.
- 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 productivity of services, 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:
  - The taste for services is more pronounced
  - Income is higher (but relative prices and indifference curves are similar)
  - Relative prices of services are lower (but indifference curves are homothetic across countries)
  - The structure of final demand components is more in favour of services
  - 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, including labour participation, income inequality and consumer attitudes play?

- 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 it should serve 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 USA; 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 account for 10 to 20 per cent of the observed change in consumption patterns.
- The analysis of the budget surveys confirms 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 witnesses a declining share.
- Rising income inequality between households has virtually no effect on the patterns of consumer demand. In most countries, including the US, households with low expenditures register 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 remains 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 are employment-friendly in the European economies, but employment-neutral in the USA.

- The changing pattern of consumption is significantly less employment-friendly everywhere. The changing mix of consumption is, in general, 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 to the USA 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 is more strongly job-creating and productivity gains are 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 in Europe than in the USA.
- The services gap per se increases relatively little and notably decreases 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 should apply 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 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 provide no convincing evidence that American retailing can profit from higher wage flexibility. Notably, no particular contribution is found for low- skill pay differentials nor for pay differentials at the bottom end of the wage distribution (2nd decile). Industry 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 estimated for distribution show 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.

3.2 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

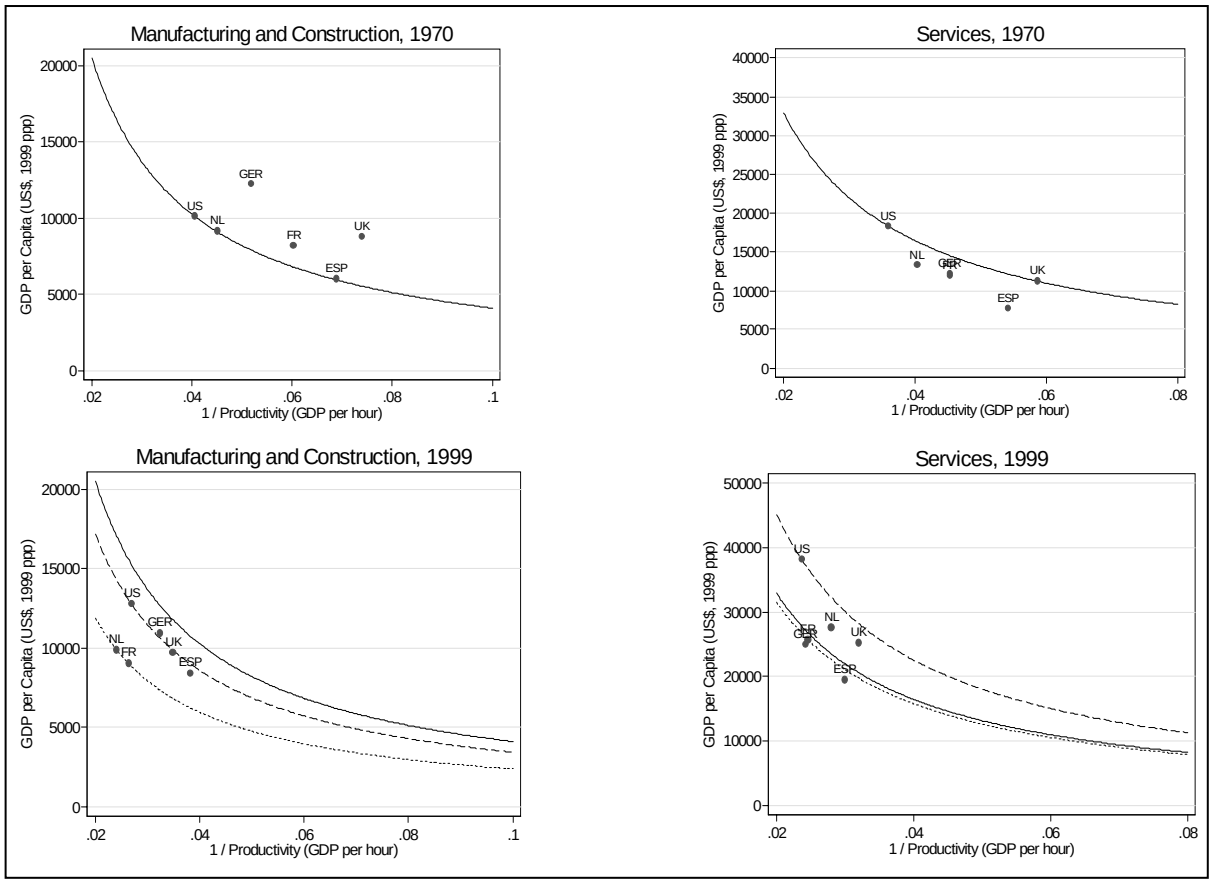
for services rose in all countries. This is one fact of the **DEMPATEM** research established with various methods and data sources at the aggregate and the micro level. Higher income per capita seems to lead to a higher demand for services even if price trends are eliminated, which challenges earlier findings that the service share in final demand 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 certain services through public provision paying a price that remains unobserved in budget surveys.

All '**DEMPATEM**' countries experience similar trends with respect to service sector expansion and a relative decline of manufacturing. Figure 3.1 summarizes these trends in supply-demand space for industry (manufacturing plus construction and utilities) and services. All countries experience productivity increases in manufacturing and in all countries the supply effect is not fully compensated for by expanding demand, resulting 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 is stronger in **DEMPATEM**-Europe than in the USA. However, not the demand for manufacturing goods fell – this increased even slightly – but it expanded less than the production capacity (productivity) increased.

