THE ROLE OF INTERNATIONAL COMPETITIVENESS AND OTHER FACTORS IN EXPLAINING EXPORT PERFORMANCE

Stéphanie Guichard (stephanie.guichard@oecd.org), Calista Cheung (calista.cheung@oecd.org) and Jérome Brézillon (jerome.brezillon@oecd.org)

OECD - Economics Department

PRELIMINARY DRAFT (November 2009):

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Drawing heavily on previous OECD work, this paper presents the price competitiveness and export performance indicators calculated and used by the OECD. It assesses the extent to which changes in price competitiveness help to understand export performance and explores briefly other possible factors. It shows that relative price competitiveness is only one factor behind export performance, with non-price factors likely to play a major role. Among these non-price factors the role of foreign investment positions and even more of the integration of a country in global supply chains seem important, and would need to be investigated further.
THE ROLE OF INTERNATIONAL COMPETITIVENESS AND OTHER FACTORS IN EXPLAINING EXPORT PERFORMANCE

1. Introduction and summary

1. With globalisation and the emergence of new major players in international trade most OECD countries have experienced significant losses of export market share over the past decade. Since the late 1990s the export performance of the OECD as a whole has declined by more than 10% while that of non-OECD economies has increased by 20%. OECD countries have not been affected the same way and these differences cannot be accounted for by exchange rate movements alone. For instance, among the G7, the largest losses in market share have been recorded in Italy, Canada and France, while the Japan has been relatively much less affected. Germany has seen an improvement in its export performance, despite an appreciation of its effective exchange rate of a similar magnitude as France and Italy. Also, outside the G7, Korea and eastern European countries have registered very strong gains in market shares.

2. Export performance is an ex-post measure of international competitiveness which measures the extent to which countries gain or lose market share on external markets. An important driver of this performance is relative cost and price differentials across countries. However, non-price factors, such as technological innovation, specialisation and the quality of products are also likely to play a role. Unfortunately they are more difficult to quantify and compare across countries.

3. This paper presents the price competitiveness and export performance indicators calculated and used by the OECD. It then assesses the extent to which changes in price competitiveness help to understand export performance and explores briefly other possible factors. This paper draws heavily on previous OECD work, in particular Durand (1986), Durand et al (1992), Durand et al (1998) and Pain et al (2005).

4. The main findings are that relative price competitiveness is only one factor behind export performance, with non-price factors likely to play a major role in some cases. These factors that are difficult to quantify at the aggregate level can be modelled using non-linear trends. Foreign investment positions and even more of the integration of a country in global supply chains seem to play an important role in export performance, and would need to be investigated further.

2. Definition and measurement

Price and cost competitiveness

5. The OECD produces several different measures of relative price and cost competitiveness which are published in the Economic Outlook. These are based on the ratios between domestic and competitors’ average values of exports of goods and services, unit labour costs in manufacturing and consumer price indices expressed in a common currency. These indicators use a system of weights based on a double-weighting principle, which takes account the structure of competition in both export and import markets.

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1. There are several approaches to assessing competitiveness. In the narrow sense retained in this paper it reflects the countries’ ability to sell their products in world markets. A broader approach would consist of comparing macroeconomic performance and overall living standards, and focus on productivity trends.
discussion of this methodology is given in Durand et al. (1992). Since price and costs are only available as indices, absolute cost and price comparisons cannot be made and the focus is on changes in relative prices. Hence, these measures provide an indication of whether a country has become more or less competitive than its trading partners over time but do not permit a comparison of levels of competitiveness across countries. Both measures are constructed at the highly aggregate level.

Relative export prices

6. The first indicator of price competitiveness is the relative export prices, defined as the ratio of a country’s price of goods and services exports and its competitor price of goods and services exports. It is calculated for the 30 OECD countries, China and 5 non-OECD zones. This indicator is used in the OECD international trade model presented in Pain et al. (2005).

7. For a given country i, the competitor price of exports (PXC_i) is a weighted average of competitors export prices of each export market with weights based on country i’s export pattern. On each export market p the competitors’ export price is a weighted average of all competitors’ export prices with weights based on country p’s import pattern. The structure of the markets is fixed as of 2005.\(^2\) Competition on third markets is only considered among exporters (local producers are not taken into account).

