

# research paper series

Globalisation, Productivity and Technology



Research Paper 2009/14

*The Impact of Globalisation on the Euro Area Macroeconomy*

by

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### **Acknowledgements**

The views expressed in this paper are those of the authors only and do not necessarily reflect those of the European Central Bank or the ESCB. We are greatly indebted to U. Baumann, S. Dees, K. Forster, G. Pula, A. Patarau, R. Pereira, F. Skudelny, D. Taglioni for their invaluable inputs and comments. Special thanks are also due to G. Kenny, F. di Mauro and H.J. Klöckers for their invaluable advice and comments, as well as other members of the External Developments and Euro Area Macroeconomic Developments Divisions of the ECB. All remaining errors are, of course, the sole responsibility of the authors.

# The Impact of Globalisation on the Euro Area Macroeconomy

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## **Abstract**

The general acceleration of trade globalisation over the last decade –or a growing interdependence of economies via trade, production and financial market linkages– has engendered several macroeconomic implications for the euro area. This paper focuses on assessing the key impacts on the euro area macroeconomy through an analysis of prospective channels, stylised facts and review of relevant empirical findings. It takes a long-term perspective over a period predominantly characterised by the rapid growth of globalisation, notwithstanding the more recent interruption to the growth of global trade and capital flows that emerged towards the end of 2008 associated with the global financial turmoil and the associated downturn in global economic activity. Following an overview of the salient aspects of globalisation, which highlights the increasing openness of the euro area in terms of both trade and capital flows as well as the global reduction in transportation and information costs and the rise in the effective global supply of labour, the paper then assesses the external impacts of globalisation on the euro area, focussing on trade performance, export specialisation and import prices. It then investigates euro area domestic adjustment to globalisation with a supply-side focus, analysing separately impacts on productivity, labour markets and prices.

**J.E.L. classification:** F16, F43, E31, O52

**Keywords:** Globalisation, trade performance, export specialisation, productivity, labour markets and prices.

## **Outline**

- 1. Introduction.*
- 2. Overview of key aspects of globalisation.*
- 3. Globalisation and euro area trade and competitiveness.*
- 4. Globalisation and euro area productivity.*
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- 6. Globalisation and euro area prices.*
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## Non-technical summary

With a growing interdependence of economies via trade, production and financial market linkages, globalisation has become an increasingly important phenomenon over the last decade, notwithstanding the more recent interruption to the growth of global trade and capital flows that emerged towards the end of 2008 associated with the global financial turmoil and the downturn in global economic activity. Indeed, these recent events demonstrate how the increased international interconnectedness of financial and product markets exacerbated the financial turmoil that began in mid-2007, while the rapid growth in “vertical specialisation” and widespread global production chains associated with globalisation contributed to the subsequent highly synchronised nature of the downturn in global trade at the end of 2008.

In this paper, we focus on two aspects of the longer-term trends of globalisation. First, we show how globalisation has increased export competition in world markets over the past decade due to the emergence of new global trade players such as China, resulting in the shrinking of export market shares of advanced industrialised economies such as the euro area, while simultaneously stimulating world demand and euro area activity. The loss in share partly depends on how similar the export product specialisation of the euro area compares to these new competitors, with evidence showing that China is rapidly moving away from labour-intensive products and recently becoming similar to the euro area by increasing its specialisation in more research-intensive goods. On the imports side, globalisation has been accompanied in the euro area by a higher share of imports of manufactured goods from low-cost countries, which has resulted in stronger growth of extra-euro area imports relative to intra-euro area trade, while also putting downward pressure on import prices and inflationary pressures. Meanwhile, this downward pressure had been partly offset by higher demand for commodities from low-cost countries resulting in high commodity import prices – which had increased significantly up until the second half of 2008 prior to declining on average since that time in the context of the downturn in global economic activity.

Second, the paper focuses on globalisation and its prospective role in shaping three broad areas of the euro area macroeconomy: productivity, the labour market, and prices. On the whole, the balance of empirical evidence suggests that globalisation alone may have had limited directly measurable aggregate impacts, but its role in shaping domestic developments remains nonetheless significant for two reasons. First, globalisation has had pronounced discernible impacts on certain areas of the economy. Second, the phenomenon of globalisation is intertwined with several other ongoing structural changes, such as technological change and its diffusion and macroeconomic policy formulation. In particular:

- Globalisation has a strong role to play in boosting productivity through facilitating total factor productivity spillovers across economies and boosting innovation in response to competitive pressures. However, euro area productivity has been weak at the aggregate level over the last decade despite growing international openness. A more detailed sectoral analysis indicates that this weakness has derived to a large extent from areas of the economy which are more sheltered from international competition, thereby hinting at a role for policies aiming at enhancing openness to such forces.
- Globalisation's impacts on euro area labour markets have been mainly visible in the form of a redistribution of employment across sectoral, occupational and skill categories. The rise in offshoring which characterises the recent phase of globalisation appears to have been associated with a clear skill bias in labour demand. As real wages across skill categories have shown little differentiation in response to this, labour market adjustment associated with such a bias has been concentrated on

employment. That said, there has been limited change in income inequality in the euro area when comparing with other advanced economies, such as the UK or US, thus far. Moreover, job losses associated with offshoring have been limited as a proportion of overall job losses in the euro area economy and, importantly, offset by employment gains elsewhere. In this vein, globalisation's contribution to an extended period of wage moderation within the euro area (for instance, through offshoring or the threat of offshoring) may very well have contributed to the strong job creation witnessed over the last decade. At the same time, the pronounced fall in the euro area wage share of income over the last decades appears to be linked not only to globalisation but to other possibly more relevant (though potentially related) factors such as technological and structural change.

- Globalisation appears to have had a small dampening effect on euro area prices on average over the 5 to 10 years leading up to around 2005 as strong relative price shocks associated with low prices of imports of manufactured goods through global supply developments on balance offset strong increases in prices of hard commodities resulting from heightened global demand pressures. While a rise in international competitive pressures may have also contributed to wage moderation in the euro area as a whole, it appears to have led to little compression on overall profit mark-ups of firms. However, as in the case of productivity, exposure to international competition plays an important role in sectoral mark-up developments. Beyond these effects, compelling evidence of a growing role for global measures of slack in the inflation process of the euro area and other advanced economies remains absent. Ultimately, then, the extent to which globalisation affects euro area inflation in the short term depends importantly on both the net effect of relative price shocks (relating to further changes in import shares and terms of trade developments, in addition to the strength and persistence of dynamics in commodity prices) along with the influence of competitive forces in driving down costs and firm markups.

## **1 Introduction**

With a growing interconnectedness of economies through trade, production and financial market channels, globalisation has become an increasingly important phenomenon over the last decade. Indeed, more recently, the increased integration of economies across the globe in both financial and product markets related to the rapid growth of globalisation has also been associated with global financial turmoil and the highly internationally synchronised nature of the most recent global economic downturn. However, taking a longer-term perspective, what distinguishes the rapid growth of globalisation over the past decade has not been falling transport costs or tariffs alone – a process which has been ongoing for decades now – but rather new production paradigms enabled by both an expansion of global productive capacity and major technological changes facilitating the access and transfer of goods, services, people and knowledge across borders. In this sense, this latest acceleration of globalisation has been inextricably linked to technological change (and, accordingly, distinguishing between the impact of these two phenomena in practice is very difficult).

The rapidly changing world implied by these forces seems to have influenced a range of developments in advanced and emerging economies alike. This paper takes a narrow view and focuses exclusively on gauging the macroeconomic impacts for the euro area though in practice, globalisation has undoubtedly also had several other equally important implications – notably for financial markets and macroeconomic policies. The paper takes a long-term perspective over a period predominantly characterised by the rapid growth of globalisation, notwithstanding the more recent interruption to the growth of global trade and capital flows that emerged towards the end of 2008 associated with the global financial turmoil and the associated downturn in global economic activity. Following an overview of the salient aspects of globalisation, which highlights the increasing openness of the euro area in terms of both trade and capital flows as well as the global reduction in transportation and

information costs and the rise in the effective global supply of labour, this note then assesses the external impacts of globalisation on the euro area, focussing on trade performance, export specialisation and import prices. It then moves to assess euro area domestic adjustment with a supply-side focus, analysing separately impacts on productivity, labour markets and prices.<sup>1</sup>

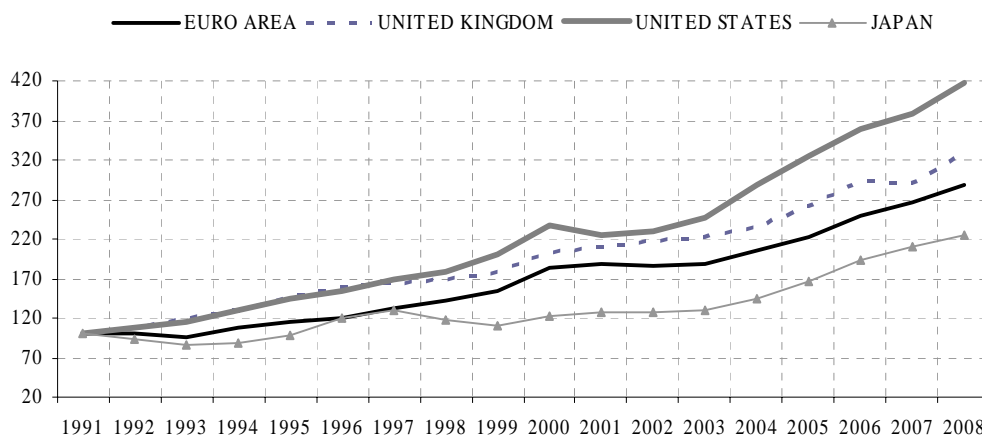
## **2 OVERVIEW OF KEY ASPECTS GLOBALISATION**

Globalisation, if narrowly defined as growing trade openness in response to falling trade and transport costs, has been ongoing for decades and in this sense is not a novel phenomenon. Over most of the last decade, however, this process appears to have accelerated, with a rapid rise across the globe in import volumes (Figure 1), which more than doubled for the euro area since the early 1990s. But more precisely defined, globalisation is the rapidly growing interconnectedness of economies also through production and financial market linkages and channels, with two broad factors underlying such a development. First, falling costs of transporting not only goods, but also services and information across borders (Figure 2) has led to changes in the production processes, most notably related to the international fragmentation of production. As pointed out by Baldwin (2006), while a “first unbundling” (or a decreasing necessity of making goods close to the point of consumption given falling transportation costs) has been ongoing for many decades, a “second unbundling” (or a decreasing necessity of performing the different stages of the production process geographically close to one another given falling communication and coordination costs) has more recently extended the first unbundling.

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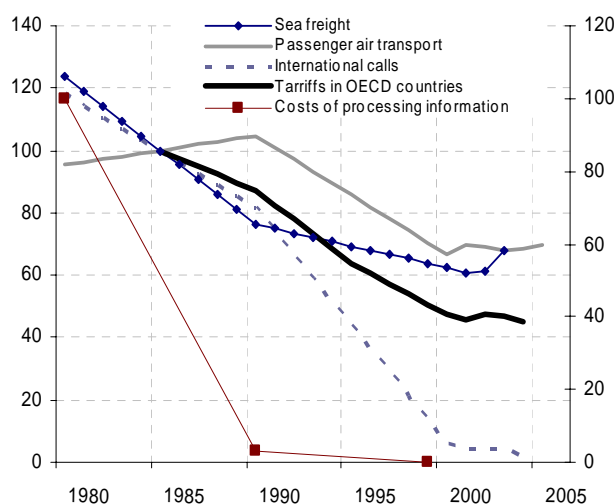
<sup>1</sup> The analysis of domestic euro area impacts of trade globalisation in this paper draws considerably from the analysis of Hiebert and Pula (2008).

**Figure 1.** Imports in industrialised countries  
(Volume index, 1991 = 100)



Source: IMF World Economic Outlook and ECB calculations

**Figure 2.** Costs of transport, information processing costs, and tariffs  
(Index, 1985-100)



Source: Price and Courmède (2007).

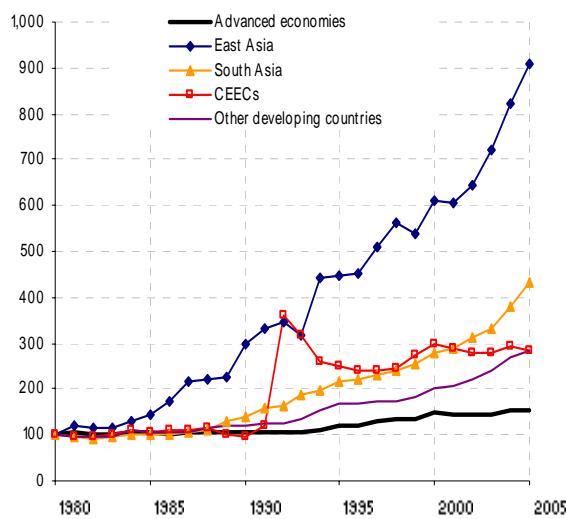
Note: Tariffs are median of national mean bound tariffs for OECD countries; sea freight is average international freight charges per tonne; passenger air transport is average airline revenue per passenger mile/US import air passenger fares; international calls is cost of a three-minute call from New York to London; costs of processing information is cost of computing an average operation (sum and multiplication).

Second, there has been a large expansion in global productive capacity on account of the rapidly increasing integration of emerging economies in international trade and production (Figure 3). These emerging market economies are frequently characterised as “low-cost” economies given their relatively lower labour cost levels when compared with advanced



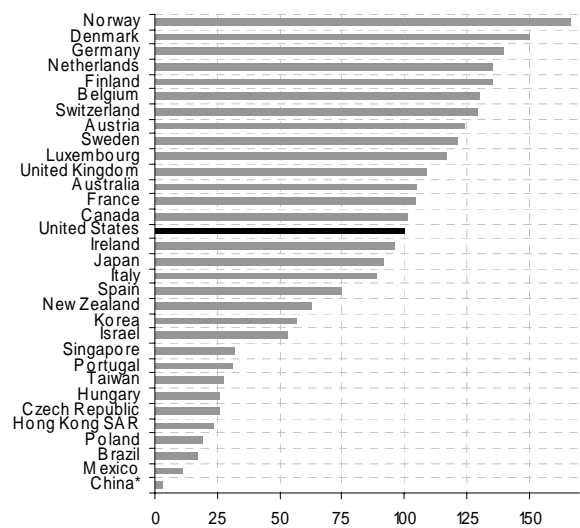
economies such as the euro area. In particular, estimates of hourly compensation costs for the manufacturing sector as a whole suggest significantly lower labour costs of economies in emerging Asia and the new European Union member states compared with the euro area (Figure 4).<sup>2</sup>

**Figure 3.** Export-weighted labour force by region (Index, 1980 = 100)



Source: Jaumotte and Tytell (2007).  
 Note: Export-weighted labour force computed as national labour force scaled by export-to-GDP ratios.