For services the pattern is different. All countries experience increases in service demand of roughly similar size – i.e. they move up vertically – but in the European countries productivity gains are stronger than in the USA and although those countries reduce average working hours in services, the service-employment rate (persons employed in services per head of population) rises less than in the USA in France, Germany and Spain and roughly equally in the Netherlands and the UK which still leaves these countries with lower service-employment rates than the USA.

Not so much the increase 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, for a substantial part thanks to rising 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

Figure 3.1: Manufacturing and Services in Stylized Demand-Supply Space, 1970, 2000



Source: computations are based on OECD data and O'Mahony 2002

than in the European countries, roughly in line with the difference in GDP per capita and with differences in labour input (roughly divided 50:50 to differences in 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?[35] This seems to be the major puzzle in comparison to the European economies.

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 occur only in 'housing', 'health', 'education' and 'hotels/ restaurants'. In the latter Europeans consume only about 50 per cent of the US consumption, and in the former categories its is more (see Table 3.1). These are

[35] 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 2003).

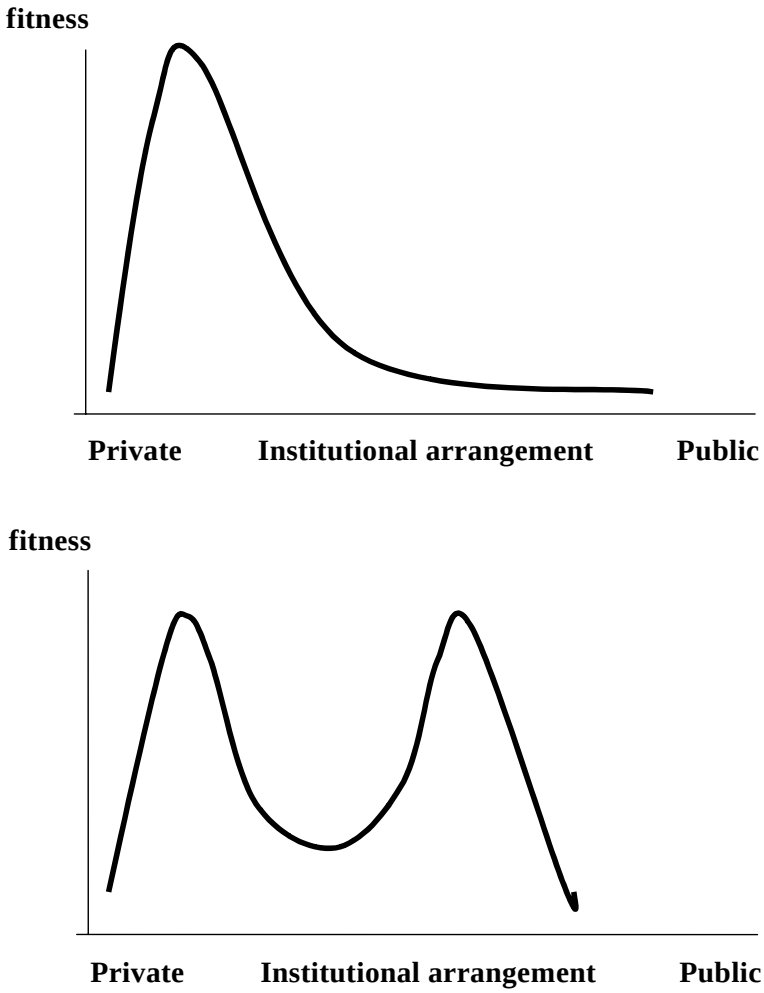
consumption figures expressed in purchasing power parities (PPP) meaning that they differ from expenditures for these products expressed in national currencies. Consumption in PPPs is higher (lower) than expenditures in national currencies if national prices are lower (higher) in the country compared to the reference price. Prices may differ between countries because the wages paid in an industry are lower or because production is more efficient. Therefore, the regulated European health sector may actually produce more efficiently than the American private health sector and that seems to hold for many insurances as well – this obviously does not fit the 'deregulated-markets-are-most-efficient ideology' (Stiglitz 2003).

Table 3.1: Consumption levels per capita by category, 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	162.3	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 narcotics	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 furnishing, equipment and maintenance	100	66.7	66.6	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.

Figure 3.2: Uni-modal and multi peaked economic fitness and institutions landscapes



Source: inspired by Freeman (2000).

From an individual's perspective contributions to social insurances take the form of 'taxes' especially if social insurance leads to a high degree of redistribution among the insured. In a privately organized system the link between service and expenditure is more direct and contributions to private pension insurance are regarded as private expenditures. European economies have tried to curb the expansion of the welfare state with arguments such as 'welfare states become unaffordable', 'welfare states destroy incentive' or 'private initiatives need to be enforced' etc. 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 no more than one institutional arrangement is optimal this assertion holds. If the efficiency-institutions landscape has multiple peaks – when several institutional arrangements can produce similar outcomes – the transition may be very

costly because reaping the gains may require a long walk downhill and through valleys. This is illustrated in Figure 3.2.

DEMPATEM has established evidence for commonalities but also for differences in consumption and final demand patterns in the USA and Europe. The differences in patterns seem to be 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 until the end of the last century, European productivity had caught up with US levels and the US-Europe income and expenditures gap roughly corresponds to the labour-input gap. This 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 the USA raised labour input so much and why the European countries fail to achieve higher especially higher participation but these issues are beyond the **DEMPATEM** program.

