OECD Economics Department Working Papers No. 195

Trends in OECD Countries' International Competitiveness: The Influence of Emerging Market Economies

Martine Durand,

Christophe Madaschi,

Flavia Terribile

https://dx.doi.org/10.1787/345570563225

OECD

Unclassified **ECO/WKP(98)8**

Organisation de Coopération et de Développement Economiques
Organisation for Economic Co-operation and Development

OLIS : 23-Apr-1998
Dist. : 04-May-1998

English text only

ECONOMICS DEPARTMENT

ECO/WKP(98)8
Unclassified

TRENDS IN OECD COUNTRIES' INTERNATIONAL COMPETITIVENESS : THE INFLUENCE OF EMERGING MARKET ECONOMIES : ECONOMICS DEPARTMENT WORKING PAPERS N0. 195

by
Martine Durand, Christophe Madaschi and Flavia Terribile

64737

Document complet disponible sur OLIS dans son format d'origine
Complete document available on OLIS in its original format

English text only

ABSTRACT/RÉSUMÉ

The large exchange rate depreciations registered in a number of Asian countries since mid-1997 have raised the issue of whether this could lead to major shifts in the relative costs and prices of production across countries, and hence in the relative competitive positions of OECD and non-OECD countries. To take account of the growing importance of Asian emerging economies in world markets, they have been added, together with a number of other non-OECD emerging market economies, to the group of countries covered in the calculation of the OECD Secretariat competitiveness indicators. The main findings that emerge from the analysis presented in this Working Paper are the following: first, the United States is by far the most competitive economy among major OECD countries, both in terms of higher productivity performance and lower absolute cost levels in the manufacturing sector. However, emerging market economies for which data are available display significantly lower levels of unit labour costs than industrialised countries. Recent depreciations will therefore tend to reinforce the competitive advantage that these economies already enjoy. Second, Asian emerging market economies influence in a significant way the pattern of competition of OECD countries and trends in competitiveness indicators. Third, recent changes in relative competitive positions, if lasting, may add to the existing large bilateral trade imbalances between the major three OECD regions and emerging Asia and affect the location of foreign direct investment.

* * *

Les importantes dépréciations de change enregistrées par un certain nombre d'économies émergentes d'Asie depuis la mi-97 ont soulevé la question de savoir si cela risquait de conduire à des changements significatifs de prix et coûts relatifs entre les pays OCDE et non-OECD. Afin de prendre en compte l'importance croissante des économies émergentes d'Asie dans les échanges mondiaux, ces dernières ont été ajoutées, avec d'autres économies émergentes, au groupe de pays entrant dans le calcul des indicateurs de compétitivité du Secrétariat de l'OCDE. Les principaux résultats de l'analyse présentée dans ce document de travail sont les suivants: premièrement, les Etats Unis sont de loin l'économie la plus compétitive parmi les pays de l'OCDE,à la fois en termes de niveaux de productivité ou de coûts salariaux unitaires de main d'oeuvre dans le secteur manufacturier. Cependant, les niveaux de coût dans les économies émergentes pour lesquelles il existe des données sont nettement plus bas que dans n'importe quel pays industrialisé. Les dépréciations récentes auront donc tendance à renforcer l'avantage concurrentiel dont ces économies bénéficient déjà. Deuxièmement, les économies émergentes d'Asie ont une influence significative sur la structure de la concurrence des pays de l'OCDE et sur les évolutions des indicateurs de compétitivité. Troisièmement, s'ils perdurent, les récents changements intervenus dans les positions concurrentielles relatives risquent d'accroître les importants déséquilibres commerciaux qui existent déjà entre les principales régions de l'OCDE et les économies émergentes d'Asie ainsi que d'affecter la location des investissements directs à l'étranger.

TABLE OF CONTENTS

TRENDS IN OECD COUNTRIES' INTERNATIONAL COMPETITIVENESS: THE INFLUENCE OF EMERGING MARKET ECONOMIES

I. Introduction and Summary 4
II. Indicators of relative levels of competitiveness 6
III. Indicators of changes in international competitiveness 7
A. The emergence of new competitors in world markets 8
B. Changes in relative competitive positions 10
IV. Implications for trade and FDI developments 11
A. Indicators of international competitiveness and trade performance 12
B. Changes in competitiveness and FDI 13

