

Executive Summary

1.1 Overview

This report provides information on expected sectoral change up to the year 2005, at both the Member State and the EU level. It answers key questions such as:

- In which sectors are output and employment growth most likely to come in the medium-term, and which sectors are expected to decline?
- How are sectoral specialisations likely to change across Europe and in the Member States?
- What are the main drivers acting on the different sectors across Europe that cause these trends to emerge?
- How sensitive are these views to changes in the world outlook, in particular the slowdown in world activity?
- What are the likely sectoral effects of other events currently happening, or likely to happen in the near future, such as EMU, EU Enlargement, the development of E-commerce, and post-Kyoto environmental strategies for Greenhouse Gas Abatement?

1.2 Methodology

The model The study makes use of an econometric input-output model of Europe (E3ME¹) to provide the necessary structure for making the forecasts of up to 40 sectors defined under the ESA 1995 system of accounts up to 2005.

In addition, the model is flexible enough, and has indeed been further modified, to be able to run scenarios on a range of themes described below in order to develop the sectoral implications of what are often treated in the literature as macroeconomic events.

Part 1 – macro/sectoral analysis The first part of the study report results from the baseline forecast, with a set of output, trade, and employment indicators for 40 sectors over history (1990-94), recent history (1995-99) and the forecast period (2000-05). Forecasts of Structural Indicator Tables have also been constructed, covering a number of the Key Indicators provided by Eurostat, and covering areas such as economic background, innovation and research, and economic reform. A high and low growth variant is also produced to provide an indication of the upper and lower bounds for EU industry growth around the baseline forecast, together with a discussion of the key assumptions that underpin the central projection.

Part 2 – thematic chapters The remaining part of the study focuses on the impact of individual macroeconomic changes that are either currently happening, or are likely to occur in the near future. These are:

- Economic and Monetary Union
- EU enlargement

¹ An Energy-Environment-Economy Model for Europe – see <http://www.camecon.com/e3me/index.htm> for more information.

- Global commodity prices
- Technological progress
- Europe's labour supply situation
- Sectoral effects of environmental policies
- Energy issues

Because of the complexity of the issues involved, some of the thematic chapters involved more than one scenario, eg the analysis of e-commerce under the Technological Progress theme involved a separate analysis of B2B and B2C effects. In total, 17 scenarios were run – the table below provides a brief summary, including the two-letter abbreviations assigned to the model runs.

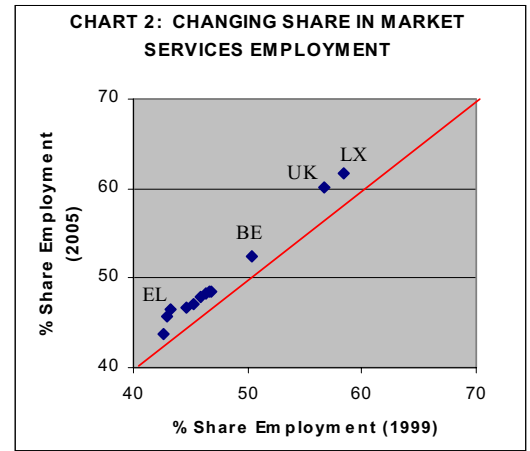
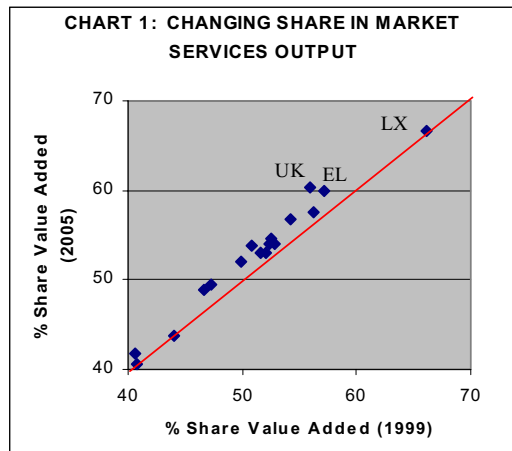
TABLE 1: SUMMARY OF THEMES AND MODEL SCENARIOS	
Thematic Topic	Specific Scenarios and Names
Economic and Monetary Union	1 Pure price and wage transparency (UU) 2 As above, with additional restructuring effects (UR)
EU enlargement	1 External trade effects (ET) 2 As above, with additional migration effects (EM)
Global commodity prices	1 High oil price (PH)
Technological progress	1 R&D led growth (TR) 2 R&D in ICT sectors (TT) 3 e-commerce effect - B2B (TE) 4 e-commerce effect - B2C (TC)
Europe's labour supply situation	1 Lisbon scenario (LL)
Sectoral effects of environmental policies	(a) Auctions 1 Multilateral - all sectors (AC) 2 Multilateral – four sectors (AS) (b) Grandfathering 3 Multilateral - all sectors (GC) 4 Multilateral – four sectors (GS) 5 Unilateral schemes - all sectors (GU) 6 Unilateral schemes – four sectors (GV)
Energy issues	1 Single energy market (NS)

1.3 Key messages from the sectoral analysis

This section summarises the findings from Part 1 of the study that focused on the macro/sectoral baseline forecast and high/low growth sensitivities.