**Figure 4.** Hourly compensation costs for production workers (2004 data; Index, United States = 100)



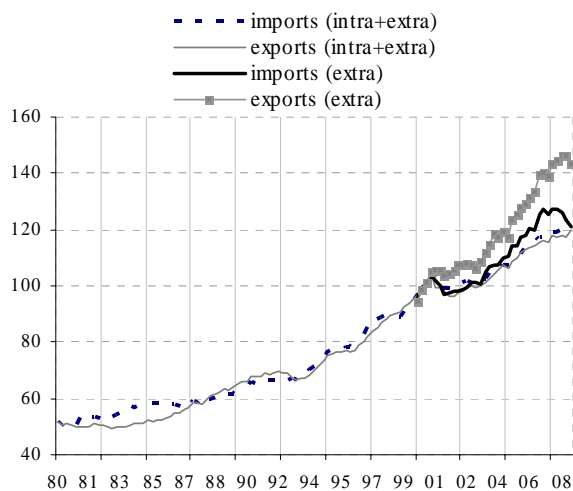
Source: US Bureau of Labor Statistics.  
 Note: Data for China refers to costs for all employees (data for other countries only refer to production workers); coverage may also differ.

The economic globalisation brought about by these changes has been one of the major trends shaping the world economy in recent years. On the real side, international trade has expanded substantially, particularly with China and other emerging Asian economies as well as the new EU Member States.<sup>3</sup> Trade volumes have also increased strongly for the euro area, with export and import volumes continually and rapidly outpacing the growth of GDP over the past quarter of a century (Figure 5).

<sup>2</sup> It should be noted that there are several important caveats regarding measurement, for example, the composition of manufacturing within each country obviously affects aggregate remuneration and therefore influences hourly labour costs.

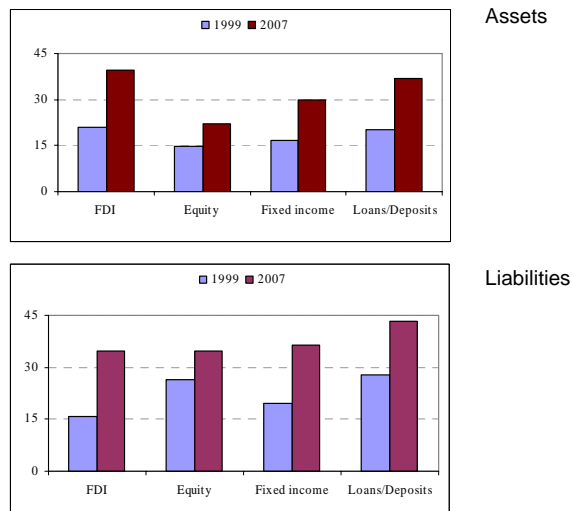
<sup>3</sup> For a comprehensive assessment of the euro area's international performance, see di Mauro and Anderton (2007), Baumann and di Mauro (2006), ESCB (2005) and Anderton et al. (2004).

**Figure 5.** Extra-euro area exports and imports as percentage of GDP  
(Index: 2000=100; quarterly data; volume terms)



Note: The last observation refers to the third quarter of 2008.

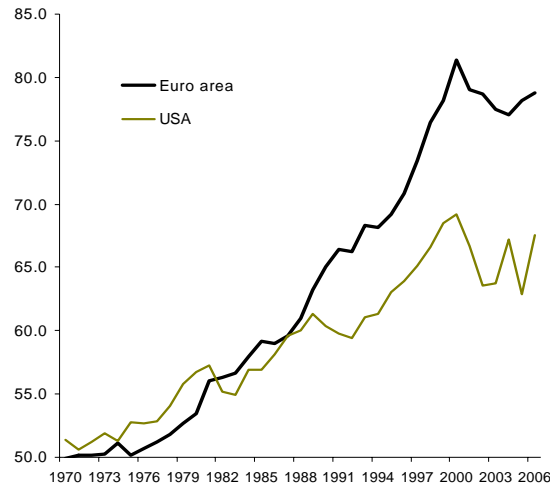
**Figure 6.** Euro area foreign assets and liabilities (As percentage of GDP)



Source: ECB calculations based on Balance of Payments data.

On the financial side, global international capital flows have increased even more rapidly than trade in goods and services, resulting in substantial increases in holdings of international assets and liabilities across the globe. A similar story holds for the euro area over the last decade, where the ongoing strength of capital flows is particularly reflected in the stock of outward and inward foreign direct investment which has virtually doubled as a percentage of GDP since 1999 (Figure 6). One summary index of economic globalisation, produced by the KOF Swiss Economic Institute, has increased substantially in the euro area in the years leading up to 2000 and has continued to stand considerably above the level of a comparable measure for the US through recent years (see Figure 7).

**Figure 7.** Summary measure of economic globalisation, euro area versus the USA. (Index)



Source: KOF Swiss Economic Institute.

Note: Euro area 16 obtained using 2007 GDP weights. Summary economic globalisation measure obtained on the basis of a weighted measure constructed using actual flows (trade flows, foreign direct investment flows and stocks, portfolio investment and income payments to foreign nationals) as well as hidden import barriers (mean tariff rate, taxes on international trade, and capital account restrictions).

The paper takes a long-term perspective over a period characterised by the rapid growth of globalisation, although there has been a more recent reversal of the growth of global trade and capital flows that started towards the end of 2008 associated with the global financial turmoil and global downturn. This paper therefore outlines the longer-term general impacts of the growth in trade globalisation on the euro area macroeconomy in four areas: on trade developments and competitiveness, productivity and the supply side of the economy, labour market effects, and implications for price determination. In general, the above changes in the global economic landscape would be expected to have wide-ranging impacts on macroeconomic developments across the globe. In the long run, increased trade openness along with other associated factors such as technological gains would be expected to benefit both advanced as well as emerging economies through more efficient resource allocation, lower prices, more product choice, welfare gains from deepening specialisation and, ultimately, higher living standards. In the short run, however, this process likely embeds some adjustment costs and distributional effects associated with sectoral reallocation of production and associated inputs. Indeed, globalisation –as with any other profound structural change– entails distributional aspects which may imply simultaneously significant costs for some as

well as considerable benefits for others. But such distributional aspects are only one part of the macroeconomic implications as economies refocus on areas of higher comparative advantage and, ultimately, lead to aggregate welfare gains. In this context, globalisation has implied domestic macroeconomic adjustment for advanced economies in several areas.

This paper complements existing work on the topic of globalisation and its impacts on advanced economies,<sup>4</sup> focusing specifically on providing an overall assessment focused on the recent euro area macroeconomic experience. To this end, this paper provides an examination of several stylised facts and empirical evidence to assess the role of globalisation in shaping euro area macroeconomic developments to date, drawing conclusions where possible. Indeed, drawing firm conclusions on the basis of observed outcomes is difficult in that the recent wave of globalisation has come in the context of several (not totally independent) other structural changes, such as EMU and the ongoing impacts of the launch of the euro; the worldwide rapid pace of technological change, and several policy changes.

### **3 Globalisation and euro area trade and competitiveness**

The emergence of global trade players such as China, other than causing an increase in world trade and boosting euro area exports, has brought about a reduction in export market shares of advanced industrialised economies such as the euro area. Such losses in share are to a certain extent automatic and may not be problematic if they reflect the ongoing re-organisation of world production in line with comparative advantage. However, the extent of the loss in share may be connected to the export product specialisation of the euro area and how it compares to these new competitors and whether it is changing appropriately over time. On the imports side, globalisation has implied a drastic shift towards imports from low-cost countries. This has involved imports of consumer goods, as well as intermediate imports - the latter related to the internationalisation of production – which has impacts on real domestic variables as well as prices.

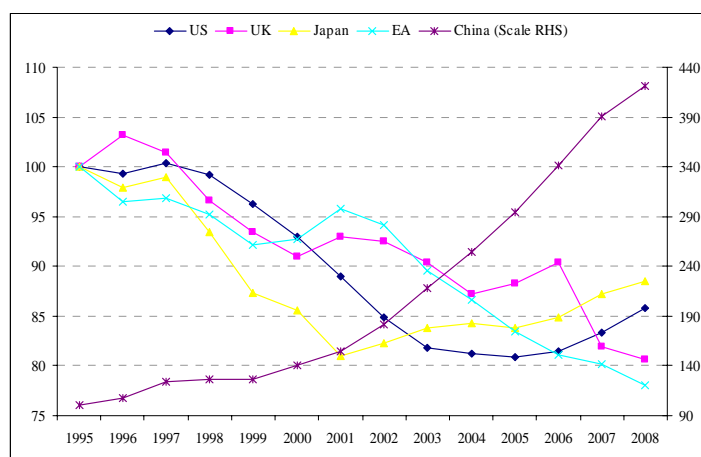
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<sup>4</sup> Several studies –such as Dreher et al (2008), Mishkin (2007), Price and Courmède (2007), Helbling et al. (2006), European Commission (2006), and the Federal Reserve Bank of Kansas City (2006)– have all analysed various aspects of globalisation and macroeconomic developments in advanced economies.

### 3.1 Exports and competitiveness

In examining euro area exports, it would appear that major economies are losing export market share, while China has been gaining share. Against the background of the emergence of low-income countries as major players in world trade, export volume market shares of advanced industrialised countries – such as the euro area, USA, UK and Japan - have fallen in recent years, while the shares of countries such as China have dramatically increased (Figure 8). Given these developments, it may not be surprising that the losses in export shares occurring across a variety of advanced industrialised countries cannot be fully explained by changes in price competitiveness (in particular, export share equations for the euro area need a negative time trend in addition to the usual competitiveness term in order to capture movements in extra-euro area export volumes).<sup>5</sup> Nevertheless, despite the declines in export market share, extra-export volumes of the euro area were growing rapidly as a percentage of GDP due to the persistently robust growth in foreign demand until the end of 2008. Given that these favourable global demand conditions also seem to be at least partly driven by globalisation forces, this positive impact on exports has more than offset the dampening effect on exports of the loss in share.

**Figure 8.** Export market shares  
(in volumes; index: 1995=100; annual data)



Source: IMF, Eurostat and ECB calculations.

Note: Export market share is calculated as an index of export volumes divided by an index of foreign demand (where foreign demand is defined as a country-specific export-weighted sum of foreign import volumes of goods and services).

As the rise in China's export market share seems to be the main counterpart to the loss in the euro area's export market share, we can provide further insights into the mechanisms behind

<sup>5</sup> For further details, see ESCB (2005) and ECB Monthly Bulletin (2006).

this loss by examining Chinese exports in terms of their sectoral composition and how they compare with the export specialisation of the euro area, and how euro area exporters are adjusting their export structure over time in order to respond to this competitive challenge. However, as discussed in more detail below, these measures of trade specialisation are subject to various caveats and should be interpreted with caution.

Over the period 1993-2006, euro area exporters have been largely specialising in capital- and research-intensive products as well as labour-intensive goods (Table 1). By contrast, the other advanced competitor countries – i.e., US and Japan – do not have a revealed comparative advantage in labour-intensive products but are relatively more specialised in exports of research-intensive goods (with Japan also specialising in capital goods exports). Meanwhile, China is specialised in exporting labour-intensive goods. Although the euro area seems somewhat overweight in labour-intensive sectors, the sectoral export specialisation by factor intensity generally seems to broadly reflect the countries' relative factor endowments with higher-skilled workers being relatively abundant in the euro area and Japan and the USA, while lower-skilled workers being prevalent in China.

**Table 1** Revealed comparative advantage by factor intensity\*

<i>Exports are predominantly:</i>	<b>Euro area</b>	<b>USA</b>	<b>Japan</b>	<b>China</b>	<b>CEECs</b>
Raw materials intensive	0.5	0.7	0.1	0.5	1.7
Labour intensive	1.1	0.8	0.5	2.3	1.1
Capital intensive	1.2	0.9	1.6	0.3	1.2
Research intensive	1.1	1.4	1.5	1.0	0.5

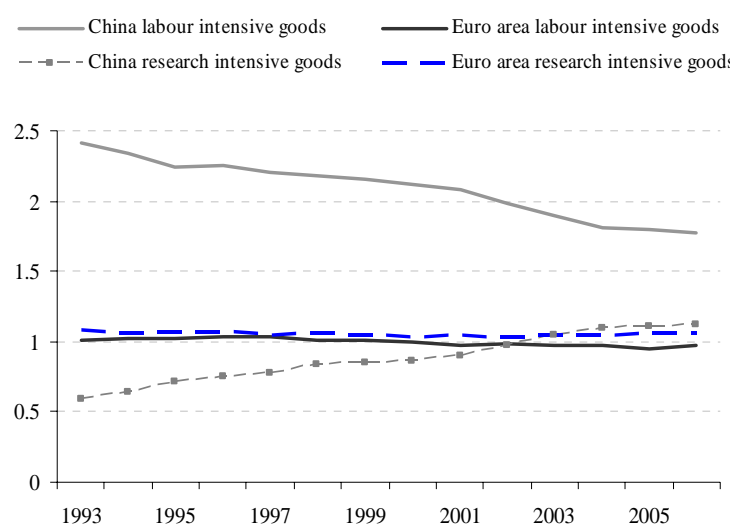
\* Balassa index of revealed comparative advantage; Average for the period 1993-2006. An index greater than one indicates that a country specializes in that product. CEECs are the Commonwealth of Independent States.

Source: Chelem, ECB calculations; di Mauro and Forster (2007).

Figure 9 shows that the euro area's export specialisation is not changing much over time in research- and labour-intensive products, which seems surprising given that one might expect

the euro area to show signs of moving away from labour-intensive products following the large increase in the effective global labour supply available at cheap wage rates. On the one hand, this lack of movement in specialization might reflect structural rigidities in the euro area countries, where product and labour market regulations may constrain the ability of firms to adjust in a rapid and optimal fashion to the forces of globalisation. On the other hand, it might also be the case that the euro area is not under significant competitive pressures to move away from some labour-intensive products where they may not be in direct price competition with emerging countries as the euro area exports may be superior in terms of quality.<sup>6</sup>

**Figure 9.** Change over time in revealed comparative advantage by factor intensity



Source: Chelem and ECB calculations.  
 Note: Balassa index of revealed comparative advantage

However, Figure 9 also clearly shows that China is rapidly moving away from labour-intensive products and increasing its specialisation in research-intensive products, and eventually becoming similar to the euro area at the end of the sample period in terms of its degree of specialisation in research-intensive products. Overall, these results should be viewed

<sup>6</sup> A major question concerning the competitiveness of Chinese exports is whether the lower price of Chinese exports indicates a lower quality of Chinese exports in comparison to major advanced country exporters such as the USA or UK. On the one hand, Fontagne, Gaulier and Zignago (2007) look at the export specialisation of North-South countries and claim that although the export specialisation of the two sets of countries is quite similar when considered across broadly defined sectors, they are quite different when the differentiation of products – reflected in unit value indices – is taken into account. Overall, their analysis shows that advanced economies are maintaining their advantage in the upper segment of product markets and that North-South countries are not competing directly with each other. By contrast, Jarvis (2006) matches products according to quality criteria and shows that China and other low-cost countries can export products of the same quality – but at significantly lower prices – as high-cost countries.

with some caution as there are several caveats regarding these measures of revealed comparative advantage. First, the measures can be somewhat subjective as some products are difficult to classify by factor-intensity as they use several factors of production to a similar extent. Second, the classification by factor-intensity may be misleading if a country focuses primarily on the labour-intensive production stages of a predominantly research-intensive good (this may particularly apply to China where foreign firms may be outsourcing the labour-intensive parts of production for a variety of research or capital-intensive products and then using China as an export base).