State-of-the-art

Compared to the state-of-the-art in the analysis of the evolution services employment (for details see Deliverable report #1), particularly as represented by the studies of Baumol and Fuchs of some 35 years ago (see References), the **DEMPATEM** project has attempted to covers more recent periods and a larger number of countries, and also to go beyond the data used before and reap the fruits of the methodological advancements that have been made since Fuchs' book was published 35 years ago. Firstly, changes at the more aggregate level, and differences between the major final demand components (private consumption, government consumption and investment) were analysed as was, to some extent, the impact of the financing mode on private expenditures (public vs. private), price trends, and aggregate income and demand trends. Secondly, a detailed micro-data analysis of the structure of private consumption was provided, while looking also at household structure and labour force participation. Thirdly, 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 NIPAs, was accounted for. Finally, **DEMPATEM** analyzed whether changes and inter-country differences in the composition of the workforce within industries, as well as in capital deepening and in hours worked, could contribute to the explanation of differences in service sector

employment. In all respects progress has been made. In summary, Baumol's law, which states that the observation of a growing share of services in the economy is a reflection of lagging productivity change in this sector and the ensuing larger increases in its prices, was qualified in two respects: first, there certainly also is real services growth going beyond this law, and, second, effects are not uniform across countries.

With its focus on the role of patterns of demand the **DEMPATEM** research has gone beyond the state-of-the-art of the analysis of the diverging American and European economies. In recently decades the analysis has predominantly focused on the supply side. The new results support the importance of pattern differences – the employment gap appears to be strongly skewed, as virtually all of it is found in trade, hotels and catering – that is, market-provided consumer services – on the one hand and education and health care – that is, (mainly) publicly provided consumer services – on the other hand. However, this gap was already present at the start of the period considered here, around 1970, and the skewed nature was only revealed during the period as a result of an extremely rapid restructuring of European industry and agriculture that brought productivity levels close to or sometimes even above American levels. As to demand **DEMPATEM** found only a limited role for its pattern compared to its level. Patterns of final demand as well as patterns of individual consumer household demand and changes in the structure of this household population had only very modest effects. Though relative prices may also play a modest role, no contribution was found for inflexibility of wages as a supply-side hindrance for the retailing, that is the sector most exposed to market forces in this respect retail. The much lower general level of income is the single most important factor explaining the employment gap here. This in turn relates to a much lower input of (hours of) labour in Europe. It is an essential issue for further research to consider whether shorter working hours and growing part-time employment reflect the preferences of the European population for leisure. To the extent that this is the case, the transatlantic employment difference should not be treated as a gap to be overcome ("catch up and surpass") but as a positive economic outcome instead.

Robustness

How robust are these conclusions? Naturally, the validity of any conclusions relies on the validity of both the underlying data and the analysis, and in a case like this also on the

international comparability of data definitions and treatment. National datasets had to be used for significant parts of the cases: the analysis of consumer budgets and of wage differentials. International datasets for input-output data and employment were taken from the OECD but they still rest on national data sources and some deviations from common definitions may remain or they may be incomplete for certain variables in certain countries. Another important aspect may be the calendar time to which the data relate. First, from a cross-section point of view, this is not always uniform between countries and/or types of datasets. Second, in a longer time perspective, it may also mean possible inconsistencies within the same dataset for different years - the longer the period covered the greater this risk. Even the internationally most important data of the national accounts system are still developing.

Having said that, it seems plausible that – from the point of view of the data - the outcomes of the aggregate analysis and the input-output analysis are most robust. The employment analysis using OECD LFS data sometimes had to patch missing data from other sources such as the OECD's STAN Industrial database. We have gone to great length to use the national consumer budget survey data and wage data in as uniform a way as possible but some problems may remain unnoticed. On an encouraging note it can be said that other research depends as much on these data as ours and in that sense differences in data cannot be not an important sources of differences in results.

From an analytical point of view, new approaches have been developed in the input-output analysis and the wage analysis. Aggregate analysis and consumer budget analysis has largely followed common practice in the field.

As a consequence, we would put mote trust in outcomes the more aggregate their level: e.g. the role of demand levels and categories, the employment effects of services and goods production, the skewed nature of the employment gap. At the more detailed level, however, e.g. the specific effects of household composition or wage differentials, results may be more sensitive. Here we have tried to explain the approach in detail and challenge others to pose the same questions about the role of demand and come up with new results.

3.3 Policy implications

Some significant implications for thinking about policies can be drawn from the results of this research. The research addressed a topic that is central to European and national policymaking for employment and the economy and at the Concluding Conference the results were presented to an audience including high-level policy makers.. However, it is important to realise that the scientific research was the prime aim of the project not the policy implications. The **DEMPATEM** research cooperation was based on scientific interest and concerned a detailed bundling of individual efforts within a wider framework.

First we discuss some implications at the general level, then we turn to a number of more detailed conclusions.

General

At the most general level the results underline the importance of paying more attention to the role of the product demand in the economy instead of the strong and almost exclusive focus on institutions such as the minimum wage, social benefits, employment protection and the like that can be found in many scholarly contributions and in policy documents such as the *OECD Jobs Study* of 1994 and its successors and is reflected in the popular press. Both the level and the structure of demand are found to be important here.