Tables

1. Relative labour productivity levels in manufacturing
2. Manufacturing labour productivity levels by sector
3. Relative levels of unit labour costs in manufacturing
4. Shares in world merchandise trade
5. The importance of emerging market economies in the determination of major OECD regions' pattern of competition
6. Decomposition by market of the pattern of competition of the three major OECD regions
7. Direction of trade
8. Bilateral trade balances
9. Impact of recent exchange rate changes on current-account balances
10. Geographical breakdown of stocks of direct investment abroad in selected countries

Figures

1. Movements in nominal exchange rates
2. Structure of manufactured exports in selected OECD and non OECD Asian countries, 1995
3. Nominal and real effective exchange rates
4. Decomposition of real effective exchange rates based on CPI by region
5. Real effective exchange rates based on CPI and merchandise export performance
6. Shares held in manufactured imports of the three major OECD markets
7. Import penetration in major OECD regions

Annex: Recent revisions to international competitiveness indicators
Annex Table 1. Weighting Matrices
Annex Figure 1. Real and nominal effective exchange rates in selected non-OECD countries
Annex Figure 2. Nominal effective exchange rates

TRENDS IN OECD COUNTRIES' INTERNATIONAL COMPETITIVENESS: THE INFLUENCE OF EMERGING MARKET ECONOMIES

Martine Durand, Christophe Madaschi and Flavia Terribile[1]

I. Introduction and Summary

1. Over the past two decades or so, there have been wide swings in nominal exchange rates between the currencies of major OECD countries as well as between the currencies of OECD and a number of non-OECD countries (Figure 1). These very large movements in exchange rates have at times produced substantial shifts in the relative costs and prices of production across countries, and hence in the relative competitive positions and trade balances of OECD and non-OECD countries. Given the increasing importance of Asian emerging market economies in world trade, the massive currency depreciations registered by a number of them since mid-1997 have raised the issue of whether this could lead to a major redistribution of competitiveness gains and losses across countries, resulting in substantial current-account adjustment. In the past, however, potential competitiveness gains deriving from nominal exchange rate depreciations have often tended to be eroded by rising inflation. This paper looks in some details at how exchange rate variations and a number of other factors, in particular initial conditions, have affected OECD countries' competitiveness over time.

2. The notion of competitiveness is somewhat vague, however. The broadest approach consists of comparing macroeconomic performance and overall living standards, by generally focusing on productivity trends. In a more narrow sense, the concept of competitiveness captures countries' ability to sell their products in world markets[2]. In this context, competitiveness is usually discussed in terms of cost and price differentials. Non-price factors, such as technological innovation or the quality of products (including after-sales services), may be equally -- or more -- important, but are typically given less

---

1. The authors are all members of the OECD Economics Department. Martine Durand is counsellor for macroeconomic policy. Christophe Madaschi is research assistant in the Non-Member Economies Division and Flavia Terribile is an economist in the Monetary and Finance Division. Special thanks go to Susan Gascard for technical preparation. Thanks also go to Michael Feiner and Ignazio Visco for their comments on an earlier draft.

2. In principle, competitiveness is a relevant concept only for firms which can gain and lose market shares, and in the latter case, may eventually go out of business. It is not really a relevant concept for countries, because, as argued by P. Krugman (1996), countries cannot go out of business and therefore should not care about "competitor countries". There are nonetheless reasons for a country to be concerned with shifts in market shares at the sectoral level, because such shifts may imply changes in the sectoral composition of output and in living standards. It clearly cannot be an objective of policy to prevent losses in sectoral market shares, as this type of policies cannot be pursued in all countries at the same time, but policies must ensure that the economy is flexible enough to adjust to these shifts at minimum costs and to reallocate resources in order to ultimately improve living standards.

attention because they are usually more difficult to compare across countries or do not lend themselves readily to quantification.

3. The paper concentrates mainly on the quantifiable aspects of competitiveness, in particular those that help explain international trade trends. Estimates of levels of manufacturing productivity[3] are first presented for a number of countries. While these estimates may provide insights into countries' relative economic performance and on the potential for catch up, they also give an indication of countries' comparative advantage at any point in time. It is not always the case, however, that high productivity performance automatically translates into improved competitive positions as measured by relative costs and prices. Much depends, among other things, on trends in labour compensation and exchange rates. Estimates of absolute levels of manufacturing unit labour costs are also reported and compared with productivity levels. To the extent that prices of tradeable goods across countries converge over time, absolute cost levels also provide benchmarks for assessing equilibrium exchange rates.