Turning to Balassa indices of export specialisation by technological content, we distinguish between high-, medium-, and low-tech sectors (Table 2). The euro area as a whole is relatively specialised in medium-high tech exports and appears to be less open to direct competition in these sectors from China which is specialising primarily in low-tech sectors, particularly textiles, clothing and footwear.<sup>7</sup> This is not true, however, for all euro area countries. In particular, Greece, Portugal, and to a lesser extent Italy, appear to be rather strongly specialised in low and medium-low technology sectors (particularly textiles, etc),<sup>8</sup> where China is gaining predominance largely due to its substantially lower labour costs.

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<sup>7</sup> One further criticism of measures of revealed comparative advantage is that the internationalisation of production may render measures of export specialisation less meaningful nowadays as exported goods now embody substantial international outsourcing of production inputs. This issue is addressed in detail in Baumann and di Mauro (2007) who compute an index of trade specialisation which nets out intermediate imports of exports and compares it with the export specialisation results reported above. This modified version of the Lafay index of revealed comparative advantage by industry generally gives similar results to the traditional Balassa indices of export specialisation reported in this paper, confirming that the euro area is highly specialised in medium-high tech sectors and has not changed its specialisation much over time.

<sup>8</sup> See Box 3 in Baumann and di Mauro (2006) and ECB 2006.



**Table 2** Revealed comparative advantage by sector\*

	<b>EA</b>	<b>USA</b>	<b>China</b>
<b>High Technology (HT)</b>	<b>0.8</b>	<b>1.4</b>	<b>1.0</b>
Aircraft and spacecraft	0.8	3.5	0.1
Pharmaceuticals	1.5	0.9	0.3
Office, accounting and computing machinery	0.7	1.0	1.6
Medical, precision and optical instruments	0.9	1.7	0.9
<b>Medium-high-technology industries (MHT)</b>	<b>1.2</b>	<b>1.1</b>	<b>0.6</b>
Electrical machinery and apparatus, n.e.s.	0.9	1.0	1.5
Motor vehicles, transport equipment, n.e.s.	1.3	0.9	0.1
Chemicals excluding pharmaceuticals	1.2	1.2	0.5
Machinery and equipment, n.e.s.	1.2	1.2	0.7
<b>Low-technology industries (LT)</b>	<b>1.0</b>	<b>0.8</b>	<b>1.6</b>
Wood	1.2	1.0	0.4
Textiles, clothing, footwear	0.9	0.4	3.5

Source: Chelem and ECB calculations.

\* Balassa index of comparative advantage (average 1993-2006)

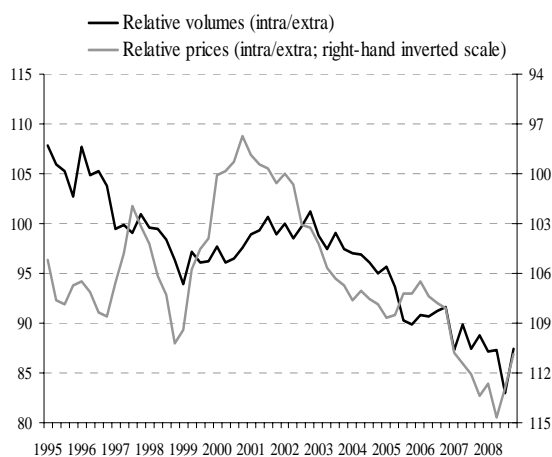
This seems to be consistent with the fact that the loss in export market share of the euro area is the result of a relatively diverse performance across euro area countries, with the export share losses of some euro area countries weighing rather heavily on the euro area aggregate. This suggests that some individual euro area countries who have lost export market share over the past decade or so – such as Italy, Spain and Portugal - may have been more strongly affected than others by globalisation possibly due to their lower-tech export specialisation which may expose them more directly to competition from China. The analysis by Esteves and Reis (2006) - who extend traditional weights used in effective exchange rates to cover not only competition in third markets but also product specialisation – come to similar conclusions. Their approach significantly increases the weight of competition with non-Japan Asia for Italy, Spain and especially Portugal, reflecting the fact that these countries have a product specialisation more concentrated in sectors such as textiles, clothing and footwear which are particularly vulnerable to competition from Asian economies, particularly China.

### **3.2 Imports and the rising share of low-cost countries**

Intra-euro area imports have been growing strongly, but euro area imports from low-cost countries such as China and the EU New Member States (NMS) have been growing even more rapidly. Over the last decade, both intra- and extra-euro area imports of manufactured

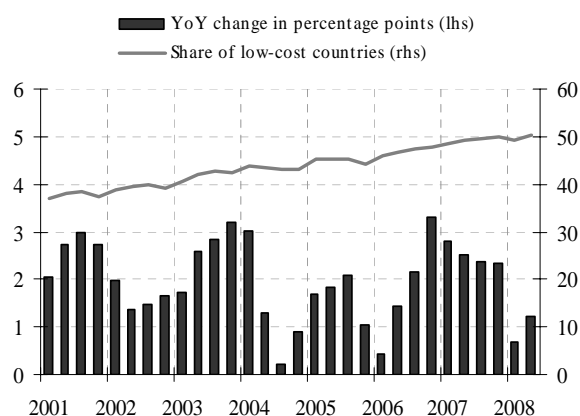
goods showed robust growth, but the ratio of intra to extra-euro area trade volumes has steadily declined which – again - may not be fully explained by movements in relative prices (Figure 10).<sup>9</sup> Globalisation forces have been driving the relatively stronger growth of extra-euro area imports – which has displaced some intra-euro area trade - with outsourcing to low-cost countries and the internationalisation of production playing an important role. During the past ten years, the shares of low-cost countries in extra euro area imports of manufactures – particularly those from China and the new EU Member States – have increased considerably, accompanied by a loss in the import shares of higher-cost extra-euro area import suppliers such as the United States, Japan and the United Kingdom (Figure 11).<sup>10</sup> These developments while admittedly boosting the welfare of euro area consumers have on the other hand probably affected the transmission of foreign demand shocks to euro area domestic demand by weakening some of the potential positive intra-trade spillovers on domestic demand.<sup>11</sup>

**Figure 10.** Intra- and extra-euro area imports of manufactured goods  
(Index: 2002Q1=100; monthly data)



Source: Eurostat.  
Note: Last observation refers to December 2008.

**Figure 11.** Share of extra-euro area manufacturing imports from low cost countries  
(LHS: YoY change in percentage points; RHS: in %; quarterly data)



Source: Eurostat and ECB calculations  
Note: Last observation August 2008

<sup>9</sup> The relative price of the two sources of imports in 2008 is very similar to what it was in 1995, perhaps implying that a structural trend decline is taking place in the ratio of intra- to extra-import volumes that is not explained by relative prices.

<sup>10</sup> Of course, this is also simply reflecting the flip side of the loss in export market share of the major advanced industrialised countries associated with the rapidly rising export share of China described earlier.

<sup>11</sup> See Anderton and di Mauro (2008) for a comprehensive description of these linkages.

One possible implication of the internationalization of production is that the increasing trend in outsourcing may have had a negative spillover on economic activity as it could have reduced the value added of export activities by increasing the reliance of euro area exporters on imported intermediate inputs. ESCB (2005) shows that the import content of exports (which is the inverse of the value added per unit of export) - measured as the long-run elasticity of imports with respect to a one unit increase in exports - has risen for the euro area from 38% in 1995 to around 44% in 2000. Furthermore, this rise in the import-intensity of exports is almost entirely due to trade external to the EU, as the import-intensity of internal EU trade did not change much over this period.<sup>12</sup> However, globalisation and the internationalisation of production has also boosted exports as well. As a result, given that the share of exports in GDP is now much larger (Figure 5), the net impact of a 1% increase in exports on GDP growth may have remained roughly constant for the euro area.<sup>13</sup>

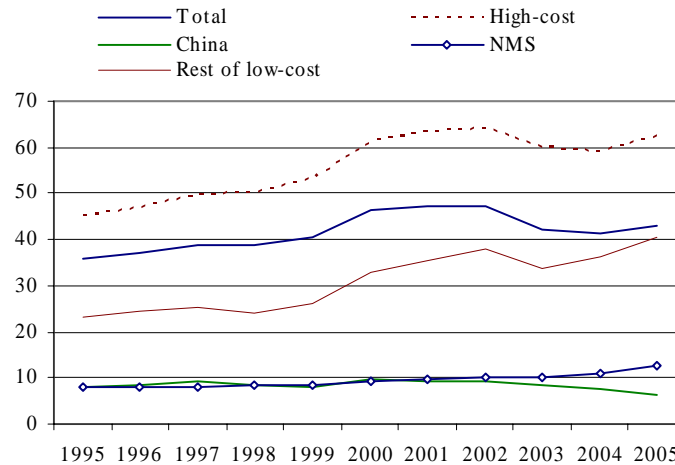
Rising imports from low-cost countries are also putting downward pressure on extra-euro area manufacturing import prices. This is mostly due to the increasing share of low-cost countries in euro area imports combined with the relatively cheaper prices of imports from low-cost countries. Since the start of the 2000s, the share of low-cost countries in extra-euro area manufacturing imports has increased from just over one-third to almost a half (Figure 11). Among the low-cost countries, China and the New EU Member States (NMS) were the main contributors to this increase with both of their shares roughly doubling since the mid-1990s to stand at around 12% each in 2008. Based on highly detailed data disaggregated both by sectors and countries over the period 1995-2004, Figure 12 shows that the level of import prices (proxied by absolute unit value indices) from China and the NMS are estimated to be approximately one-quarter the import price of total euro area import prices, and about one-fifth the price of imports from high-cost countries.

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<sup>12</sup> As the data relate 1995-2000, the EU excludes the new EU Member States who joined the European Union in 2004.

<sup>13</sup> Another aspect of this globalisation-related phenomena is its possible effects on the trade impacts of exchange rate movements. Given that the import content of exports is rising over time, one would expect that import prices are becoming an increasingly important component of exporters' costs, which may lead to smaller losses in export price competitiveness in response to an appreciation of the exchange rate compared to the past which, in turn, may mitigate the negative impact of a euro appreciation on export volumes (as an appreciation will reduce the cost of imported inputs and exporters can reduce their prices to partly offset the loss in competitiveness from the appreciation). See Anderton (2007) as well as later section on the terms of trade.

**Figure 12.** Euro area manufacturing import price levels by import supplier  
(Euros per kilogram of manufacturing imports)



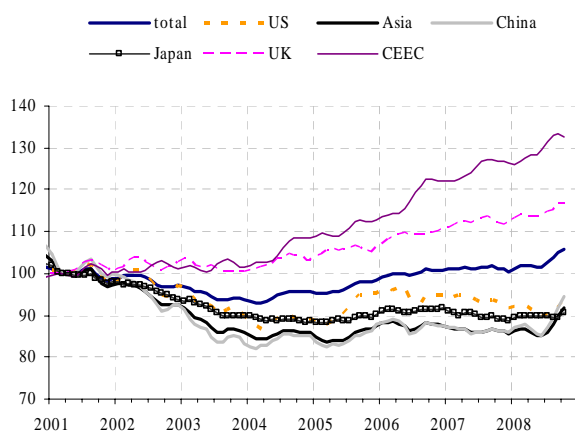
Sources: Eurostat Comext data and ECB staff calculations.

Overall, it is estimated that the increase in import penetration from low-cost countries over this period may have dampened euro area import price inflation by an average of around 2 percentage points (pp) each year, mostly accounted for by China and the NMS. The impact is decomposed into two components: the first is the “share effect”, which captures the downward impact on import prices of the rising import share of low-cost countries combined with the relatively lower price level of low-cost import suppliers; and the second due to differentials in the growth of import prices (the “price effect”), which captures the impact of lower import price inflation from the low-cost countries relative to the high-cost ones over the sample period.

During the course of 2007-2008, there was speculation that this disinflationary impact of low-cost countries on euro area import prices might be coming to an end due to increasing inflationary pressures in those countries. At face value, the robust increases during 2008 in import prices by low-cost country import suppliers might be interpreted as a sign that the downward impact from low-cost countries was waning (Figure 13). However, these import price increases primarily reflected the lagged impact of higher energy and raw materials prices up to the first half of 2008 which have pushed up the prices of virtually all euro area import

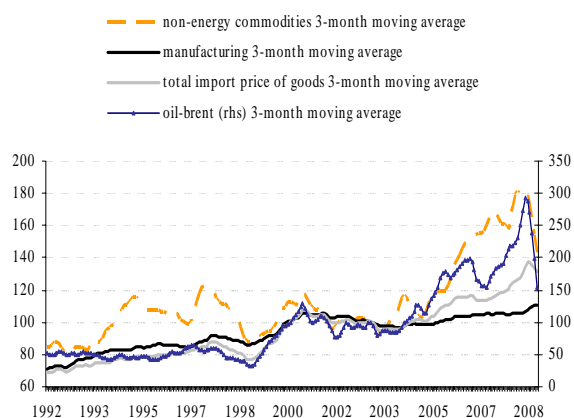
suppliers (Figure 14).<sup>14</sup> Nevertheless, economic development, robust wage increases and terms of trade deterioration in low-cost countries, as well as increasing sophistication, variety and technological content of exports would suggest that low-cost countries are making a leap-up in the value chain and that their export bundles are becoming increasingly similar to the more advanced western economies, which will ultimately lead in the long-run to a convergence of their export prices to higher international levels.

**Figure 13.** Prices of euro area manufacturing imports from selected countries and regions  
(Unit value indices in euro; 2001 Q1=100)



Source: Eurostat and ECB calculations.

**Figure 14.** Extra-euro area import prices by commodity  
(Indices: Q1 2003 = 100; seasonally adjusted; 3-month moving average)



Source: ECB  
Note: Last observation refers to January 2009

So far, we have only referred to the downward impact of low-cost countries on manufacturing import prices. However, there have also been globalisation-related effects on euro area import prices working in the opposite direction as the strong growth in the non-OECD economies in recent years seems to partly explain the significant rise in the prices of oil and non-energy commodities since 1999 up to the first half of 2008 (Figure 14). For example, Pain *et al* (2006) calculate that if the GDP of the non-OECD countries during the period 2000-2005 had grown at the slower pace of the OECD countries then the world real oil price would have been up to 40% lower by the end of 2005. Overall, Figure 14 shows how globalisation has helped to keep extra-euro area manufacturing import prices fairly flat since the start of the 2000s, while the rising price of oil and other commodities (particularly metals and foods) are

<sup>14</sup> Amiti and Davis (2009) show that the significant rise in prices of US imports from China between 2006-2008 was mostly due to rising commodity prices.

reflected in the stronger growth of total extra-euro area import prices over the same period. Meanwhile, from the second half of 2008 onwards the downward pressure on euro area import prices from the large fall in oil prices is reinforced by the continuing downward pressure on manufacturing import prices due to the continually rising import shares from low-cost countries.