8. For country i, the export price of competitors on market p (PXC_{ip}) is therefore defined as a weighted average of the export prices of country i’s N-1 competitors (excluding country i). The weight of each competitor r is the share of imports from r in country p’s imports from all countries except i.

\[
PXC_{ip} = \frac{1}{XGS_{i \rightarrow p,2005} - XGS_{i \rightarrow p,2005}} \sum_{r=1}^{N} \frac{XGS_{r \rightarrow p,2005} \times PXGS_{r,i} \times EXCHIN_{r,i}}{EXCHIN_{i,t}}
\]

where:

\[
XGS_{i \rightarrow p,2005} = \text{goods and services exports values in 2005 from country } i \text{ to country } p
\]

\[
PXGS_{p} = \text{Exports of goods and services, deflator, national accounts basis}
\]

\[
EXCHIN_{i} = \text{Exchange rate, index of USD per local currency unit}
\]

The average competitor price of country i is then defined as

\[
PXC_{i,t} = \left\{ \frac{1}{\sum_{p=1}^{N} XGS_{i \rightarrow p,2005} \times PXC_{ip,t}} \right\}
\]

where p \neq i

2. The base year of the matrix is changed by 5 years every 5 years. The advantage of a fixed matrix is that it enables to isolate the impact of changes in prices from changes in weights due to the change in countries relative market share. One disadvantage is that for historical years far away from the base year the weights do not reflect the prevailing structure of the market.
9. The relative export price is defined as \( PXR_{i,t} = \frac{PXG_{i,t}}{PXC_{i,t}} \). An increase in the index indicates an increase in export prices relative to competitor and therefore a deterioration of the competitive position. It should be noted however that an increase in the index could also reflect higher prices due to a change towards higher quality products without any true deterioration in competitiveness.

Real effective exchange rates based on unit labour costs and consumer prices

10. Another measure of competitiveness is real effective exchange rates based on relative unit labour cost in manufacturing or consumer prices (CPI). For unit labour costs, the manufacturing sector has been chosen because it is the sector most involved in trade, and a broader-based indicator could be biased by the inclusion of unit labour costs for non-tradables. Competitiveness weights are based also on a double-weighting principle, taking into account the structure of competition in the manufacturing sector of 47 countries (the 30 OECD countries and 17 non members.). There are two main differences with the previous indicator: first, the weights are not fixed but recalculated for each year; second, both domestic producers and exporters are considered, broadening the concept of competitiveness to account for both demand on home markets and the influence of domestic producers on export markets. For each country, the double weighting takes into account the relative importance of competitors on its domestic market and on foreign markets (which is determined by the pattern of supply on each markets), as well as the relative share of the different markets in the total demand directed at this country (see Durand et al., 1998). Labour cost indicators may be a better measure of competitiveness than export price indicators because movements in export prices reflect only prices of exporters that have been able to export. However, competitiveness measured with ULC only takes into account cost of production in the country and not the cost of inputs outsourced abroad.

11. Changes in relative indices are computed by comparing the percentage change in the index for the country concerned (expressed in US dollars at market exchange rates) to a weighted average of changes in the indices for the 47 countries. More precisely, the calculation of the real effective exchange rate is done in the following way:

12. The formula to compute real effective exchange rates is the following:

\[
\Delta ULCMDR_{i,t} = \log \left( \frac{ULCM_{i,t} \cdot EXCHIN_{i,t}}{ULCM_{i,0} \cdot EXCHIN_{i,0}} \right) - \sum_{j=1}^{47} \left( \log \left( \frac{ULCM_{j,t} \cdot EXCHIN_{j,t}}{ULCM_{j,0} \cdot EXCHIN_{j,0}} \right) \right)
\]

Where

- \( ULCMDR_{i,0} \) the index of real effective exchange rate of country \( i \) with base period 0.
• \( \text{EXCHIN}_{it} \) is the exchange rate against the US dollar in period t (expressed as US dollars per unit of country \( i \)'s currency)

• \( ULCM_{it} \) represents unit labour costs in the manufacturing sector of country \( i \), in period t

• \( \sigma_{ij,t-1} \) is the weight of country \( i \) on market \( j \) in period \( t-1 \).

13. An increase in the index indicates a real effective appreciation and a corresponding deterioration of the competitive position.