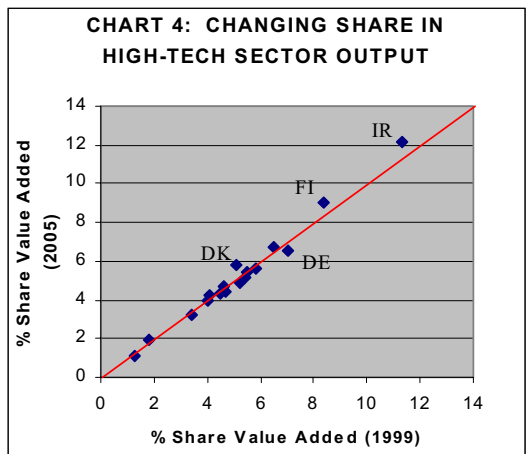
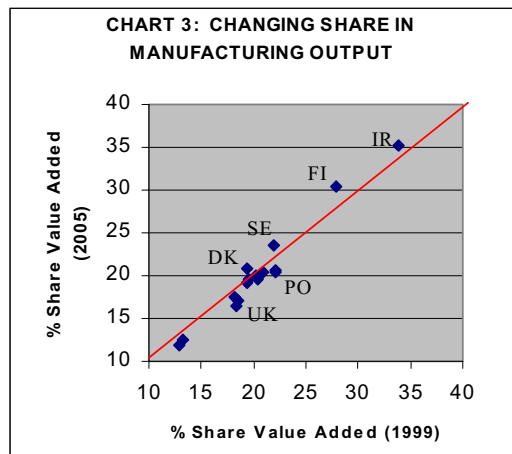
Shift towards market services There is a continued shift towards market services as a share of total economy-wide value-added and, still more so, employment (see Charts 1-2). This reflects the effects of several forces:

- globalisation, i.e. the decline in traditional manufacturing as imports increase
- technological changes and income elasticities (some services are now driven by technological change, and some are income elastic)
- slow productivity growth in some services
- business organisation and outsourcing of business services (e.g. facilities management, security, computing services)
- liberalisation in some services, e.g. communications and postal services



Traditional activities Less prosperous Member States retain a higher share of traditional activities, e.g. agriculture, traditional manufacturing, and also construction due to higher infrastructure investment.

Manufacturing growth and high-tech activities Manufacturing growth is stronger in Member States where more dynamic high-tech sectors are located, although short-term weakness is likely to keep growth in such activities more in line with the rest of manufacturing than in the longer term (see Charts 3-4).



Sensitivity to high/low growth Sensitivity to high/low growth is greatest for:

- investment-related sectors
 - (a) tangible (all engineering and motor vehicles sectors, basic metals, non-metallic mineral products)
 - (b) intangible (computing, business and financial services)
- high-tech sectors which would suffer deferral of investment plans (e.g. electronics, communications, computing and pharmaceuticals)
- highly income-elastic activities, e.g. durables expenditure and also transport services.

1.4 Key messages from the thematic scenario analysis

This section summarises the findings from Part 2 of the study that focuses on the thematic scenarios.

Scenario	% Difference from Base by 2005	
	Value-Added	Employment
UU	0.04	0.00
UR	-0.01	0.01
ET	0.05	0.00
EM	0.07	0.02
PH	-0.71	-0.78
TR	0.04	0.05
TE	0.02	0.02
TT	0.09	-0.05
TC	0.13	0.17
LL	0.07	0.16
AC	0.17	0.21
AS	0.18	0.23
GC	-0.07	-0.03
GS	0.05	0.10
GU	-0.58	-0.28
GV	-0.10	0.46
NS	0.11	0.03
Low-growth	-0.49	-0.12
High-growth	0.47	0.12

Table 2 summarises the magnitude of the output and employment effects of the different scenarios as % differences from base by 2005, with each scenario given the 2-letter label listed in Table 1. Clearly, the magnitude of the employment effects is quite small, with the majority of scenarios giving results below 0.5% difference from base by the end of the simulation period.

The largest effect comes through the high oil price scenario (PH) which yields output and employment differences both around 0.8% below base.

This is in contrast to a group of variants, including the EMU scenarios (UU and UR), both R&D-led growth scenarios and EU enlargement scenarios (ET and EM), which all record a negligible effect for both indicators. This is explained by the fact that the effects of both EMU and R&D are expected to be long term and cumulative, and the effects in the first 4 years are relatively small. In the EU enlargement study, the accession effects are only introduced from 2004, so longer-term (ie post-2005) effects cannot be captured within the current forecast horizon.