### **3.3 Exchange rate pass-through to euro area import prices and domestic prices**

Exchange rate pass-through (ERPT) is another factor which may have been affected by globalisation. For example, there may have been a decline in ERPT for import and consumer prices due to stronger competitive pressures or the shift to a lower inflation regime (Taylor, 2000). At the same time there may also be reasons why estimates of ERPT might *increase* over time, such as the aforementioned increase in import penetration (Figures 1 and 5) which leads to a higher share of imports in the HICP implying a larger impact on the HICP of a change in the exchange rate. The main conclusion of the empirical literature is that during the past two decades ERPT has declined for a number of countries, particularly for the United States (see Marazzi et al 2005; Ihrig, Marazzi and Rothenberg, 2006, etc). Although the empirical evidence for the euro area is somewhat mixed, some results suggest that the ERPT has declined. For example, although estimates of the pass-through for extra-euro area import prices at the sectoral level seem stable, compositional effects may have reduced ERPT to the aggregate import price because the sectoral composition of imports in recent years has moved towards lower ERPT products (such as chemicals and motor vehicles) and the share of imports accounted for by high ERPT products has fallen.<sup>15</sup> In addition, Anderton (2007) argues that the changing country composition of import suppliers may have reduced ERPT for euro area manufacturing import prices. For example, the ERPT of euro area manufacturing imports from the United States is around 90% compared to an average ERPT of around 50-70%, hence this higher ERPT combined with the significant fall in the share of the United States in euro area imports over the past ten years will result in a lower ERPT. Meanwhile, di Mauro, Rueffer and Binda (2008) show that evidence for a decline in the ERPT to domestic prices is far less conclusive for the euro area in comparison to the United States. However, they do find some evidence of a decline in ERPT to consumer prices for some euro area

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<sup>15</sup> See Osbat and Wagner (2008); and Campa, Goldberg and Gonzalez-Minguez (2007).

countries such as Germany and, to a lesser extent, France and Italy. Meanwhile, Hahn (2007) finds some small decline in the ERPT to euro area producer prices in industry, as the weight in electricity, gas and water supply, which has a high ERPT, decreased.

### 3.4 Globalisation and the terms of trade

One of the mechanisms by which globalisation may benefit advanced industrialized countries is via improvements in the terms of trade. Globalisation seems to be leading to downward pressure on manufacturing import prices from increased imports from low-cost countries and should, *ceteris paribus*, lead to improvements in the terms of trade. Although there is considerable volatility over time mostly due to movements in the exchange rate, Figures 15 and 16 suggest that there is no strong evidence of a long-run trend improvement in the terms of trade for the euro area.<sup>16</sup>

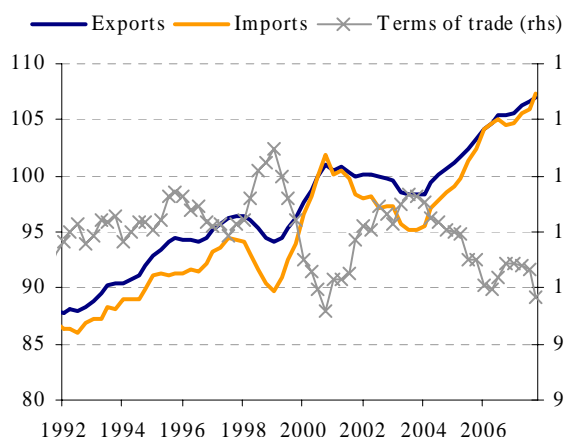
Figure 15 shows trade prices in total goods and services and depicts a worsening of the terms of trade in recent years which is probably driven by the rise in oil prices from 1999 onwards. Nevertheless, if we exclude the direct impacts of oil prices by looking at import and export prices for *manufactured* goods (Figure 16), there are still no signs of a trend improvement in the terms of trade for the euro area. Although this is a very preliminary and rough analysis and should be viewed with caution,<sup>17</sup> there may be several reasons why the terms of trade have not improved for euro area trade in manufactures. First, although low-cost countries are putting downward pressure on euro area import prices, high-cost countries might be upgrading the quality of their products due to this increased competition and thereby increasing their export prices to the euro area. Second, as mentioned earlier, the rising import content of exports implies that imports are becoming an increasingly important cost component of exports which, in turn, means that export and import prices may move more closely together than in the past (thereby dampening the expected improvements in the terms of trade resulting from globalisation). Third, increased competition from China in world markets may have put downward pressure on euro area export prices of manufactures.

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<sup>16</sup> Although movements in the exchange rate affect the terms of trade, the long-run trends in the charts should still be informative as the depreciation of the effective exchange rate of the euro during 1999-2000 has been roughly offset by the appreciation from 2002 onwards.

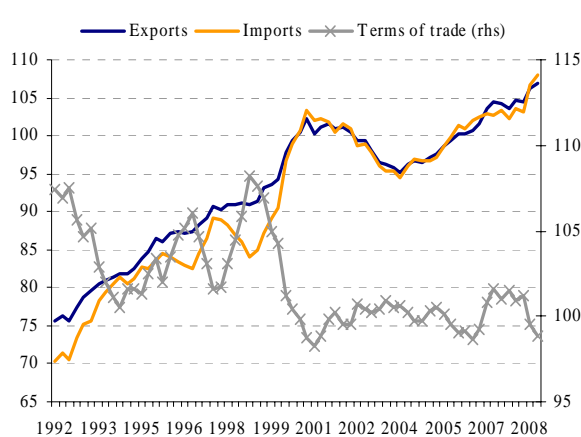
<sup>17</sup> ESCB (2005) Box 2 investigates developments in the terms of trade in more detail at the sectoral level but also finds little evidence of an improvement in the terms of trade.

**Figure 15.** Euro area terms of trade for goods and services  
(Index: 2000=100)



Source: National accounts data (AWM database) and ECB calculations.  
Note: The terms of trade are calculated by dividing the euro area export price deflator of goods and services by the import deflator. National accounts data are total trade (ie intra+extra).

**Figure 16.** Euro area terms of trade for manufactured goods  
(Unit value index; 2000=100; seasonally adjusted)



Source: Eurostat and ECB calculations.  
Note: The terms of trade are calculated by dividing extra-euro area export price of manufactured goods by the import price of manufactured goods.

#### 4 Globalisation and euro area productivity

Globalisation is closely linked to the process of technological advancement, and accordingly would be expected to boost productivity as trade and capital flows lead to increased technical efficiency across economic areas over time in the absence of frictions. Three channels may be of particular importance in this process. First, globalisation may constitute a form of *technology transfer* both through input flows (i.e. imports of capital goods and labour mobility) and the transfer of multifactor productivity (including, notably, the enhancement of management techniques to best practice standards). Though often associated with trade between developing and developed economies, technological convergence nonetheless can occur (particularly in terms of multifactor productivity) for trade between developed economies. Moreover, the growth of offshoring may indicate that changing production paradigms could also be considered in the context of technology transfer. Second, globalisation may result in *composition and scale effects*, whereby higher average productivity may result from both the composition of firms (given both increased specialisation according to comparative advantage and competitive forces) and the possibility for firms to increase the scale of their operations (consistent with the notion of economies of scale and higher productivity in multinational firms). Third, globalisation may trigger



*defensive innovation*, whereby firms are more innovative in response to stronger global competitive pressures (corroborated by the general finding that exporters tend to have higher productivity than firms producing solely for the domestic market). The second and third channels can be characterised as distributional channels to the extent that they imply gains for competitive firms as well as the potential demise of uncompetitive firms. To this end, maximum net benefits from globalisation would be expected where domestic labour and product markets are as competitive as those of key trading partners.

A review of the recent euro area experience would suggest that *aggregate* euro area productivity gains owing to globalisation were generally absent despite steadily increasing international openness in the period leading up to 2007, in apparent contrast to the above arguments (Figure 17). A closer look at the sectoral dimension underlying these aggregate productivity developments, however, yields a more nuanced picture, whereby the productivity shortfall can be to a large extent explained by developments in sectors with limited exposure to international competitive pressures or frictions which limit productivity gains. In particular, as shown in Table 3, the relative weakness in euro area hourly labour productivity relative to the US has derived from weakness in sectors which can be thought of as more insulated from international competition. In particular, two salient features emerge from a sectoral analysis of productivity in the euro area and its relation to that of the US. First, productivity growth remains considerably higher in manufacturing than services, with a particularly low outturn in the latter. Second, the main contributors to the productivity gap in the service sector with the US remains concentrated in two areas: “*finance and business services*”, and “*distribution services*” (including, notably, wholesale and retail trade), which can be thought of as Information & Communications Technology (ICT) using services.<sup>18</sup> This could suggest a role for competitive pressures – both domestic and international – though of course it cannot be excluded that other factors such as capital intensity, technology, skill content, or the influence of terms of trade developments (for example, given their influence on international competitiveness) may also have contributed to this development.

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<sup>18</sup> See Gomez-Salvador et al. (2006) for a more detailed exposition on this taxonomy. While there is also a significant gap in the “electrical machinery” sector (containing such subsectors as office machinery and electronics), which can be thought of as “ICT producing”, a small weight of this sector in the economy implies a relatively minor contribution to the productivity shortfall.

**Figure 17.** Output per hour growth and trade openness in the Euro Area  
(Annual percentage changes)



Sources: ECB calculations based on Eurostat and AMECO data.  
Note: Trade openness is defined here as the sum of extra-euro area export values and import values expressed as a percentage of GDP.

**Table 3** Sectoral value added per hour, euro area versus the US

(annual average growth rate over 1995-2004, %)

	euro area	US	difference
<b>Manufacturing</b>	<b>2.3</b>	<b>5.3</b>	<b>-3.0</b>
Electrical and optical equipment	4.9	14.5	-9.6
Manufacturing excluding electrical	1.8	3.1	-1.3
<b>Market services</b>	<b>0.4</b>	<b>2.8</b>	<b>-2.4</b>
Distribution services	1.3	4.4	-3.1
of which: Wholesale trade*	2.1	4.7	-2.6
of which: Retail trade,* repair of household goods	0.7	5.1	-4.4
Finance and business services**	-0.6	2.6	-3.2
of which: Financial intermediation	1.7	4.9	-3.2
Personal services†	-0.4	1.0	-1.4

Source: EU KLEMS database.  
Note: Euro area excluding Greece, Ireland, Luxembourg, Portugal and Slovenia.

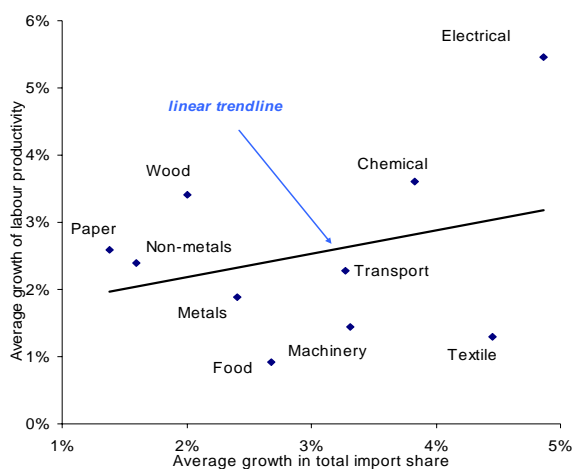
\* excludes motor vehicles and motorcycles

\*\* excludes real estate

† Personal services includes: Hotels and restaurants; Other community, social and personal services; and Private households with employed persons

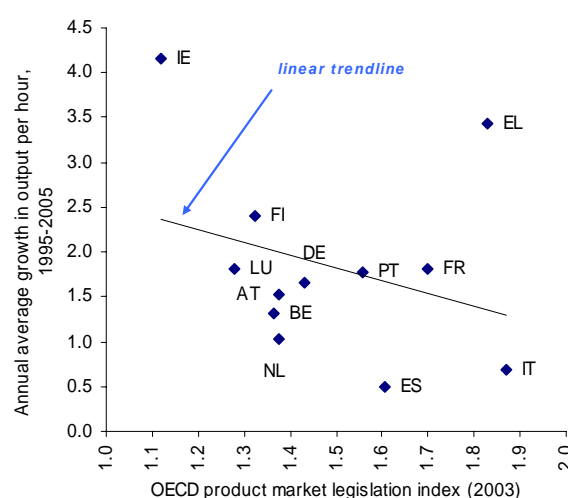
Examining the traded goods sector in more detail, increasing productivity in relation to higher import openness is present within the manufacturing sector at a sectoral level. Indeed, trade openness appears to have a positive relationship with productivity within the manufacturing sector, though this derives to a large extent from impressive productivity gains in sectors generally characterised as having a high technology content, such as the electrical sector (see Figure 18). Moreover, the relationship of product market regulation with productivity has also been negative on average across euro area countries over the decade leading up to 2005, with a strong contribution from some more pronounced cases such as Ireland (see Figure 19). Such a negative relationship could result from rigidities inhibiting the positive reallocative and other benefits of structural changes to the economy such as globalisation and technological change.

**Figure 18.** Changes in manufacturing openness and productivity in euro area sectors (Average annual change between 1995 and 2004, %)



Source: COMEXT (trade data) and EU KLEMS (domestic), ECB calculations.  
 Note: Import share defined as imports divided by output by sector.

**Figure 19.** Product market regulation and labour productivity growth across euro area countries (Index and growth rate, %)



Source: OECD.  
 Note: The OECD index of product market regulation covers formal regulations in the following areas of state control of business enterprises, legal and administrative barriers to entrepreneurship and barriers to international trade and investment. For more details, see Conway et al. (2005).

Available empirical evidence suggests a significant link between openness and productivity through multiple channels, with stronger positive impacts in more competitive markets. More specifically, it would appear that, while globalisation has a strong role to play in boosting productivity, euro area productivity has been weak at the aggregate level over the last decade despite growing international openness. More detailed sectoral analyses, based both on macro

and firm-level micro data, indicate that this weakness has derived to a large extent from areas of the economy which are more sheltered from international competition, thereby hinting at a role for policies aiming at enhancing openness to such forces.

Empirical studies examining productivity developments across a wide range of developed economies at a more aggregated level (generally on the basis of cross-country & sectoral panels) suggest trade liberalisation contributes positively to economic performance. As reported in Price and Cournède (2007), a one percentage point rise in trade exposure is found to be associated with a rise in per capita income of 0.4%. Helbling et al. (2006) find that a 1% increase in relative trade openness leads to a 0.12% increase in relative productivity. Chen et al. (2007) find evidence of a productivity acceleration of EU manufacturing over last years through competitive effects induced by increased trade openness.