14. Real effective exchange rates based on consumer prices use the same method but with CPI instead of ULC.

Comparison

15. The two main measures of price and cost competitiveness over the past decades for the G7 and China are compared on Figure 1 (Figure A.1 in the annex shows the same charts for other OECD countries). A noticeable feature in the case of the United States, Japan, the United Kingdom and Canada is that the amplitude of the fluctuations are much smaller for relative exports prices than relative unit labour costs (formally measured by the standard deviations) suggesting that exporters smooth the impact of changes in underlying competitiveness and notably exchange rates with changes in margins or by importing inputs produced in low cost countries.

16. Overall, since the late 90s there has been a trend increase in competitiveness in the United States, Japan and Germany which only slightly reversed in the past couple of years. The trend improvement started later in the United Kingdom, driven to a large extent by the sterling depreciation. Competitiveness has been relatively stable in France while it has deteriorated in Canada (until recently) and even more in Italy. Over the past decade, while in the United States, the United Kingdom, and France the evolution of competitiveness seems to a large extent driven by exchange rates, this is much less obvious for other countries. Since 2000, in Italy, movements in relative prices and costs have amplified the negative impact currency appreciation on competitiveness while in Germany, Canada and Japan they have limited or even compensated for its impact.
Figure 1: Price and cost competitiveness indicators

United States
- Relative price of exported goods and services
- Real Effective exchange rate, unit labour costs
- Nominal effective exchange rate, constant trade weights

Japan
- Relative price of exported goods and services
- Real Effective exchange rate, unit labour costs
- Nominal effective exchange rate, constant trade weights

Germany
- Relative price of exported goods and services
- Real Effective exchange rate, unit labour costs
- Nominal effective exchange rate, constant trade weights

France
- Relative price of exported goods and services
- Real Effective exchange rate, unit labour costs
- Nominal effective exchange rate, constant trade weights
Source: OECD Economic Outlook database
Export performance

17. The previous indicators measure price or cost competitiveness that is supposed to drive a country’s ability to sell its own product. A different concept is export performance which measures the relative gain and losses of world market share of a given country. If a country’s exports are growing faster (slower) that the weighted average demand from its partners it is gaining (loosing) market share.

18. Export performance is defined as

\[
XPERF_{it} = \frac{XMKT_{it}}{XGSVD_{it}},
\]

with

\[
XMKT_{it} = \left( \sum_{p=1}^{N} \frac{XGS_{i \rightarrow p, 2005}}{XGS_{\text{world} \rightarrow p, 2005}} \ast MGSVD_{p,t} \right)
\]

where:

- \(XMKT_{i}\) = export market for goods and services for country i
- \(XGSVD_{i}\) = goods and services export volume of country i, expressed in 2005 US$
- \(XGS_{i \rightarrow p, 2005}\) = goods and services exports values in 2005 from country i to country p
- \(MGSVD_{p}\) = goods and services import volume of country p, expressed in 2005 US$

19. Gains or losses in market share can be interpreted as an \textit{ex-post} sign of competitiveness even if globalisation has made this concept less relevant for assessing countries’ relative performance, because it does not account for exporters that have chosen to relocate their export base abroad. Export performance has had contrasting evolutions among the G7, with losses of market share in Japan and the United Kingdom since the mid-80s, Italy and Canada since the late 90s and France since 2000 (Figures 2 and 3) see. On the other hand, the United States has recovered some market share since the mid-2000s while Germany has gained some since the mid-1990s. The most spectacular increase in market share has been recorded by China as well as eastern European countries and Korea (Figure 2.A of the annex).
Figure 2: Exports Volume Indicators

United States
- Exports of goods and services, volume, USD, 2005 prices
- Export market for goods and services, volume, USD, 2005 prices
- Export performance for goods and services, volume

Japan
- Exports of goods and services, volume, USD, 2005 prices
- Export market for goods and services, volume, USD, 2005 prices
- Export performance for goods and services, volume

Germany
- Exports of goods and services, volume, USD, 2005 prices
- Export market for goods and services, volume, USD, 2005 prices
- Export performance for goods and services, volume

France
- Exports of goods and services, volume, USD, 2005 prices
- Export market for goods and services, volume, USD, 2005 prices
- Export performance for goods and services, volume
Figure 3: Competitiveness and Export performance

United States
- Relative price of exported goods and services
- Export performance