There seems to be an implicit agreement among many economists and politicians that the European product-demand structure generates less employment and that adopting the American structure would help. However, the **DEMPATEM** analysis concludes the opposite. The results provide substantial food for thinking twice about changing the institutions concerning wages in Europe as the result offer good reasons to doubt the alleged inflexibility of the European economies in this respect.

The transatlantic employment gap is strongly skewed in that it is entirely concentrated in consumer services, market as well as non-market based, or retail, hotels and catering on the one hand and education and health care on the other. There is now hardly any gap for business services. The common view that the US economy has a strong advance in services is right but it should be qualified immediately as being primarily related to consumer services.

It is also important to realise that this does not imply that the growth of European employment in services as such has lagged behind – this growth roughly matched the American evolution. The gap in consumer services appeared to be already present in 1970 and, on balance, has hardly changed since. What happened instead is that this gap became 'unveiled' as a consequence of the decline in manufacturing and agricultural employment in Europe corresponding with strong productivity growth. Any analysis of the gap should go beyond generalised approaches to institutional constraints and account for the skewed nature and any policy addressing the employment disadvantage should be argued with its effects on the special character of the gap.

To the extent that most of the productivity-enhancing restructuring of the European economy is behind us one can be optimistic about the future: services are growing at about the same pace and a widening of the gap is not to be expected. This is aptly demonstrated in the rapid narrowing of the employment gap in recent years since the end of the period covered in this research. US employment rates fell significantly more than European; at the same time US labour force participation rates also fell, implying a withdrawal from the labour market and a mitigation of unemployment rates, while in Europe labour force participation rates tended to increase implying a steady unemployment problem.

Given the extreme speed of the European decline of manufacturing and agriculture, which surpassed the corresponding American decline in earlier years, and that this passed without considerable social turmoil one can also be optimistic about the flexibility of the European economy and the effectiveness of the social model that accommodated those ousted from employment.

In addition, the market-based part of the "missing" consumer-services employment (retail, hotels and catering), which are largely low-paying sectors that should be most sensitive to the increasing effect on costs of the potential constraining effects of the regulation of (low) wages, appeared to show wage differentials in Europe that are similar to the USA and not significantly smaller as the bite of wage regulation would predict. In particular, no larger differential of this sector to the rest of the economy was found for low-skilled labour. Given the strongly skewed nature of the employment gap this is an important finding.

Fourthly, the steadily higher consumer-services employment in the US relates to higher spending out of income and higher income out of more labour. In other words, to a large extent the product-demand gap relates to a gap in employment participation or conversely a gap in leisure time. To put it simply, Americans work many more hours on average than Europeans and that gap has substantially grown in recent decades as European hours fell because of a general shortening of annual full-time working hours and the growth of part-time employment. High on the agenda for future research should be the issue of the preferences for leisure instead of paid work in Europe. It was beyond the scope of **DEMPATEM** to tackle this question though one of its coordinators, Ronald Schettkat, has contributed to the debate together with Richard Freeman. Leisure potentially is a positive economic achievement which should be valued as such and not a priori be given the stigma of an employment gap. Europe's institutions may have enabled collective action to obtain results in this field where individual action in the USA can make no progress (cf. Alesina *et al.*, 2005*)*.

This implies that adopting the American approach in an attempt to solve the unemployment problem is no free lunch. It may come at a cost to saving as well as welfare. More strictly, simply adopting the American pattern of consumer spending will not help at all. according to the input-output analysis of the project. Therefore it is an open question what the concrete format of a new policy should be: stick to savings and leisure and redistribute (un)employment or instead stimulate demand per se.

Last not least, if it were concluded that either one or the other policy should be stimulated the lessons of the 1980s and 1990s concerning demand seem to indicate that national governments in Europe are no longer able to do this on their own. The strong and growing interlinkages between the national economies seem to imply that the European level would be much more appropriate.

Specific

Some of the detailed results obtained by the project do have some detailed policy implications. Fist, household job behaviour deserves more attention especially in relation to employment participation. Demographic change and the employment participation of certain types of households vary considerably between countries and over time. By implication, household joblessness does. Long-run data are scare and it is important to

note that the data sources used here (consumer budget surveys) are not particularly suited for this analysis. Building on the present analysis more attention should be paid in future research to the effects of household income inequalities on spending levels and patterns.

Second, consumer budget surveys have demonstrated their usefulness as a tool for analysis. They risk to be abolished because of their high costs and the fact that cheaper alternatives may be found for their prime use, the generation of price index numbers. In particular, the surveys should account for owner-occupied housing more uniformly across the EU. In our detailed correction for the lack of this in certain surveys, housing was found to be the most important category of consumer spending in any country but also, bedcause of its sheer size, as one showing significant international differences. This is all the more important as such spending on housing is usually ranked as a service not a good.

Finally, more attention should be paid improving integrated European employment and wage statistics. The project had to resort to national statistics as no systematic wage and employment data are available at the European level (see also Salverda *et al.*, 2001a and 2001b). At the same time the coverage of industry and enterprise can be improved.

4. Dissemination

For dissemination different tracks have been used.

First, the **DEMPATEM** project was advertised on the website[36] of the European Low-wage Employment research network (**LoWER**) from the start, mentioning the full work plan and the participating members. The project was also mentioned on several occasions in the Newsletter distributed by the **LoWER** network.