- Economic and Monetary Union** The main long-term benefit, which shows up to some extent over the period 2002-2005, is the reduction in inflation, but also a slight increase in the GDP growth rate. The tradable sectors tend to be those that gain the most through increase trade, with price inflation in manufacturing being reduced. However other sectors, e.g. marketed services, benefit from lower costs of inputs. The initial effects on competitiveness will tend to be partly eroded over time by mergers and acquisitions leading to more market power by larger more specialised firms.
- EU enlargement** The overall effects are very small since enlargement is assumed to take place in 2004. The increases in GDP from enlargement are concentrated in those Member States and sectors with substantial trade with the CEEC area, and the more dynamic regions and sectors in the European economy, including Austria, Finland, Ireland and Portugal and machinery, electronics and pharmaceuticals. The main losing sectors are textiles, clothing and footwear.
- Migration leads to an increase in the EU labour force of nearly 0.2% above the reference case.
- Global commodity prices** The scale of the impact of oil prices on inflation is now smaller than in 1970s because oil has a smaller share of input costs in nearly all sectors, and structural change has been in favour of less energy-intensive sectors such as electronics, pharmaceuticals and service industries in general. The scenario is for a \$10 per barrel increase in oil prices in 2002, remaining at that level then falling back to \$20 per barrel by 2005. The consequent fall in output is in the range of 0.5-1.0% for the EU but varies across different countries. Effects on employment are only slightly stronger but for consumer prices they are much larger, reaching 3% above base in 2004. The strongest effects are found in 2003-04, thereafter they decline. Sectoral effects also vary, depending on industry structures and energy consumption intensity.
- Technological progress** The R&D simulations show clearly that large gains in output over a period of 5 years ahead do not result from more R&D-intensive spending patterns by companies during the same period. The effects take longer to build up than that and, depending on the underlying state of the economy. It is quite possible that apparently perverse effects might arise in the short and medium terms

because of the impact of the switch from other expenditures in order to make room for the extra R&D.

Promoting faster growth of R&D is important in the long term but substantial increases in European GDP and employment over the next five years will not be generated by R&D initiatives taken now. Policy pronouncements that exaggerate the employment benefits of R&D spending over the medium term thus run the danger of undermining the overall commitment to developing a knowledge-based economy by raising expectations unduly. Both e-commerce simulations result in an increase in GDP, though the employment effects are different. B2B is expected to have a negative effect on jobs as there is a substitution away from labour inputs to (now cheaper) material inputs. In contrast, although the B2C results show a worsening trade balance with faster import growth driven by stronger consumer demand, the benefits to the domestic economy are also felt through higher employment growth.

Europe's labour supply situation The role of labour supply in facilitating or impeding a more rapid growth of the European economy needs to be kept in perspective. Certainly it is possible to envisage a scenario in which much higher output and employment growth might be achieved. It then makes sense to examine whether or not the labour supply side would need to be brought into play in order to avoid unemployment dropping to levels that would choke off the expansion through skills constraints and higher inflation. However, if labour supply rises in a situation where unemployment had not reached such low levels, its impact will be quite muted. With a projected rate of EU unemployment of 7.6% in the baseline scenario, this is the outcome for the EU economy over the medium term that is most likely to conform to reality.

Sectoral effects of environmental policies These scenarios focus exclusively on various ways of achieving an assumed interim Kyoto target for the EU by 2005. EU greenhouse gas emissions are expected to fall below the Kyoto 1990/95 base by about 2% by 2005, leaving another 2% to be achieved by further policies and measures if an interim target of 4% below the Kyoto base is to be achieved. The reasons for this slow growth in emissions are:

- (a) the expected reductions in non-CO₂ greenhouse gases, especially in methane and NO₂
- (b) the relatively high levels of energy prices compared to those expected in 1999
- (c) the reductions in EU GDP growth expected following the September 11 attack on the US .

Multilateral schemes using tradable CO₂ allowances show that achieving the interim Kyoto target will have very small effects on the EU economies and EU industries. The price of allowances for the EU multilateral schemes was found to be about 8 euro/tonne CO₂ in 2002 rising to about 10 euro/tonne CO₂ in 2005. The grandfathering of emission allowances is projected to lead to higher profits in the sectors receiving the allowances, but also to lower GDP (0.1%) and higher inflation (up from 2.3% pa to 2.4% pa). The lower GDP also means that the price of the allowances is lower in the all-sector, grandfathered scheme than in the auctioned scheme, if the same GHG target is to be achieved. A mixture of grandfathering and auctioning of allowances could in principle

maintain the profits of carbon-intensive sectors at reference-case levels without leading to significant effects on GDP or inflation.

Unilateral actions in the form of fragmented CO₂ allowance markets in the EU required to achieve interim Burden-Sharing targets by 2005 appear to be costly and inefficient. There are two reasons for this finding. First there are differences in the costs of CO₂ mitigation across Member States, so that trading of allowances across Member States reduces costs. Second, some Member States are on track to achieving the targets by 2005 without new policies and without a common allowance market, their implied surplus CO₂ allowances cannot be traded.

Energy issues The scenario involves convergence of electricity prices to those of France and Denmark, Member States with high interconnectivity and low prices. The overall effects on economic activities are rather modest. Increases in GDP from the base case are mostly below 0.1%. Impacts on inflation are stronger, with prices falling by over 0.2% from base for the EU in most years. There are also higher GHG emissions, by about 0.5%. All these effects are in general growing over time. However, despite the modest economic impact it is important to note the positive effects on employment levels, particularly in the manufacturing sector, which indicate that policy is likely to have an overall benign effect.