Empirical studies using firm-level data allow for a more detailed examination of the important channels through which globalisation enhances productivity – indicating that trade openness and capital flows foster technological spillovers and increased competition – leading to a higher scale of firm operations and more productive firm composition. On spillovers, Eaton and Kortum (2002) find that domestic productivity growth is mainly related to foreign rather than domestic innovation, while Baldwin et al. (2005) find bilateral spillovers are boosted by bilateral FDI. On scale effects, Geishecker et al. (2007) argue that multinational firms contribute more than domestic firms to enhance productivity growth, with the finding that the small share of euro area firms which locate affiliates abroad have higher survival rates and productivity growth. Ottaviano et al. (2007) and Melitz (2003) find that countries exhibiting technological advantage, freer entry and better accessibility to foreign firms develop a tougher competitive environment in which firms are more productive and operate at a larger scale. Concerning industry composition, Bernard et al. (2007) using plant-level data for the US manufacturing sector find evidence of exit, growth and industry switching as a means of migrating from comparative-disadvantage to comparative advantage activities, as well as changes in product portfolio.

In conjunction with the notion that globalisation boosts international competitive pressures, the general absence of aggregate euro area productivity gains over the last decade appear to derive from areas under-exposed to international competition. In particular, relatively weak euro area productivity at an aggregate level can be linked to barriers to competition (both domestic and international), implying limited productivity-enhancing use of new

technologies, multifactor productivity and regulatory impediments to adjustment. According to Gomez-Salvador et al. (2006), the euro area economy seems to have benefited much less from production and use of ICT, reflecting both lower investment in ICT compared with the US and barriers to the diffusion or appropriate use of new technologies, in particular in the services sector (consistent with Table 3). Inklaar et al (2008) find that for European Union countries, entry liberalisation has been beneficial for productivity growth in telecommunications, but not in other service industries. Van Ark (2007) argues that an institutional environment that slows down change may hold up the structural adjustment process in Europe and impede the reallocation of resources to their most productive uses. Kroszner (2006) argues that cross-country productivity differentials derive importantly from flexibility at the firm level and in labour markets, and competitive pressure throughout the economy.

## **5 Globalisation and the euro area labour market**

Globalisation would be expected to influence euro area labour market conditions through two main channels. First, a *redistributive channel* would be expected as globalisation contributes to changes in the distribution of sectoral, occupational and skill composition in advanced economies. According to traditional paradigms, such a development in advanced economies would be expected to be biased predominantly against low-skilled workers in advanced economies (as increased offshoring possibilities lead to an increasing wage elasticity of labour demand with implications for worker bargaining power in this skill cohort) and in favour of high-skilled workers (given expanding export markets). This can be related to the notion of job losses with import competition and job gains from export demand, as posited in trade theories such as Heckscher-Ohlin, though the latter theory along with other prominent theories would have mixed predictions regarding net changes in employment across and within industries, along with consequences for relative factor rewards (see Bernard et al, 2007). Second, an aggregate *scale channel* would be expected in the long run, whereby labour demand is boosted by productivity gains accruing from international openness. Following from the analysis in the preceding section of this paper, the scale effect is likely to have remained limited thus far in the euro area on aggregate given a weak overall productivity performance to date (though in the long run the balance could shift). In the long run, while the

consequences for the labour market depend on the interplay of the scale effects with an aggregation of the redistributive aspects, in the short run, *structural features* of the labour market have a crucial role in adjustment mechanisms. As noted in Hoekman and Winters (2005), the effects of trade on wages and employment will depend on labour market institutions, the efficiency of capital markets and the mobility of factors across sectors (and borders).

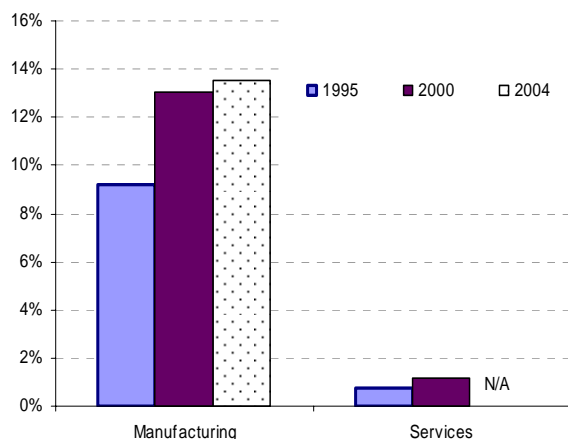
As already alluded to in Section 2 of this paper, one of the main features of the current wave of globalisation which distinguishes it from previous episodes is the possibility of production fragmentation and related offshoring as described in studies such as Feenstra (2007) and Baldwin (2006). While difficult to accurately gauge its exact intensity given a lack of direct information on which parts of production stages are contracted out, several methods may be applied to obtain information on international outsourcing, such as individual firm management information, anecdotal evidence and statistical evidence from various macroeconomic proxies (such as data on trade).<sup>19</sup> Using the latter methodology, the macro proxy of trade content designed to capture a narrow measure of offshoring, it would appear that offshoring was growing in both manufacturing and services over the period 1995-2000, but nonetheless remained much higher in the former sector though growing less in recent years since that period (see Figure 20). That said, anecdotal evidence, such as management studies, suggest that services outsourcing has been growing since 2000 in the euro area (see ECB, 2006a) – particularly in “*arm’s length*” service provision.<sup>20</sup> In analysing how offshoring relates to employment outcomes at the industry level (within manufacturing, where data is available), it appears that the relation to outsourcing across manufacturing industries is weak for employment in the manufacturing sector as a whole, though there are significant impacts in some industries, such as textiles (Figure 21).

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<sup>19</sup> This measure is a proxy with several caveats, most notably that the import share which could reflect domestic demand as well as domestic supply channels, plays a very important role in its dynamics. Computations made to obtain post-2000 outsourcing estimates using interpolated input-output table coefficients (unavailable for services).

<sup>20</sup> Bhagwati (2004) notes four ways in which services can be traded: (1) “*arm’s length*” service provision, whereby the supplier and buyer remaining in their respective locations (e.g. call centres, back offices and software programmers.), (2) services are provided by moving the service recipient to the location of the service provider. (e.g. tourism and education), (3) the service provider establishes a commercial presence in another country (requiring an element of direct foreign investment), and (4) the service seller moves to the location of the service buyer (e.g. construction and consulting services, requiring temporary migration).

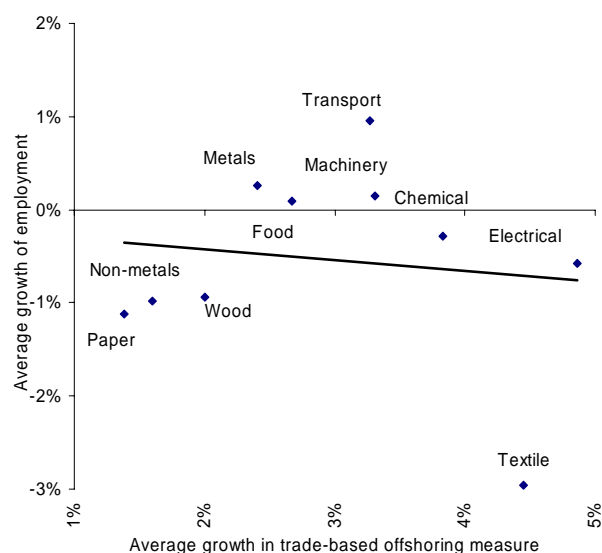
**Figure 20.** Trade-based narrow offshoring measure by sector for the euro area  
(Share of industry's imported inputs in the industry's output, %)



Source: ECB calculations based on COMEXT data and OECD input-output tables.

Note: Offshoring defined "narrowly", i.e. sectoral share of imported inputs of the given sector in its output; includes both intra and extra euro area trade; extrapolation for 2004 based on interpolated input-output table coefficients

**Figure 21.** Employment and offshoring within euro area manufacturing  
(Average annual change between 1995 and 2004, %)



Source: COMEXT (trade data) and EU KLEMS (domestic).

Note: Narrow offshoring refers to ratio of own imported inputs to production

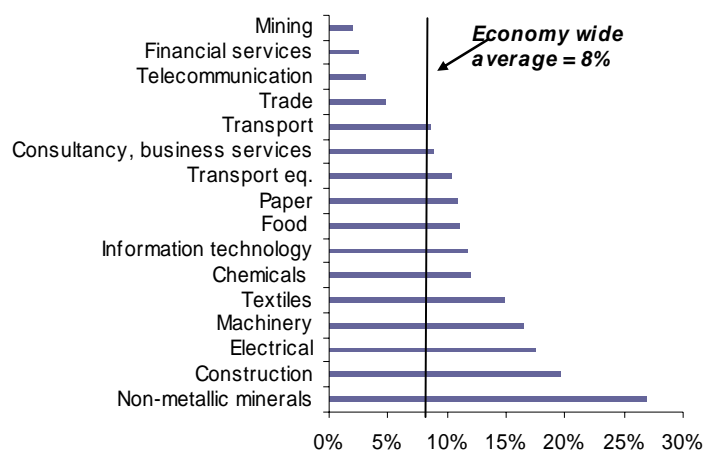
Broadening the focus to also incorporate the service sector, survey data also indicate a limited offshoring contribution to job losses. As shown in Figure 22, survey data based on media reports indicates that "direct" job losses from offshoring are generally limited as a proportion of overall jobs lost – with an economy-wide average of 8% of total jobs lost.<sup>21</sup> The sectoral composition of such reported job losses is predominantly in manufacturing and generally low numbers in services, and to some extent can be seen as correlated with domestic productivity developments within the affected sectors.

Changing specialisation brought about by globalisation may, of course, imply gross job losses are offset by gross gains on the aggregate. Indeed, there have been significant euro area employment gains since mid-1990s almost entirely in services while manufacturing appears to have been in continued secular decline (see Table 4). In particular, business services

<sup>21</sup> These findings are drawn from a the "European Restructuring Monitor", which records all industrial restructuring cases reported through a press review of daily newspapers and business press that (1) affect at least one EU country; (2) entail an announced or actual reduction of at least 100 jobs; or (3) involve sites employing more than 250 people and affecting at least 10% of workforce; or (4) create at least 100 jobs. For more, see <http://www.eurofound.europa.eu/emcc/erm/info.htm>.

employment has grown very strongly in the last decade, despite likely growing tradability of this component (see, for instance, Markusen, 2007 and Mann, 2003). Amiti and Wei (2005) argue that although service outsourcing has been steadily increasing it is still very low, and that in the United States and many other industrial countries insourcing of services (i.e. from foreign-located firms to domestic firms) is greater than outsourcing. Of course, factors other than (though not necessarily totally independent of) globalisation may explain a significant amount of labour market adjustment over the last decade, such as technological change and structural changes and their effects on permanent shifts in the distribution of workers throughout the economy in the labour market (for more on the latter argument, see Groshen and Potter, 2003).

**Figure 22.** Survey data on euro area jobs directly lost due to offshoring (offshoring job losses as a % of total job losses over the period 2002-2006)



Source: European Restructuring Monitor.

Note: Euro area excludes Greece, Luxembourg and Slovenia. Based on media survey on reported mass layoffs. Includes offshoring within the euro area as well as outside.



**Table 4** Euro area employment, 1996 versus 2006  
(millions)

	<b>1996</b>	<b>2006</b>	<b>change, 1996-2006</b>
<b>Total domestic</b>	<b>122.71</b>	<b>139.68</b>	<b>16.97</b>
<b>Total industry</b>	<b>34.53</b>	<b>35.02</b>	<b>0.48</b>
Industry excluding construction	25.42	24.48	-0.94
Construction	9.11	10.54	1.42
<b>Total services</b>	<b>81.49</b>	<b>98.87</b>	<b>17.38</b>
Trade and transport	30.34	35.11	4.77
Finance and business	14.99	21.65	6.66
Other services	36.17	42.11	5.95
<b>Agriculture</b>	<b>6.69</b>	<b>5.80</b>	<b>-0.89</b>

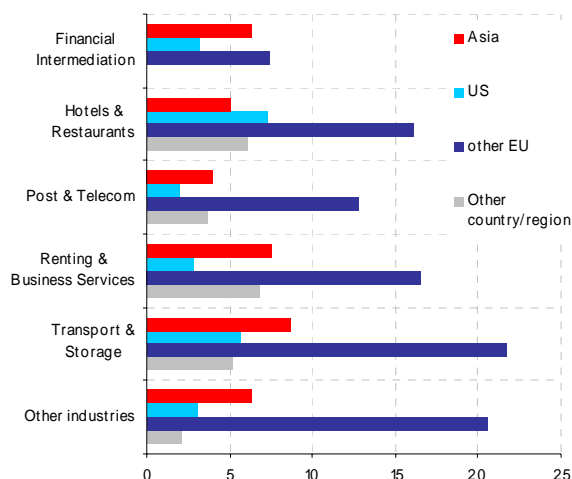
*Source: Eurostat data and ECB calculations.*

These survey findings appear prima facie consistent with available empirical evidence on the aggregate employment effects of globalisation, which suggest a small negative estimated impact of import penetration and offshoring on euro area employment within the manufacturing sector. That said, little evidence is available on globalisation's impacts for employment in the economy as a whole. The analysis of Pula and Skudelny (2009) suggests that a one percentage point increase in openness reduces manufacturing employment growth by 0-0.2 percentage point (depending on the industry composition). Mankiw and Swagel (2006) argue that trade-related losses are a small portion of overall job flows, a fact that is also empirically borne out by the analysis of Hiebert and Vansteenkiste (2008a) for the US manufacturing sector. At the same time, Hiebert and Vansteenkiste (2008b) find evidence for the US manufacturing that other factors such as technological change tend to engender greater labour market impacts than changes in openness.

In examining factors governing offshoring decisions, survey data for the services sector suggests both a distance and cost component to such offshoring, with offshoring relatively higher to geographically close neighbours, and concentrated in industries characterised by a higher degree tradability (see Figures 23 and 24). The geographic destination of service sector offshoring for euro area firms shows that the majority remains with geographically close firms such as non-euro area EU countries. On average 20% of the firms claimed to outsource to foreign developed countries (EU + US) and only 10% to emerging economies (Asia + Others). As for factors cited in electing to outsource (i.e. domestically and internationally),

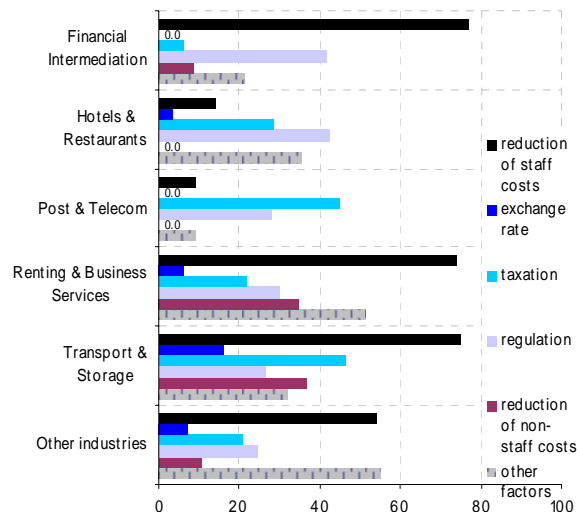
reduction of staff costs is claimed to be a major factor in at least three of the services sectors, i.e. transportation and storage, business services and financial intermediation. These sectors, which are not normally broadly classified as lower-skilled areas, raise the issue that so-called “white-collar” offshoring may have been on the increase, in contrast from the predictions of traditional trade theory that low-skilled jobs are primarily affected by trade competition. Unfortunately, little data exists to statistically validate this notion. Ultimately, though, the above survey data appears broadly consistent with Markusen (2007), where it is argued that characteristics such as codifiability, routinisation, and the lack of need for face-to-face interaction are of great importance in the outsourcing decision for service industries, while costs and market penetration determine the geographical decision on where to outsource. Indeed, while ICT accelerates the codification of knowledge and modifies the balance between codified and tacit knowledge, there may still be continued benefits from human interaction based on the latter (see Morgan, 2004). An alternative perspective comes from a European Sourcing survey by Eurostat (see Alajääskö, 2009), where it is found that manufacturing enterprises source far more than enterprises active in other sectors, while among the support business functions, the international sourcing of ‘distribution and logistics’ as well as ‘marketing and (after-) sales’ is most widespread.