LoWER is also financially supported by the Fifth Framework Programme (HPSE-CT-1999-021). The link between both undertakings is motivated by the fact that **DEMPATEM** was initiated by members of **LoWER** to cover an important and interesting part of the network's work plan, the demand for low-skilled consumer-oriented services. Both have the same coordinator.

For a first dissemination of its provisional results **DEMPATEM** organised a conference on jointly with the **LoWER** network in April 2003 in Amsterdam. Comments were given by invited discussants and other conference participants.

The main occasion for dissemination was the concluding high-level scientific conference organised by the project and held in Seville, Spain, in November 2003. To solicit their comments full results were presented to an audience of leading scholars and policy makers and several keynote contributions on the issues at stake were made by invited scholars (see detailed programme in Annex D).

Eileen Appelbaum, Bart Verspagen, Pascal Petit, Thijs ten Raa, Ekkehart Schlicht, and Alan Manning discussed the results in each of the four areas covered by the project: aggregate analysis, input-output analysis, consumer budget analysis and employment and productivity analysis respectively.

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[36] http://www.uva-aias.net/lower.asp?id=82&lang=en&menu=LoWER. The website is hosted by the Amsterdam Institute for Advanced Labour Studies of the University of Amsterdam.

In three keynote lectures Tony Atkinson, Robert Gordon and Richard Freeman presented their views on important aspects of the economic comparison between the USA and Europe:

- *Changing Inequality: The US versus Europe,*
- *Differences in Growth Patterns: Europe Chasing the American Frontier,* and
- *Markets, Institutions, Employment*.

Finally, from the international world of policy making comments on the overall results and their potential significance were contributed by Jürgen Kröger, John Martin, Georg Fischer, Friedrich Buttler and Ronan O'Brien.

After the conference revised versions of the papers were edited as **DEMPATEM** Working Papers and disseminated through the **LoWER** website. These papers include all detailed reports on the study of consumer spending patterns for each of the six participation countries, France, Germany, Netherlands, Spain, United Kingdom and United States which were summarised in one comparative paper on consumption at the Seville conference. To enhance the potential audience the working papers are also posted on the Research Papers in Economics website http://ideas.repec.org/s/aia/dempat.html, in July 2004. Here they can be viewed and downloaded for free – over the second half year of 2004 this occurred 940 times.

A most important achievement of dissemination after expiry of the project has been the incorporation of the major **DEMPATEM** results in *Employment in Europe Report 2004* (Chapter 3) of the European Commission. It is a direct effect of the three dissemination events in Amsterdam, Seville and Antwerp.

After expiry of the **DEMPATEM** project period the results were presented at a special dissemination conference organised by the **LoWER** network at the end of its second phase of activities in Antwerp in May 2004. Three concise papers covering part of the project's results and written for a wider audience were contributed:

- Demand and Production Structure (Mary Gregory, Oxford and Giovanni Russo, Utrecht)

- Employment in Distribution, Productivity and the Growth of Consumption (Andrew Glyn, Oxford)
- Retail Employment and Wage Rigidities (Wiemer Salverda, Joachim Moeller, Regensburg , Michel Sollogoub, Paris-I)

The papers haven been published as chapters in the book *Low-wage Employment in Europe: Perspectives for Improvement,* edited by Ive Marx and Wiemer Salverda (ACCO Publishers, Leuven, Belgium, February 2005). (see Box 4.1)

Box 4.1 Contents of LoWER/DEMPATEM dissemination publication

Low-wage Employment in Europe: Perspectives for Improvement

IVE MARX AND WIEMER SALVERDA (EDITORS)

Contents

The concluding and hopefully most effective act of dissemination will be the publication of a book that includes adapted versions of the working papers, which have also been updated with respect to employment and wage outcomes, together with four invited contributions (see Box 4.2).

At the time of writing the editing process is nearly finished and the book will be offered for publication to a major scientific publisher.

Box 4.2 Contents of DEMPATEM book manuscript

The American-European Gap in Service Demand and Employment

WIEMER SALVERDA, RONALD SCHETTKAT AND MARY GREGORY (EDITORS)

Contents

5. Acknowledgements and References

5.1 Acknowledgements

The **DEMPATEM** project gratefully acknowledges

- the cooperation of discussants and keynote speakers:

  Nadim Ahmad, OECD
  Rob Alessie, Utrecht University
  Eileen Appelbaum, Rutgers University
  Tony Atkinson, Oxford
  Friedrich Buttler, ILO
  Georg Fischer, EC ESA
  Richard Freeman, Harvard University, NBER and LSE
  Robert Gordon, Northwestern University and NBER
  Duncan Ironmonger, University of Melbourne
  Jürgen Kröger, EC ECFIN
  Bart Los, University of Groningen
  Annamaria Lusardi, Dartmouth College
  Alan Manning, CEP and LSE
  John Martin, OECD
  Ronan O'Brien, EC RESEARCH
  Mark Pearson, OECD
  Pascal Petit, CEPREMAP
  Thijs ten Raa, Tilburg University
  Ekkehart Schlicht, University of Munich
  Juhana Vartiainen, FIEF Trade Union Institute for Economic Research
  Bart Verspagen, Eindhoven Technical University

- the support of the OECD in providing the Input-Output tables of the six countries for the 1990s;

- the support of the participating institutions for accommodating the meetings.

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Annex A. Papers

A.1 Papers presented at DEMPATEM workshops and Concluding Conference

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

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

A.2 DEMPATEM Working Papers

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*

A.3 Book

Wiemer Salverda, Ronald Schettkat and Mary Gregory (editors)

The American-European Gap in Service Demand and Employment

For details, see Box 4.1.