Japan
- Relative price of exported goods and services
- Export performance

Germany
- Relative price of exported goods and services
- Export performance

France
- Relative price of exported goods and services
- Export performance
Source: OECD Economic Outlook database
3. Relating competitiveness and export performance

Overview

The expected negative relationship between the evolution of export performance and relative price of exports seems to have noticeable exceptions among the G7 countries: Japan since the mid-1990s, France in the early 2000s, and the United Kingdom recently (Figure 3). In all cases export performance deteriorated despite gains in competitiveness. In the United States, the most recent pick-up in export performance has occurred quite some time after competitiveness started to improve. In Italy in the 1980s weakening competitiveness did not weigh on export performance. Outside the G7 Eastern European countries all experienced losses in relative competitiveness and rising market shares which may reflect their lower absolute price levels (Figure 2.A).
Overall the negative relationship between the evolution of export performance and relative price competitors is very tenuous (see Figure 4 which plots the average change in market share against changes in competitiveness for all countries over 3 different decades). Some countries experienced clear losses in market share when relative prices declined whereas others experienced gains in market share while losing relative competitiveness. The former group contains mostly advanced economies, while the latter group mostly “catching up” economies where the absolute price and cost levels are likely to remain well below those of trading partners even if the relative difference narrows. Using other measures of competitiveness does not change the overall picture.

**Export volume equations**

22. More formally export volume equations were estimated in 2005 for all OECD countries and zones (see Pain et al 2005) and are still used as a benchmark in country trade projections. Exports volumes are estimated using an ECM where long-term levels are based on the relationship between export performance and relative export prices. It also includes a trend in order to pick-up omitted factors mainly related to non-price competitiveness (including changes in the variety and quality of the products produced in different countries) or bias in the measurement of price competitiveness.

\[
\Delta \ln(XGS_{it}) = \alpha + \beta \Delta \ln(XGS_{it-1}) + \gamma \Delta \ln(XMKT_{it}) + \delta \Delta \ln \left( \frac{PXS_{it}}{PXC_{it}} \right) + \lambda \left[ \ln(XGS_{it-1}) - \ln(XMKT_{it-1}) - \ln \left( \frac{PXS_{it-1}}{PXC_{it-1}} - \mu \text{TREND} \right) \right] + \varepsilon_{it};
\]

23. The estimation results (over a sample ending in 2002) are presented in Pain et al (2005) and summarized in Table 1 for the G7 where W is the export market and RPX the relative export price. The equation was estimated with the seemingly unrelated regression procedure (SUR), both for the large panel of 24 OECD economies and for the smaller subpanels of the Eastern European countries and non-member economies. The procedures used to capture otherwise un-modeled time-varying effects on trade volumes are described in detail in Pain et al (2005), and involve combining linear and logarithmic trends. These trends were significant in most cases, suggesting that price competitiveness is only one factor behind export performance. They also tend to support the assumption of a non-linear trend for most countries. By the end of the sample (2002), the estimated export volume equations implied a trend decline in aggregate OECD export market performance of approximately 0.5% per year. This was offset by an improvement in trend market performance for the non-OECD economies.

24. The results also show that once these non-linear trends are taken into account, the relative export prices have a significant, rightly signed impact on export performance both in the short and long term. This is also the case for the smaller OECD countries (see Pain et al. (2005) for the detailed results).

Moreover, it has proved difficult to find cointegrating relationships between export performance and relative ULC for France, Germany and the United Kingdom while such a relationship exists with relative export prices (the results are not reproduced in the paper).

This allows for the possibility of non-zero covariances across the error terms in the separate country models. Cross-country restrictions in each of the three groups of economies for which SUR estimates have been computed were imposed when accepted by the data.
Table 1: summary of export equations for the G7