**Figure 23.** Survey data on current locations of outsourcing in euro area service sector (% of respondents)



Source: NTC Economics (2007).

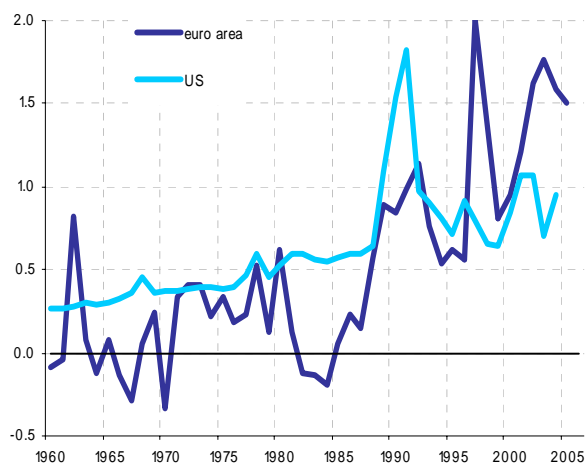
**Figure 24.** Survey data on current factors underlying outsourcing in euro area service sector (% of respondents)



Source: NTC Economics (2007).

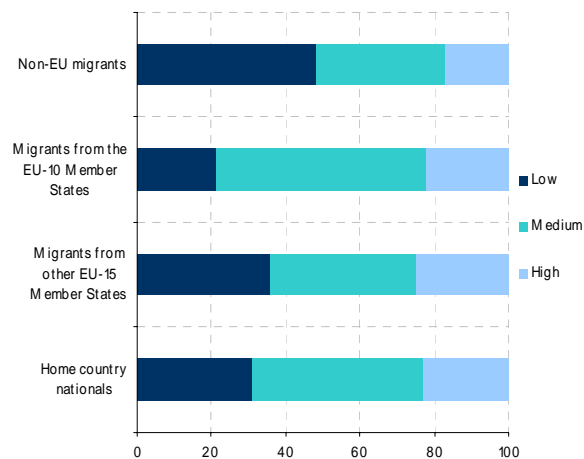
Part of the growth in euro area employment over the last years, despite growing outsourcing, may relate to immigration developments. Migration flows may be related to outsourcing trends, insofar as they obviate a need for firms to go outside borders to have access to inexpensive low-skilled labour as part of cost cutting through production fragmentation – though the extent to which migration inflows limit cost-saving offshoring depends, of course, on the extent to which labour regulations oblige employers to pay immigrants at prevailing host country rates (given, for instance, minimum wage legislation). There has been a steadily increasing inflows of migrants to the euro area, with a heterogeneous skill mix depending on geographic origin. Eurostat data indicate a steady growth in net inward migration in the euro area over the last decade, bringing such flows recently to a level above the US (Figure 25). In examining the skill distribution of migrant versus native populations within the EU15 (where data is available), it would appear that migrant flows have involved both a relatively large proportion of unskilled labour (from outside the EU) as well as a relatively higher medium- to high-skill content from migration within the EU (Figure 26). Broadbent and Zsoldos (2007) indicate that of the net total number of migrants flowing into the EU15, almost two-thirds have gone to Spain while the next two most important destination countries (in terms of absolute numbers) are Italy and the UK. At the same time, they indicate that France and Germany saw an inflow of relatively few migrants while the Netherlands saw a small net outflow leading up to 2005. Heinz and Ward-Warmedinger (2006) find for the European Union that the economic impacts of increased cross-border labour mobility are likely to be positive, although potentially unequally distributed across countries and sectors.

**Figure 25.** Net migration in the euro area and US  
(Millions of persons)



Source: Eurostat, US Census/Office of Immigration Statistics.  
Note: Net migration is measured as the difference between the total population on 1 January and 31 December for a given calendar year minus the difference between births and deaths (or natural increase). Includes Metropolitan France until 1997.

**Figure 26.** EU-15 resident working age population by nationality and education level  
(Percentage share, 2005)



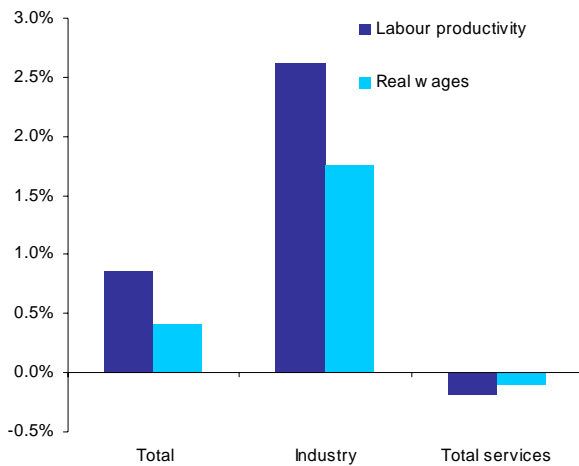
Source: European Commission (2006), based on Eurostat Labour Force Survey, Q1 2005, France and Austria Q2 2005.  
Note: Educational level: low (lower secondary), medium (upper secondary), high (tertiary).

Turning to recent euro area wage developments, globalisation may have been one contributing factor to an extended period of wage moderation within the euro area (for instance, if offshoring or the threat of offshoring reduces the wage demands of workers). As indicated in Figure 27, real wages have been weaker than productivity both on aggregate and also within the manufacturing and services sectors – which can be considered as one of the central factors permitting the strong aggregate employment growth in the euro area in the decade leading up to 2006 indicated in Table 4. At the same time, there has been an ongoing weakening of the wage share of income for a longer period, which has been more severe than the corresponding fall in the US since the mid-80s, bringing this measure in both regions to historical lows (Figure 28). Arpaia et al. (2009) find that for several EU countries, most of the decline in wage shares is explained by technological forces: capital-augmenting technical progress and the assumption of capital-skill complementarity. Any conclusion that the fall in the wage share relates to the bargaining power of workers declining in the context of globalisation should be made with extreme caution given several caveats related to measurement issues<sup>22</sup> and the fact that much of this decline took place well before the recent phase of globalisation.

<sup>22</sup> It should be noted in this respect that several measurement problems limit the reliability of the wage share, including a growing importance of non-wage remuneration (particularly for the growing number of self employed), which imply that this measure cannot be interpreted reliably as the share of income accruing to capital or labour.

Moreover, globalisation's contribution to an extended period of wage moderation within the euro area may very well have contributed to the strong job creation witnessed over the last decade as reported in Table 4.

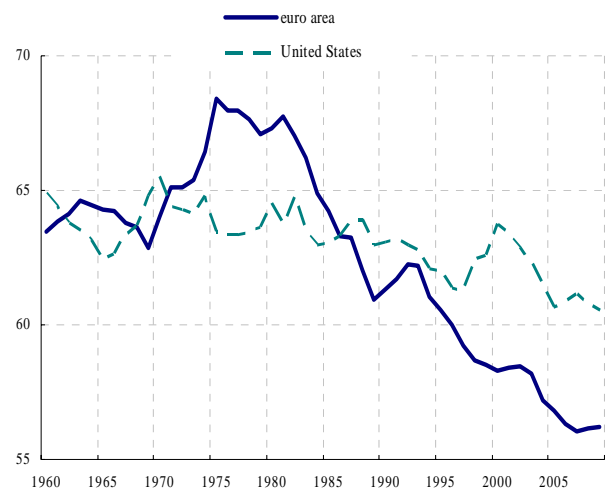
**Figure 27.** “Real” wages and productivity in the euro area (Average annual change between 1996 and 2007)



Source: Eurostat (ESA95).

Note: Real wages computed as nominal compensation per employee less the respective value added deflator. Services sum of (1) Trade, repairs, hotels, restaurants, transport and communications, (2) Financial, real estate, renting and business activities, and (3) Other service activities.

**Figure 28.** Long-term developments in wage shares (In percentage of gross national income)



Source: AMECO database and ECB calculations

Note: Self-employment adjusted wage shares; total domestic economy. The wage share is defined as the ratio of total compensation of employees to gross national income at current market prices.

Empirical evidence on the aggregate wage effects of globalisation suggest that an increase in the real wage elasticity of labour demand appears to have occurred in the last years, particularly for low-skilled workers, which may indicate a decline in the bargaining power of these groups (see, for instance, Pula and Skudelny (2009), as well as Price and Cournède (2007), Molnar et al. (2006), and Dumont et al. (2006)). The OECD (2007) finds that jobs and wages have become more vulnerable to external shocks – thereby possibly reducing the bargaining power of workers, especially low-skilled ones, which may therefore contribute to explain the falling share of wages in national income. Jaumotte et al (2008) as well as Jaumotte and Tytell (2007) point to only a minor role of globalisation in reducing the wage share compared with other factors such as technological change and labour market policies. They also find that countries that have enacted reforms to lower the cost of labour to business and improve labour market flexibility have generally experienced a smaller decline in the wage share. Concerning the question of whether the observed drop in the wage share of several advanced economies is structural or transitory, it would appear that there is not yet a

consensus in the literature. On the one hand, the findings of Guscina (2006) based on a panel of OECD countries (over the period 1960-2000) suggest that the decline in labour's share during the past few decades may have been largely an equilibrium, rather than a cyclical, phenomenon, with technological progress having been capital-augmenting during the recent globalisation phase. On the other hand, other studies suggest that the observed fall in the wage share may be temporary (though possibly quite persistent), as while the wage share in income could match productivity over longer periods, a falling wage share could be evident at shorter horizons in the case of a relative decline in the return to labour given relatively more important frictions in adjusting the capital stock.<sup>23</sup> In addition to observable factors, an unobservable “*threat effect*” –whereby workers in industrialised economies perceive themselves to have a weaker bargaining position and thereby moderate wage claims given a fear of production relocation to lower-cost economies– may have contributed to the fall in the wage share.<sup>24</sup>

Leaving aside aggregate developments and looking more closely at uneven developments in employment and wages across skill groups, it would appear growing skill bias in labour demand in the euro area has manifested itself predominantly in hours (and not in hourly compensation). A review of the evolution of real wages and hours in the manufacturing sector by skill (proxied by level of educational attainment) yields two noteworthy findings.<sup>25</sup> First, a wedge has developed in euro area manufacturing hours, with a sustained rise in the hours of high-skilled workers contrasting with falling hours of low-skilled workers. Second, real wage developments have remained similar across all skill groups (Figure 29), thereby the skill bias in euro area labour demand has fallen predominantly on “quantities” (i.e. employment) and not “prices” (i.e. wages) – in contrast to the US, where wages appear to have exhibited more flexibility according to this skill classification.<sup>26</sup> At face value, this could suggest that labour market rigidities, for instance those preventing differentiated wage growth according to

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<sup>23</sup> As argued by Schumacher et al. (2007), while wages would be expected to adjust in response to any changes in productivity shocks in the short run, employment would be expected to adjust over medium-term horizons and the capital stock only in the long run given time-to-build constraints. In this vein, Ellis and Smith (2007) argue that a fall in factor income accruing to labour would be expected to result as long as the increase in the effective global supply of labour is not matched by an equivalent rise in the stock of capital.

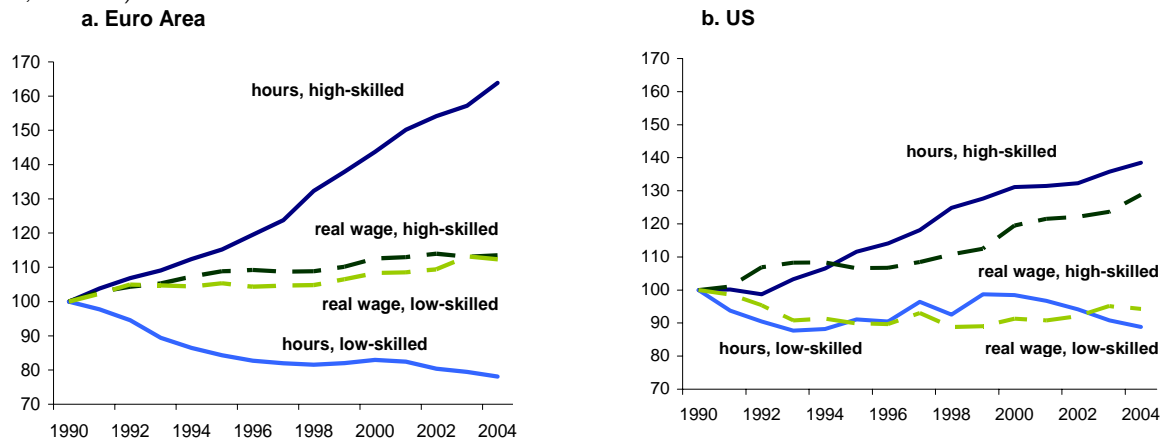
<sup>24</sup> This could also imply a change in the equilibrium unemployment, or NAWRU, and also possibly some disconnect between product and labour market slack.

<sup>25</sup> It should be borne in mind that education-based skill classifications have some limitations, notably that they could be affected not only by the skill content of work, but also by changes in educational attainment patterns.

<sup>26</sup> Consistent with this, Hiebert and Vansteenkiste (2007) find for the US manufacturing sector that openness shocks produce relatively strong wage and productivity impacts relative to very limited employment impacts.

worker productivity, may imply a disproportionate adjustment in employment for a given shift in the wage elasticity of demand for lower-skilled groups.

**Figure 29.** Hours and real hourly wages by educational attainment-based measure of skill level  
(Index, 1996-100)



Source: ECB calculations based on EU Klems data  
Notes: Real wage index derived using PPI as deflator; derived from wage and hour shares in total by skill multiplied with levels available in KLEMS  
Skill data derived from national data on educational attainment, with high skilled comprising those with university level education, and low skilled comprising those with primary and/ or secondary education (depending on the country). Hourly wages deflated using producer prices.