Annex B. Deliverables

Work Plan deliverables

No	*Title*	*Planned Month*	*Result or change**	*Dissemi-nation*
1	State-of-the-art review of the literature, situating the issues	12	DR#1, January 2003; overview paper in DR#2	PU
2-10	9 draft Workshop Papers, presented in Madrid	8	DR#2, December 2002	RE
11-16	3 Theme Papers, comparing the six countries on each of the three issues consumption methodology paper aggregate trends paper general overview paper	19	Consumption, input-output, employment and overview papers presented April 2003; Revised versions presented October 2003; Final versions published as DEMPATEM Working Papers, Spring 2004	RE RE PU
17-22	6 country papers (France, Germany, Netherlands, Spain, UK and USA) on consumption		Presented October 2003; Final versions published as DEMPATEM Working Papers, Spring 2004	RE PU
	4 first Referee Comments (Ahmad, Alessie, Los, Lucifora)	22	Presented April 2003	RE
23	Concluding Conference	22	October 2003	RE
23-27	4 Referee Comments/Chapters (Baumol, Freeman, Fuchs, Gordon)	22	Presented October 2003; Delivered as Book Chapters, December 2003	RE PU
28	Book (copy for the publisher)	26	January 2005	PU
29	Dissemination conference (with **LoWER** network)		May 2004	PU
30	Dissemination book (with **LoWER** network)		February 2005	PU

*) DR = deliverables Report

RE = restricted PU = public

Annex C. Overview of plenary project meetings

1) Kick-off Meeting, University of Oxford, Oxford, 6-7 July 2001

2) 1st Workshop, BRAGA, 25 October 2001

9:00 Overview, our study in other 'grand designs' (Ronald Schettkat)
10:30 Input-Output (Mary Gregory, Giovanni Russo)
14:00 Consumption, individual and aggregate (everybody)
16:15 Productivity and skills within industry (Wiemer Salverda, Andrew Glyn)
18:00 Final discussion, next meeting, next steps (Wiemer Salverda, Ronald Schettkat)

3) 2nd Workshop, Université Paris-Sorbonne, Paris, 1-2 March 2002

1 March

9:00 1st plenary session: Overall Project
a. Ronald Schettkat, Presentation on aggregate demand and consumption
11:00 2nd plenary session, on employment
b. Wiemer Salverda, Presentation on employment aspects
13:30 3rd plenary session: Consumption Descriptives
c. Adriaan Kalwij, Presentation on consumption patterns by household characteristics, the housing and other problems and survey comparisons
d. Maria Luengo & Javier Ruiz-Castillo, Presentation on issues I and II of their contribution
16:00 4th plenary session: Consumption Analysis
e. Adriaan Kalwij, Presentation on first analytical thoughts
f. Maria Luengo & Javier Ruiz-Castillo, Presentation on issues III and IV of their contribution
g. François Gardes, Christophe Starzec and Patrice Gaubert, Presentation on a method for determining elasticities illustrated on the French data

2 March

9:30 plenary session: Input-output Analysis
(i) internationally comparative (=OECD)
h. Giovanni Russo, Presentation on first results for OECD 1970s-1990
i. Mary Gregory, Presentation on OECD mid-1990s data
(ii) national analysis, more detailed
j. Giovanni Russo, Presentation on Netherlands and Germany
k. Mary Gregory, Presentation on UK
11:00 6th plenary session: Overall Project Coherence, How do we tie things together? General discussion
14:00 7th plenary session: Arrangements, Expected output for Madrid meeting
14:30 Group Sessions

Consumption, input-output and employment groups meet separately to discuss and solve problems in detail, and make arrangements for further research and the mutual provision of data

17:00 Informal plenary meeting for detailed inter-group arrangements

4) 3rd Workshop, Universidad Carlos III, Madrid, 5-6 July 2002

5 July

Before lunch (10-13):
First Ronald will elaborate on Baumol's disease
Second Andrew and Wiemer will discuss international comparisons of labour productivity in services

After lunch (14:30-18:30) each of the six consumption papers will be presented (no more than 30 minutes each) stressing the most striking results and the main caveats. Technicalities and related problems will be dealt with outside this plenary session.

1. Spain
2. US
3. UK
4. FR
5. NL
6. DE

6 July

If time and our energies allow the I-O results will also be presented on Friday, otherwise we start with this on Saturday morning 9:30. Two hours are available.
Subsequently (11:30-13:30) we will have a debate on the coherence of the project and the different strands of research, ending with general conclusions and decisions on the continued
research and other activities.
Finally, the separate groups will meet to discuss the implications for their work.

5) 4th Workshop, University College London, London, 15–16 November 2002

15 November

9:30 Welcome

9:45 **DEMPATEM** in perspective

Ronald presents his state-of-the-art overview. After this we have a first discussion on the general **DEMPATEM** goals

11:30 Employment

Andrew and Wiemer present their paper on employment, demand and productivity in the distribution sector. After this we discuss options for and needs of further comparisons and explanations of productivity differentials

14:30 Input-output

Mary and Giovanni present their results for discussion

16:45 Organisational matters

This discussion which will concern the nature and timing of the further activities and the final output of the project as a whole. Also the organisation

of the individual contributions (e.g. procurement of further assistance) can be discussed.