<table>
<thead>
<tr>
<th></th>
<th>USA</th>
<th>JPN</th>
<th>DEU</th>
<th>FRA</th>
<th>ITA</th>
<th>GBR</th>
<th>CAN</th>
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<td></td>
<td>COEF</td>
<td>T-STAT</td>
<td>COEF</td>
<td>T-STAT</td>
<td>COEF</td>
<td>T-STAT</td>
<td>COEF</td>
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<tr>
<td>cst</td>
<td>-0.57</td>
<td>-6.7</td>
<td>0.24</td>
<td>3.5</td>
<td>-0.53</td>
<td>-8.7</td>
<td>-0.42</td>
</tr>
<tr>
<td>Long-Run</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>ln(W[-1])</td>
<td>1.00</td>
<td>-</td>
<td>1.00</td>
<td>-</td>
<td>1.00</td>
<td>-</td>
<td>1.00</td>
</tr>
<tr>
<td>ln(RPX[-1])</td>
<td>-0.60</td>
<td>-20.5</td>
<td>-1.05</td>
<td>-10.1</td>
<td>-0.47</td>
<td>-8.8</td>
<td>-0.60</td>
</tr>
<tr>
<td>Dynamics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δln(X[-1])</td>
<td>-0.14</td>
<td>-6.7</td>
<td>-0.14</td>
<td>-6.7</td>
<td>-0.34</td>
<td>-15.2</td>
<td>-0.18</td>
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<tr>
<td>Δln(W)</td>
<td>0.43</td>
<td>5.6</td>
<td>0.65</td>
<td>8.7</td>
<td>0.63</td>
<td>4.7</td>
<td>1.00</td>
</tr>
<tr>
<td>Δln(W[-1])</td>
<td>0.57</td>
<td>-</td>
<td>0.74</td>
<td>7.8</td>
<td>0.37</td>
<td>-</td>
<td>-</td>
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<td>Δln(RPX)</td>
<td>-0.08</td>
<td>-13.4</td>
<td>-0.16</td>
<td>-13.4</td>
<td>-0.08</td>
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<tr>
<td>Δln(RPX[-1])</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>-0.13</td>
<td>-6.3</td>
<td>-0.13</td>
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<td>ECM</td>
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<td>-0.13</td>
<td>-10.5</td>
<td>-0.20</td>
<td>-13.6</td>
<td>-0.20</td>
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</tr>
<tr>
<td>- time</td>
<td>-0.01</td>
<td>-10.5</td>
<td>-0.02</td>
<td>-13.4</td>
<td>-0.01</td>
<td>-10.5</td>
<td>-0.01</td>
</tr>
<tr>
<td>- log(time)</td>
<td>0.62</td>
<td>9.8</td>
<td>1.06</td>
<td>7.8</td>
<td>0.80</td>
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<td></td>
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<td></td>
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<td>R2</td>
<td>0.71</td>
<td>0.75</td>
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<td>0.62</td>
<td>0.69</td>
<td>0.59</td>
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<td>[0.38]</td>
<td>[0.10]</td>
<td>[0.87]</td>
<td>[0.13]</td>
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<tr>
<td>LM[4]</td>
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<td>[0.96]</td>
<td>[0.41]</td>
<td>[0.12]</td>
<td>[0.61]</td>
<td>[0.09]</td>
<td>[0.19]</td>
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<td>[0.48]</td>
<td>[0.27]</td>
<td>[0.33]</td>
<td>[0.99]</td>
<td>[0.34]</td>
</tr>
<tr>
<td>ARCH[1]</td>
<td>[0.42]</td>
<td>[0.09]</td>
<td>[0.95]</td>
<td>[0.62]</td>
<td>[0.42]</td>
<td>[0.52]</td>
<td>[0.72]</td>
</tr>
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</table>

25. Although the equations have not been re-estimated recently, their performance was examined over the recent 2003-2008 period. After 2002 an exponential trend function has been fitted for export to ensure that the estimated trend effects diminish gradually over time (see Figure 5 the trends retained for the G7). Except during the recent financial crisis episode in late 2008 early 2009, where the fit of the equations was very poor, the equations continued to perform well over 2002-2008 with the exception of France, Canada and the United States where export growth was systematically over predicted, suggesting in the case of the United States that the estimated trend effects should not have been smoothed after 2002. Export growth was also over predicted in the United Kingdom after 2006, suggesting that the sterling depreciation did not boost exports as much as expected given past behaviours (Figure 6). Outside the G7, there is also a clear over prediction for Ireland and an under prediction for most eastern European countries and China (Figure A.3).
Figure 5: Trends in export performance

- **United States**
- **Germany**
- **Italy**
- **Japan**
- **France**
- **United Kingdom**
- **Canada**
Figure 6: Exports volume residuals

United States

Japan

Germany

France
The difficulty in explaining the decline in French export performance is well known (see Kierzenkowski (2009), Kabundi and Nadal de Simone (2009) for a survey, Fontagné and Gaulier (2008)). It is possible that stable price competitiveness may reflect compressed margins due to higher costs - as shown on Figure 1 relative ULC of France have increased more than relative export prices since 2000. If so, such compression may have worsened non-price competitiveness, since lower margins tend to reduce the ability to invest, notably in R&D. Gaulier and Fontagné (2008) also suggest that large French firms have opted to set up business and production facilities abroad instead of exporting from France, which has reduced French exports but not sales outside France by French companies. This contrasts with Germany which has improved its competitive position by favouring supplies of cheaper inputs from abroad via foreign direct investment (FDI) in lower-income countries (See ECB (2005) for more discussion on the different types of FDI and their impact on trade flows).