Indeed, trade theory would suggest that enhanced trade between developed and developing countries places downward pressure on the relative returns to unskilled workers – whereby the relative real return to the factor used intensively in the production of a good whose relative price falls/rises should also fall/rise according to the Stolper-Samuelson proposition. This would also be consistent with changing euro area economic specialisation, based on comparative advantage, discussed in di Mauro and Anderton (2007) and Fontagne et al. (2007). Epifani and Gancia (2008) present a model indicating that international trade, even between identical countries, can raise the relative demand for skilled labour. Moreover, they argue that the scale of an economy can be a key determinant of the skill premium. While globalisation may play a role in skill biased labour demand, other factors such as skill-biased technological change or secular shifts of domestic production long-present in advanced economies (from manufacturing to services) may still play an important, and even dominant, role in this process.

Examining prospective redistributive effects, there is empirical evidence of skill bias in labour demand (though the technology role is also of strong importance). As shown by Pula and Skudelny (2009), increased openness has a negative impact on labour demand for low skilled sectors, which they attribute to factors such as increased competition and offshoring and a

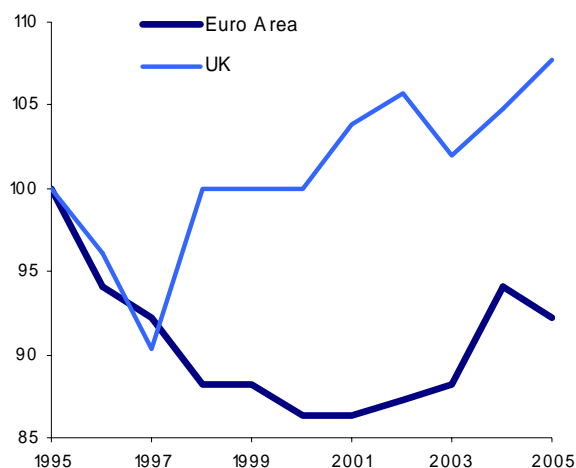
higher real wage elasticity of labour demand. Hijzen (2007) and Cuyvers et al. (2006) also indicate important differences in labour market developments for aggregate versus skill groups. In terms of the net effects across skill groups, Geishecker and Görg (2006) find on the basis of German micro data that the positive impact of outsourcing on high-skilled employment outweighs the negative impact on the low skilled. Anderton et al (2006) also find that technology –in the form of skill-biased technical change– is the main factor explaining the decline in the relative demand for less-skilled workers across a range of countries, but they also argue that the rapid rise in technological change seems to be partly driven by the strong growth in international trade and globalisation. Grossman and Rossi-Hansberg (2006) argue that a productivity effect associated with offshoring can more than offset labour supply and relative price effects, thereby leading to high wages for even low-skilled workers following a rise in offshoring (though Olsen (2006) finds little empirical evidence on the productivity effects of offshoring to date).

While an important skill dimension appears to have been present in euro area labour market developments, there have been few signs of growing income inequality relative to a decade earlier on the basis of analysing the top and bottom quintiles of the income distribution, particularly by international standards – though such a finding is to some extent conditional on the specific measure of inequality used. As indicated in Figure 30, income inequality for the euro area had declined by 2005 to less than 95% of its 1995 level, when comparing the highest and lowest income quintiles (the 80/20 percentile ratio). A recent increase in inequality, however, appears to have occurred, which Bräuningner (2007) argues may reflect a rise in unemployment that occurred in the first half of the decade given an economic slowdown. On the basis of Gini coefficients, it would appear that in general income inequality in large euro area countries has generally increased since the early 80s (though considerable country heterogeneity is present), though generally remaining below either the US or the UK (Figure 31). For the US, Autor et al (2007) suggest that the changing distribution of job task demands, spurred directly by advancing information technology and indirectly by its impact on outsourcing, goes some distance toward interpreting the recent polarisation of the wage structure. Other factors may also be relevant, such as the possibility that wage earners are also capital owners, that government and private transfers mitigate the impact on overall inequality, and the emergence of non-wage components in wage bargaining (see for instance, Genre et al, 2004). As for income inequality, Harjes (2007), Cuyvers et al. (2002), and



Machin and van Reenen (1998) find only a modest contribution of international trade and immigration to euro area income inequality developments.

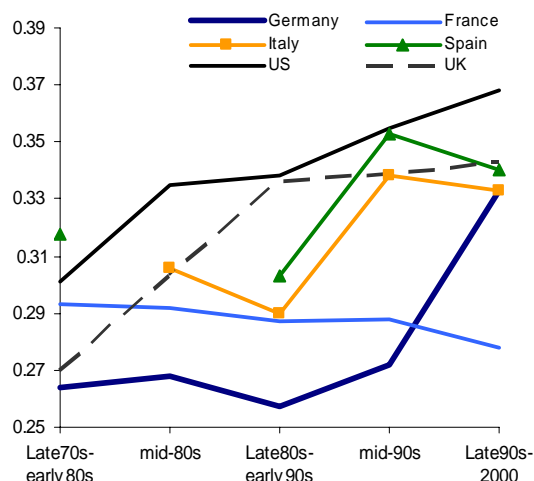
**Figure 30.** Measure of income inequality in the euro area and the UK (80/20 percentile ratio, index 1995=100)



Source: European Commission.

Note: the ratio of total income received by the 20% of the population with the highest income (top quintile) to that received by the 20% of the population with the lowest income (lowest quintile).

**Figure 31.** Gini coefficients from income distribution (Half relative mean difference)



Source: Luxembourg Income Study

Note: A high Gini coefficient indicates more unequal distribution, with zero corresponding to perfect equality and one corresponding to perfect inequality

All in all, globalisation's impacts on euro area labour markets have been mainly visible in the form of a redistribution of employment across sectoral, occupational and skill categories. Indeed, a review of available empirical evidence indicates that the aggregate labour market impacts of globalisation remain largely uncertain – with limited aggregate employment impacts contrasting with possibly more significant impacts on the wage share and bargaining power. That said, there appear to have been clear effects on certain sectors and skill groups, as the rise in offshoring which characterises the recent phase of globalisation appears to have been associated with a clear skill bias in labour demand.<sup>27</sup> As real wages across skill categories have shown little differentiation in response to this, labour market adjustment associated with such a bias in the euro area has been concentrated on employment. That said, there has been limited change in income inequality in the euro area when comparing with other advanced economies, such as the UK or US, thus far. Moreover, job losses associated with offshoring have been limited as a proportion of overall job losses in the euro area economy and, importantly, offset by employment gains elsewhere. In this vein, globalisation's

<sup>27</sup> More generally, the extent to which this can be attributed to globalisation (versus technology, for instance) in practice is uncertain – see the debate in the literature on the role of domestic versus global factors in producing labour market adjustment, for instance in Wood (1998).

contribution to an extended period of wage moderation within the euro area (for instance, through offshoring or the threat of offshoring) may very well have contributed to the strong job creation witnessed over the last decade. At the same time, the pronounced fall in the euro area wage share of income over the last decades appears to be linked not only to globalisation but to other possibly more relevant (though potentially related) factors such as technological and structural change.

## 6 Globalisation and euro area prices

Globalisation would be expected to have two main impacts on consumer price inflation in the short term –acknowledging that monetary policy determines inflation over the medium to long term– with the ultimate effect on prices remaining ambiguous as it depends on the interplay of various effects. First, a *relative price effect* implies that aggregate inflation can be simultaneously attenuated by developments in some prices through global supply channels (for example, from dampened prices of imports of manufactured goods or cheaper inputs into the production process) and accentuated by increases in other prices given global demand pressures (for example, related to strong emerging market economies’ demand for energy and other commodities).<sup>28</sup> As relative price movements are a natural part of economic functioning and therefore need not necessarily have any effect on aggregate inflation consistent with a central bank’s inflation objective, such movements would only be expected to have short-term aggregate inflationary impacts insofar as the movements are sizeable and/or a combination of adjustment frictions and imperfect information imply prolonged impacts. Policy factors which could explain aggregate inflation impacts of relative price shocks could be monetary policy accommodation –either intentional, through an “opportunistic” approach to disinflation,<sup>29</sup> or unintentional, given imperfect information and learning– or asset price misalignments resulting from globalisation. Second, *increased competitive pressures* associated with globalisation could constitute an indirect channel affecting prices as they contribute to change price elasticities by compressing firms’ price-cost markups or cost developments, and thereby

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<sup>28</sup> Concerning the supply channels, a mechanical change in price dynamics derives from both a static level effect (a level shift in prices through the increasing shares of emerging markets in the import basket of advanced economies) and dynamic price differential effect (a change in inflation dynamics given inflation differentials between emerging and advanced economies in conjunction the change in import shares) – see ECB (2006b).

<sup>29</sup> For more on the opportunistic approach to disinflation, see Aksoya et al. (2006). As argued by Razin (2007), a flattening of the inflation-activity relationship induced by globalisation can induce the monetary authority guided in its policy by the welfare criterion of a representative household to put more emphasis on the reduction of inflation variability at the expense of an increase in the output gap variability.

exert a moderating influence on inflation as long as impediments to competition are not in place. In particular, increased competitive pressures would be expected to both dampen firm profit mark-up behaviour while also potentially altering developments in costs (such as the cost of capital and labour) which underlie price dynamics. While changing firms' mark-up behaviour, labour cost moderation and productivity enhancement may have implied more muted price inflation, such pressures may take time to materialise given what could be a gradual process of adjustment in price-setting for formerly protected industries along with frictions associated with the adjustment of production processes. In the context of a Phillips Curve framework, openness associated with globalisation may have contributed to change the link between consumer price inflation and costs or standard domestic measures of macroeconomic slack, in particular through competitive impacts on changing price flexibility or through an increasing role for foreign conditions in the price formation process. Indeed, globalisation may influence the Phillips curve in two key ways.<sup>30</sup> First, it may have affected the wage and price-setting behaviour of households and firms, thereby affecting the responsiveness of inflation to standard measures of economic slack or production costs. On one hand, this could imply a decreased responsiveness of domestic inflation to the domestic output gap in favour of slack in the global economy while on the other hand, heightened competition resulting from globalisation may have made prices and wages more responsive to economic activity in the long run (see, for instance, Rogoff, 2006). Second, globalisation might have changed the productive potential of the economy and therefore domestic slack itself, notably through productivity effects given competitive pressures and associated innovation.

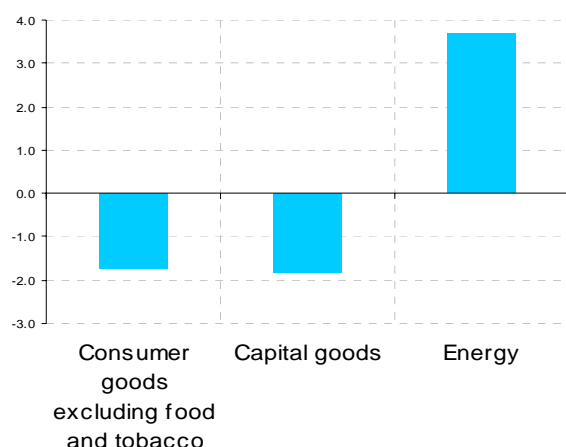
As referred to earlier, the recent euro area experience indicates that relative price impacts have been strong over the last decade, with disinflation in manufactured goods contrasting with a strong acceleration in prices for commodities. As indicated in Figure 32, producer prices over the last decade have been characterised by strong relative price effects, with muted development in consumer goods excluding food and tobacco along with capital goods relative to average producer prices contrasting with relatively strong increases in the energy component (which also may have affected prices further down the production chain). As indicated in Figure 33, HICP subcomponents have also exhibited sizeable price differentials,

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<sup>30</sup> More generally concerning Phillips Curve specifications, globalisation may have influenced the distribution and type of exogenous shocks to the inflation process (relating also to the relative price shocks described above), along with commensurate changes to observed inflation persistence and inflation expectations.

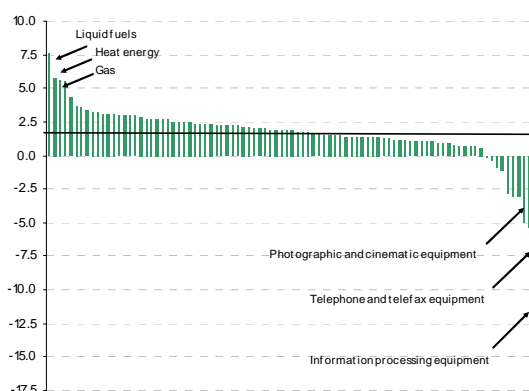
in particular with three energy-related items displaying the highest increases over 1996-2006, while three ICT-intensive internationally traded goods exhibit the lowest increases over the period. In particular, international trade dynamics may help to explain the extent of disinflation in manufacturing resulting from openness, with price impacts depending on the interplay between mechanical impacts from relative inflation differentials for existing euro area import shares (possibly mitigated by pricing-to-market considerations) and price level differentials leading to the mechanical disinflationary impact owing to further penetration of low cost countries into the euro area import basket. At the same time, commodity price volatility (in areas such as energy, minerals and food), in particular over 2008, may to some extent have been linked to globalisation forces.

**Figure 32.** Producer prices: Evolution of selected sub-indices relative to overall index  
(Change over 1996-2008 relative to overall index, %)



Source: ECB calculations based on Eurostat data.

**Figure 33.** Consumer prices: average price changes in euro area HICP subcomponents  
(Average annual change over 1996-2006, %)



Source: ECB calculations based on Eurostat data.  
Note: Data for 92 HICP subcomponents.

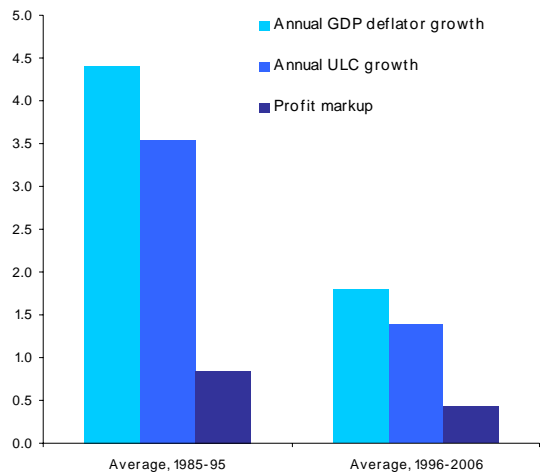
Studies examining trade globalisation's aggregate impact on inflation tend to suggest a small net dampening impact of globalisation on prices through to around 2005, deriving from subdued price developments in the manufacturing sector. The overall dampening impact on euro area inflation appears to lie in the range of 0-0.3 percentage point per annum over the 5 to 10 years leading up to around 2005 when taking into account the net impact of disinflationary effects of increased trade openness in the manufacturing sector and strong commodity price increases. On the basis of several methodologies, including aggregate and sectoral analysis, the calculations by Pula and Skudelny (2009) indicate that a direct

dampening effect of import openness on euro area producer price inflation of 0.1-1.0 percentage point for the manufacturing sector over the period 1996 to 2004. The authors report a dampening impact on euro area consumer price inflation of 0.05-0.2 percentage point per year on average based on aggregate data over the same period on the basis of aggregate data. Pain et al. (2006) find a combined effect on consumer inflation from lower noncommodity import price inflation and higher commodity import price inflation of up to 0.3 percentage point per annum over the period 2000 to 2005. Using similar methodologies, Chen et al. (2007) and Helbling et al. (2006), and Glatzer et al. (2006) report findings of a similar magnitude for other countries and regional groupings. More recent calculations for the US suggest, however, that volatile commodity prices –and in particular leading up to the spike in mid-2008– pushed up import prices from China (Amiti and Davis, 2008). In general, empirical evidence would lend support to the idea of a strong relative price shock associated with globalisation.