16 November

9:30 Consumption

Steve presents his first comparative overview. Adriaan presents his paper on the Netherlands and counterfactuals to the US and on his attempt to link up with input-output for NL.

11:30 **DEMPATEM** State of Progress

We consider what we know and don't know and would still like to know in the different areas and discuss their coherence and the strategy to get to know what we like to know.

14:00 **DEMPATEM** State of Progress 2

If we need to reconsider and/or have not finished the organisational discussion of the meeting at the end of Friday afternoon we continue here.

16:00 Group meetings

6) 5th Workshop, Amsterdam Institute for Advanced Labour Studies, Amsterdam, 25-26 April 2003

The Workshop was part of the international conference on *Consumption and Employment in the US and Europe* which was organised in co-operation with the European Low-wage Employment Research network **LoWER**.

Friday 25 April

9:00 Welcome

9.15 Session 1
Ronald Schettkat and Joep Damen (Utrecht University)
Recent Trends in Demand Patterns and Employment
Discussant: *Juhana Vartiainen* (FIEF Trade Union Institute for Economic Research, Stockholm)

10:45 Invited speaker
Mark Pearson (OECD-DEELSA)
The Public and Private Provision of Social Services

11:45 Session 2
Mary Gregory (Oxford University) and *Giovanni Russo* (Utrecht University)
The Employment Impact of Differences in Demand and Production Structure
Discussants: *Bart Los* (University of Groningen)
Nadim Ahmad (OECD Paris) (invited)

14:00 Invited speaker
*Duncan Ironmonger (*Households Research Unit, Department of Economics, University of Melbourne, Australia)
The Market and the Household Economy

15:30 Session 3
Julián Messina (European Central Bank)
Sectoral Structure and Entry Regulations
Martin Zagler (Vienna University of Economics & Business Administration and Free University of Bozen–Bolzano)
Aggregate Demand, Economic Growth and Unemployment
Manfred Kremer and *Thomas Westermann* (European Central Bank)

Consumer Confidence and Stock Prices in the Euro Area: Is there a Relationship – and Why?
Kea Tijdens (AIAS, Universiteit van Amsterdam)
Effects of Increasing Female Labour Market Participation on the Employment in Household Services
Marco Leonardi (LSE and IZA)
Product Demand Shifts and Wage Inequality

Saturday 26 April

9:30 Session 4
Adriaan Kalwij and *Wiemer Salverda* (AIAS, Universiteit van Amsterdam), *Javier Ruiz-Castillo* and *María José Luengo-Prado* (Universidad Carlos III, Madrid), *Laura Blow* (IFS, London) and *Stephen Machin* (University College London), *John Schmitt* (EPI Washington), *Christophe Starzec* and *François Gardes* (Université Paris I-Panthéon Sorbonne), *Marijke van Deelen* and *Ronald Schettkat* (Utrecht University)
Changes in Consumption Patterns over the Last Two Decades in Six OECD Countries: Some Explanations
Discussant: *Rob Alessie* (Utrecht University)

12:00 Invited speaker
Annamaria Lusardi (Dartmouth College, Hanover New Hampshire)
Household Savings and Public Policy in the US and Europe

14:00 Session 5
Cândida Sofia Machado (Instituto Polytécnico do Cávado e do Ave) and *Ana Rute Cardoso* (IZA and Universidade do Minho)
Female Labour Force Participation and Household Consumption Patterns
José Martins Barrata and *Luis Miguel Pacheco* (ISEG and CIEF, Technical University of Lisbon)
Wealth Effects on Consumption: Evidence from Some EU Countries
Rob Alessie (Utrecht University)
Savings and Pensions in the Netherlands
François Gardes (CREST-LSM, Université Paris I-Panthéon Sorbonne)
Riemannian Consumers

16:30 Session 6
Andrew Glyn (Oxford University), *Wiemer Salverda* (AIAS), *Michel Sollogoub* (Université Paris I-Panthéon Sorbonne), *John Schmitt* (EPI, Washington) and *Joachim Moeller* (University of Regensburg)
The Employment Gap and Differences in Productivity, Skills and Wages
Discussant: *Claudio Lucifora* (Università Cattolica Milan)

7) Concluding High-level Scientific Conference, Occidental Hotel, Seville, 17-18 October 2003

Demand Patterns and Employment Growth in Europe and the United States: Consumer Demand, Production Structure and Employment

October 17, Friday

9:30 Welcome

9:40-11:10 Session 1
Chair: Dr Mary Gregory, Oxford University
DEMPATEM in Perspective: Recent Trends in Demand Patterns and Employment
Professor Ronald Schettkat and Mr Joep Damen, Utrecht University
Comments by:
Professor Eileen Appelbaum, Rutgers University New Jersey
Professor Bart Verspagen, Technical University Eindhoven, and MERIT Maastricht

11:30 – 13:00 Session 2
Chair: Professor Michel Sollogoub, Université de Paris I Sorbonne
The Employment Impact of Differences in Demand Structures and in the Industry Division of Labor
Dr Mary Gregory and Dr Giovanni Russo, Oxford and Utrecht University
Comments by:
Professor Pascal Petit, CEPREMAP Paris
Professor Thijs ten Raa, Tilburg University

15:00 – 17:00 Session 3
Chair: Dr Ronan O'Brien, European Commission
Comparative Service Consumption in Six Countries
Professor Steve Machin and Dr Adriaan Kalwij, University College London and Centre for Economic Performance, and Amsterdam Institute for Advanced Labour Studies