26.
27. In the case of Italy, however, the decline in export performance seems to fully reflect the deterioration in relative competitiveness and past estimated underlying trends. For Eastern European members of the OECD, Allard (2009) finds that strong export performance can be better accounted for when incoming FDI is included in export equations (in addition to trends and export markets).

4. Suggestions for further research

28. Further research is needed to understand the non-price factors affecting export performance, and whether these factors are captured by trends or reflected in large equation residuals. Several studies have pointed to the role of specialisation (i.e. the range and the quality of the products exported), R&D intensity in exporting sectors, and “structural competitiveness” including the development of human capital and the business environment (see for instance ECB (2005)).

29. At the aggregate level, further progress could also be made exploring the role of FDI in trade performance (Figure 7). Higher inward FDI may raise competitiveness through technology spillovers from the foreign affiliate to the host economy broader measures of competitiveness. They also directly increase export performance if the foreign affiliate is used to produce inputs that are imported by the parent company or as a substitute export base for the parent company. Outward FDI have a more complicated impact on export flows depending on whether FDI is aimed at substituting (horizontal FDI, eg France) or complementing (vertical FDI, eg Germany) the export activity.

30. A factor that seems to have played an even more important role in export performance over the past decade is the extent to which countries have participated in vertical supply integration processes. As shown in Figure 8, there seems to be a positive relationship between export performance and the share of vertical trade in each country’s total trade. This may reflect both the role played by FDI in eastern European countries (and before in Ireland) as well as the substitution of locally-produced inputs by imported ones in Germany. It can also partly explain the weaker export performance of countries such as France or Japan which have used a different strategy of exporting from third countries or producing locally.
Figure 7: Export performance for goods and services volume and FDI Positions

OECD Economic Outlook database, OECD International Direct Investment Statistics.
Figure 8: Export performance and vertical trade

Source: OECD Economic Outlook, Miroudot and Ragoussis (2006)


ANNEXE: ADDITIONAL CHARTS - NON G7 COUNTRIES
Figure A1: Price and cost competitiveness indicators

Australia
- Relative price of exported goods and services
- Real Effective exchange rate, unit labour costs
- Nominal effective exchange rate, constant trade weights

Austria
- Relative price of exported goods and services
- Real Effective exchange rate, unit labour costs
- Nominal effective exchange rate, constant trade weights

Belgium
- Relative price of exported goods and services
- Real Effective exchange rate, unit labour costs
- Nominal effective exchange rate, constant trade weights

Czech Republic
- Relative price of exported goods and services
- Real Effective exchange rate, unit labour costs
- Nominal effective exchange rate, constant trade weights

2005+1
Sweden

- Relative price of exported goods and services
- Real Effective exchange rate, unit labour costs
- Nominal effective exchange rate, constant trade weights

Switzerland

- Relative price of exported goods and services
- Real Effective exchange rate, unit labour costs
- Nominal effective exchange rate, constant trade weights

Turkey

- Relative price of exported goods and services
- Real Effective exchange rate, unit labour costs
- Nominal effective exchange rate, constant trade weights

Source: OECD Economic Outlook database
Figure A2: Competitiveness and Export performance

Australia
- Relative price of exported goods and services
- Export performance

Austria
- Relative price of exported goods and services
- Export performance

Belgium
- Relative price of exported goods and services
- Export performance

Czech Republic
- Relative price of exported goods and services
- Export performance
Source: OECD Economic Outlook database
Figure A3: Exports volume residuals

Australia

Austria

Belgium

Czech Republic
Iceland

Ireland

Korea

Luxembourg
Figure A3: Exports volume residuals

Poland

Portugal

Slovak Republic

Spain
Source: OECD calculation