In contrast, evidence concerning the role of international competitive pressures in compressing firms' mark-ups is mixed. On the one hand, theoretical models would predict pro-competitive effects contributing to reduce mark-ups as domestic firms compete with international firms. On the other hand, generally high profitability of firms in the period leading up to 2006 would suggest that there was little compression of profit mark-ups over this period at the aggregate level. Though pro-competitive effects from increased international competition may have helped hold down firms' costs, on aggregate they appear to have had a more limited influence on firms' pricing power. In the euro area, available data suggest that firms' profit markups have not been compressed on aggregate in recent years (Figure 34), though such indicators are a crude proxy of unit profits. While growth in the profit markup weakened over the last decade compared with a decade earlier, with a fall in the growth of both labour costs and the value-added deflator, a closer look at sectoral developments leads to a more nuanced picture. An estimated measure of sectoral profit markups by Christopoulou and Vermeulen (2008) suggests that profit markups in the euro area over the period 1993-2006 have been similar to or below those of the US in manufacturing but systematically higher in services (see Figure 35). Moreover, the findings of Chen et al. (2007) support the notion that markups have been compressed within the EU manufacturing sector, suggesting some compression of markups for firms producing tradable goods subject to international competition. Such findings could support the notion that markups have been compressed for

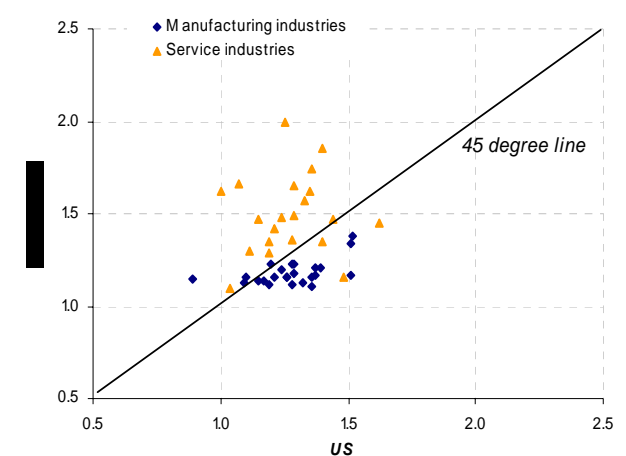
tradable goods subject to international competition, but have moved little in service industries which tend to be more sheltered from such forces – though such a conclusion must be tempered by measurement issues related, in particular, to service sector markups.

**Figure 34.** Evolution of euro area value added deflator, ULC and profit markup  
(Period average of year-on-year growth rate, %)



Source: ECB Area-wide model database (see Fagan et al. (2005)).  
Note: Profit markup computed as annual growth rate of output price less annual growth rate of unit labour costs.

**Figure 35.** Estimated sectoral mark-ups: Euro area versus US  
(Markup ratios, average over 1993-2004)



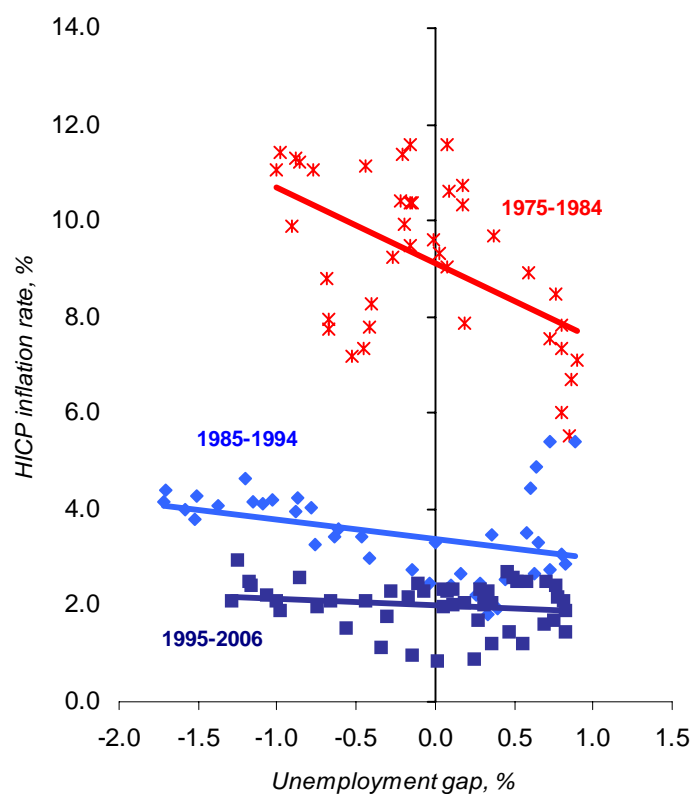
Source: Christopoulou and Vermeulen (2008).  
Note: Data for 48 two-digit industries (28 in manufacturing, 22 in services). A ratio greater than one implies that prices are larger than marginal costs and can be interpreted as evidence of market power in an industry.

Empirical evidence suggests pro-competitive effects of trade have led to reduced markups in European manufacturing, with Chen et al. (2007) reporting a fall of markups in EU manufacturing by 1.6% over period 1988-2000. All in all, it appears that the aggregate economy impact has been muted – indeed, on aggregate price-cost markups have grown given the importance of other domestic factors (see Boulhol, 2004). Abraham et al (2006), relying on microeconomic data for Belgium, find that price-cost margins are typically lower in sectors that are subject to higher international competition (especially from low-wage countries).

Notwithstanding this finding of a limited compression of firm mark-ups, a flattening in the Phillips Curve appears to have occurred in the last decades, though it is not clear to what extent this reflects a growing influence of global or foreign measures of economic slack in the domestic inflation process. This development contrasts with theoretical arguments in favour of a steepening of the Phillips Curve in response to globalisation, as competitive forces make prices more flexible in response to changing costs or measures of economic slack (see, for instance, Rogoff, 2006 or Ball, 2006). In the euro area, a flattening in the inflation-unemployment gap variant of the Phillips Curve has been evident over the last decades (see

Figure 36), though it should be kept in mind that changes in structural unemployment not captured by the simple measure of trend unemployment may have occurred over the period.<sup>31</sup> Notwithstanding this caveat, while this latest flattening coincides with the acceleration of globalisation over the last decade, its contribution must be considered in the context of other factors such as the more efficient conduct of monetary policy, “good luck” (fewer negative macroeconomic or other shocks), fiscal discipline and structural reforms – though these policy factors themselves may very well have been affected by globalisation.

**Figure 36.** Euro area HICP inflation and the “unemployment gap” (%)



Source: ECB Area-wide model database (see Fagan et al. (2005)), September 2007 version.  
 Note: Unemployment gap defined as the deviation of unemployment from trend unemployment measured by an HP filter with a smoothing parameter of 25,000.

<sup>31</sup> This flattening is consistent with the development in other advanced economies – see, for instance, Bean (2007) for a discussion of the UK inflation-unemployment relationship.

There is limited evidence that domestic inflation has become more sensitive to measures of foreign slack in addition to the standard import price channel.<sup>32</sup> On the one hand, Borio and Filardo (2007) find a significant role for global economic slack measures in Phillips Curves of advanced economies (albeit with mixed results for the euro area). Specifically for the euro area, studies such as Paloviita (2007) and Rumler (2007) find euro area inflation dynamics are better captured by an open economy specification. In a similar vein, Ciccarelli and Mojon (2005) find that for several OECD countries, the global inflation rate moves largely in response to global real variables over short horizons and global monetary variables at longer horizons. In looking at inflation dynamics of highly disaggregated consumer price data, Monacelli and Sala (2007) find that a sizeable fraction of the variance of inflation explained by macroeconomic factors attributable to "international" factors for both Germany and France, but that such factors are more relevant in the goods/manufacturing sector than in the service sector. For the UK, Batini et al (2005) find that external competitive pressures also seem to affect inflation via their impact on the equilibrium price markup of domestic firms. On the other hand, many other studies have failed to identify a significant role for global economic slack measures in Phillips Curves of advanced economies. Calza (2008) finds limited evidence in support of the "global output gap hypothesis" for the euro area. This appears consistent with the findings of Musso et al. (2009), who find that a flattening of the slope of the euro area Phillips curve occurred mainly in the 1980s, before the current globalisation phase. Broadening the studies to those looking at other economic regions, Ball (2006), Woodford (2007), Ihrig et al. (2007) and Wynne and Kersting (2007) argue for a negligible role for measures of global economic slack on inflation dynamics, while Pain et al. (2006) relate a rise in the sensitivity to domestic inflation in OECD economies to foreign economic conditions to an import price channel alone. On the basis of a new Keynesian Phillips curve-based model, Sbordone (2008) finds it difficult to argue that an increase in trade would have generated a sufficiently large increase in U.S. market competition to reduce the slope of the inflation-marginal cost relation.

All in all, globalisation appears to have had at best a small dampening effect on euro area prices on average over the 5 to 10 years leading up to around 2005 as strong relative price shocks associated with low prices of imports of manufactured goods through global supply

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<sup>32</sup> Globalisation may have weakened the link of domestic liquidity on domestic prices or, alternatively, implied a higher role for foreign liquidity in domestic prices; Rueffer and Stracca (2006) find that evidence of a significant spill-over of global liquidity to the euro area economy.



developments on balance offset strong increases in prices of hard commodities resulting from heightened global demand pressures over the period. In the period since that time, the balance of relative price shocks as characterised above could very well have been strongly inflationary at some stages. While a rise in international competitive pressures may have also contributed to wage moderation in the euro area, it appears to have led to little compression on overall profit mark-ups of firms. However, as in the case of productivity, exposure to international competition appears to have played an important role in sectoral mark-up developments. Beyond these effects, compelling evidence of a growing role for global measures of slack in the inflation process of the euro area and other advanced economies remains largely absent as a stand-alone factor – though, as argued by White (2008), may be one of several factors which *combined* to produce the observed flattening in the Phillips Curve slope.

## **7 Conclusions**

This paper takes a long-term perspective over a period predominantly characterised by the rapid growth of globalisation, notwithstanding the more recent interruption to the growth of global trade and capital flows that emerged towards the end of 2008 associated with the global financial turmoil and the downturn in global economic activity. Indeed, these recent events demonstrate how the increased international interconnectedness of financial and product markets exacerbated the financial turmoil that began in mid-2007, while the rapid growth in “vertical specialisation” and widespread global production chains associated with globalisation contributed to the subsequent highly synchronised nature of the downturn in global trade.

However, the paper focuses on the longer-term trends and shows how globalisation has increased export competition in world markets over the past decade due to the emergence of new global trade players such as China, resulting in the shrinking of export market shares of advanced industrialised economies such as the euro area, while simultaneously stimulating world demand and euro area activity. The loss in share partly depends on how similar the export product specialisation of the euro area compares to these new competitors, with evidence showing that China is rapidly moving away from labour-intensive products and recently becoming similar to the euro area by increasing its specialisation in more research-intensive goods. On the imports side, globalisation has been accompanied in the euro area by

a higher share of imports of manufactured goods from low-cost countries, which has resulted in stronger growth of extra-euro area imports relative to intra-euro area trade, while also putting downward pressure on import prices and inflationary pressures. Meanwhile, this downward pressure had been partly offset by higher demand for commodities from low-cost countries resulting in high commodity import prices – which had increased significantly up until the second half of 2008 prior to declining on average since that time in the context of the downturn in global economic activity.

This paper then focussed on globalisation and its prospective role in shaping three broad areas of the euro area macroeconomy: productivity, the labour market, and prices. Notwithstanding difficulties in fully isolating globalisation from other important ongoing structural changes (such as changes in technology and policies), several key findings emerge. First, weak euro area productivity on aggregate over the last decade despite growing international openness has derived to a large extent from areas of the economy which are more sheltered from international competition, thereby hinting at a role for enhanced openness to such forces. Second, globalisation's impacts on euro area labour markets have been mainly visible in the form of a redistribution of employment across sectoral, occupational and skill categories. The associated skill bias in labour demand has been concentrated on hours worked rather than wages, while there has been limited growth in income inequality in the euro area to date compared with other advanced economies. Gross job losses associated with offshoring have been limited as a proportion of overall job losses in the euro area economy and, importantly, offset by employment gains elsewhere – indeed, the strong net job creation witnessed over the last decade has benefited from the extended period of wage moderation to which globalisation has contributed. Third, increasing trade openness appears to have had a small dampening effect on euro area prices over the 5 to 10 years leading up to around 2005, as strong relative price shocks deriving from low prices of imported manufactured goods have on balance offset strong increases in prices of hard commodities resulting from heightened global demand pressures over the period. Apart from this influence on relative prices, globalisation appears to have had limited observed impacts as yet on either aggregate profit mark-ups of firms or the role of domestic slack in the inflation process of the euro area over this period.

All in all, while the balance of empirical evidence suggests that globalisation alone may have had limited measurable direct aggregate impacts, its role in shaping domestic developments remains nonetheless significant for two reasons. First, globalisation appears to be having

strong effects in certain areas/sectors of the economy and therefore can entail considerable relative adjustments – including in some cases considerable redistributive effects at the household and firm level. This, of course, implies significant benefits for some cohorts as well as significant costs for others. In this respect, the aggregate economic impacts (or, for that matter, public perceptions) of globalisation depend crucially on the weighting scheme –either explicit or implicit– used to sum all redistributive impacts. Second, the phenomenon of globalisation is intertwined with several other ongoing structural changes, such as technological change and diffusion. Synthesising the international and domestic impacts of globalisation for the euro area, it appears that there would be a key role for macroeconomic policies in facilitating adjustment to globalisation and in reaping its potential benefits. Appropriate structural policies remain particularly important in both reducing frictions associated with adjustment while boosting the euro area’s productive potential. Three structural policy areas, in particular, are important. First and foremost, the prospective benefits of globalisation will only materialise insofar as policies foster global openness in goods, services and financial markets, and fight protectionism. Second, policies which facilitate smooth economic adjustment in a dynamic environment (e.g. an acceleration of structural reforms facilitating geographical and occupational mobility, wage flexibility, and competition and price flexibility in product markets) would help ease adjustment strains and associated distributional impacts, in particular those which have emerged in the euro area labour market. Third, policies which support an increase in the euro area’s competitiveness (e.g. policies fostering innovation and the adoption of new technologies, modern education systems supporting the upskilling of labour in line with technological advancements, and initiatives to create a business-friendly environment and to enhance the effectiveness of the public administration) could help address the weak euro area aggregate productivity growth witnessed to date, and create widespread gains for all households and firms. Monetary policy, of course, also has a role to play as it provides the solid foundations for efficient and beneficial adjustment – as is argued in Moutot and Vitale (2009). In particular, a strong focus on domestic price stability facilitates efficient adjustment of the economy to relative price and other macroeconomic shocks associated with globalisation.

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