Based on country studies
France: Professor Francois Gardes and Dr Christoph Starzec, Université de Paris I Sorbonne, CNRS-TEAM/INSEE
Germany: Ms Marijke van Deelen and Professor Ronald Schettkat, Utrecht University
Netherlands: Dr Adriaan Kalwij and Dr Wiemer Salverda, Universiteit van Amsterdam
Spain: Professor Javier Ruiz-Castillo and Dr Maria Luengo-Prado Universidad Carlos III Madrid, North-Eastern University
United Kingdom: Dr Laura Blow and Professor Steve Machin, Institute for Fiscal Studies, University College London, London School of Economics
United States: Dr John Schmitt, 17th-Street Economics Washington
Comments started by Dr Mary Gregory and other project members as the two invited discussants were unable to attend in a late stage

17:30 – 18:30 Session 4
Chair: Dr. Wiemer Salverda, Amsterdam Institute for Advanced Labour Studies
Changing Inequality: The US versus Europe
Professor Sir Tony Atkinson, Oxford University

October 18, Saturday

10:00 – 11:30 Session 5
Chair: Professor Javier Ruiz-Castillo, Universidad Carlos III Madrid
Interindustry Differences in Productivity, Skills and Employment

Mr Andrew Glyn, Dr Wiemer Salverda, Professor Michel Sollogoub, Professor Joachim Moeller and Dr John Schmitt, Universities of Oxford, Amsterdam, Paris I Sorbonne and Regensburg, and 17th Street Economics Washington
Comments:
Professor Ekkehart Schlicht, University of Munich
Professor Alan Manning, Centre for Economic Performance and LSE

12:00 – 13:00 Session 6
Chair: Dr John Schmitt, 17th-Street Economics Washington
Differences in Growth Patterns: Europe Chasing the American Frontier
Professor Robert Gordon, Northwestern University and NBER

14:30 – 16:30 Session 7
Demand Patterns and Employment Growth: Conclusions
Dr Wiemer Salverda, Professor Ronald Schettkat, University of Amsterdam, Utrecht University

Comments by:
Dr Jürgen Kröger, European Commission, DG ECFIN
Dr John Martin, OECD, Directorate ELS
Dr Georg Fischer, European Commission, DG ESA
Professor Friedrich Buttler, ILO
Dr Ronan O'Brien, European Commission, DG Research

17:00 – 18:00 Session 8
Chair: Professor Ronald Schettkat
Markets, Institutions, Employment
Professor Richard Freeman, Harvard University, NBER, London School of Economics

In addition to the plenary meetings several workshop meetings were held for the individual areas covered by the research.

Annex D. DEMPATEM Research team

D.1 Co-ordination:

Utrecht University, Ronald Schettkat
Amsterdam University, Wiemer Salverda

D.2 Research team by institution

Oxford University

Mary Gregory	(Input-output)
Andrew Glyn	(Employment)
Justin Vandeven,	(Input-output)
Sarah Voitchovsky	(Employment)
Maxim Bouev	(Employment)

Utrecht University

Ronald Schettkat	(Aggregate, Consumption)
Giovanni Russo	(Input-output)
Joep Damen	(Aggregate)
Marijke van Deelen	(Consumption)
Lara Yocarini	(Aggregate)

Amsterdam University, Amsterdam Institute for Advanced Labour Studies AIAS

Wiemer Salverda	(Employment, Consumption)
Adrian Kalwij	(Consumption)
David Hollanders	(Employment)

University of Paris I, Sorbonne

Francois Gardes	(Consumption)
Michel Sollogoub	(Employment)
Christophe Starzec	(Consumption)
Robert :Lantner	(Input-output) (withdrew for health reasons)

University of Madrid, Carlos III

Javier Ruiz-Castillo	(Consumption)
María Jose Luengo Prado	(Consumption)

Washington. 17th Street Economics

John Schmitt	(Consumption, Employment)

University College London

Stephen Machin	(Consumption)

Laura Blow (at the IFS)	(Consumption)

Universität Regensburg

Joachim Moeller	(Employment)

D.3 Research team by area of research

Input-Output Analysis group

Mary Gregory	(Oxford)
Robert :Lantner	(Paris) (withdrew for health reasons)
Giovanni Russo	(Utrecht)
Sarah Voitchovsky	(Oxford)
Justin Vandeven,	(Oxford)

Analysis of Employment and Productivity group

Alisher Aldashev	(Regensburg)
Maxim Bouev	(Oxford)
Andrew Glyn	(Oxford)
David Hollanders	(Amsterdam)
Joachim Moeller	(Regensburg)
Wiemer Salverda	(Amsterdam)
John Schmitt	(Washington)
Michel Sollogoub	(Employment)
Sarah Voitchovsky	(Oxford)

Aggregate Analysis group

Joep Damen	(Utrecht)
Ronald Schettkat	(Utrecht)
Lara Yocarini	(Utrecht)

Consumption Analysis group

Laura Blow	(IFS, London)
Marijke van Deelen	(Utrecht)
Francois Gardes	(Paris)
Adriaan Kalwij	(Amsterdam)
María Jose Luengo Prado	(Madrid)
Stephen Machin	(UCL, London)
Javier Ruiz-Castillo	(Madrid)
Wiemer Salverda	(Amsterdam)
Ronald Schettkat	(Utrecht)
Christophe Starzec	(Paris)
John Schmitt	(Washington)