4. Given data limitations, however, absolute cost comparisons can only be made for a limited number of countries. In order to expand the country coverage, and in particular to take into account the increasing importance of some emerging market economies as competitors in world markets, trends in indicators of *changes* in relative prices are also presented[4]. As opposed to absolute cost, these indicators do not permit a comparison of levels of relative competitiveness across countries, but they provide an indication of whether a country has become more or less competitive than its trading partners over a particular period. A final section of the paper analyses the implications that changes in relative competitive positions among OECD as well as non-OECD countries have had on international trade and foreign direct investment (FDI) developments.

5. The main findings of the paper can be summarised as follows:

-- The United States remains by far the most competitive economy among major OECD countries. In the manufacturing sector, productivity is higher and absolute cost levels lower than elsewhere. However, there is more cross-country variation at the sectoral level;

-- Emerging market economies in Asia, for which similar data are available, display much lower levels of unit labour costs than OECD countries;

-- The emergence of new competitors on world markets, especially from East Asia, has significantly altered the pattern of OECD countries' competition. These competitors now account for about 40 per cent of overall competition on domestic and foreign markets for Japan, 25 per cent for the United States and 20 per cent for the European Union. Among these new competitors, China in particular is emerging as a major player;

---

3. While for most OECD countries the services sector now accounts for a growing share of international trade, data limitations have so far prevented comparisons for a sufficient large number of countries.

4. Up until now, the relative cost and price indices calculated by the OECD were designed so as to encompass competition on world markets among competitors from OECD countries as well as from a limited number of countries in South East Asia whose shares in world trade were expanding rapidly (i.e. Chinese Taipei; Singapore; and Hong Kong, China). To take into account the increasing importance of other emerging market economies as competitors in world markets, the OECD Secretariat has revised its indicators to include China, Indonesia, Malaysia, the Philippines, Thailand, India, Argentina, Brazil and Russia (the latter from 1992 onwards). See the Annex for a description of the revised international competitiveness indicators.

-- The relative importance of this source of new competition reflects in part the increasing similarity of export structures between emerging market economies and OECD countries;

-- The inclusion of new emerging market economies influences more the trends in nominal effective rates than that of real rates. This is because most phases of effective nominal depreciations experienced by these economies have, to a large extent, been associated with rising cost and price inflation. Nevertheless, emerging market economies have a significant influence on the US and Japanese competitiveness indicators.

-- There appears to be a fairly good link between changes in OECD and non-OECD countries' competitiveness and gains and losses in export market shares;

-- These trends in trade and competitiveness have resulted in large bilateral trade imbalances between the major three OECD regions and Asian emerging market economies taken together; whether the recent massive depreciations registered in some of these economies will induce further adjustment is not certain, as there are a number of factors that might prevent the realisation of potential competitiveness gains;

-- Similarly, competitiveness developments appear to have affected past foreign direct investment trends, and recent changes in exchange rates, if lasting, may also have an impact on future FDI and thus indirectly on trade flows.

II. Indicators of relative levels of competitiveness

6. The OECD Secretariat has conducted a number of studies to estimate sectoral productivity levels[5]. The results of these studies suggest that, notwithstanding the significant changes in the relative productivity performance of OECD countries over the past two or three decades, the United States has consistently produced more output for labour input at the aggregate manufacturing level than other major OECD countries. Evidence presented in Table 1 also suggests that US productivity performance has also improved relative to a number of other OECD countries over the past decade. For example, Canada's manufacturing productivity level was relatively high during the 1970s, but has fallen substantially over the past decade. Similarly, Germany's and France's relative productivity performance has tended to deteriorate since 1985. On the other hand, the productivity gap *vis-à-vis* the United States has steadily narrowed in Japan, Italy and the United Kingdom. A number of smaller countries, such as Belgium, Finland, the Netherlands and Sweden are estimated to have high productivity levels. In particular, Finland and to a lesser extent Sweden improved labour productivity relative to the United States over the past decade. This reflects the fact that the manufacturing sectors of these smaller economies tend to be more specialised than that of the larger countries and relatively capital-intensive.

7. Estimates for individual manufacturing industries suggest more cross-country variation than for the manufacturing sector as a whole (Table 2). In particular, the leadership in specific manufacturing industries is more diversified. In 1987, the United States was the productivity leader in food products and electrical machinery, the Netherlands in textiles and chemical products, Japan in basic metal products and transport equipment, Sweden in paper and metal products. By 1993, some of these relative positions had changed however, with the Swedish performance, in particular, improving substantially. The greater diversity at the industry level partly reflects differences in specialisation and comparative advantage. However, it may also indicate that productivity performance in some countries is far removed from best-

5. See, for example, D. Pilat (1996) and OECD (forthcoming, 1998).

practice, thus indicating a potential for catch-up. Other similar analyses (Hooper and Vrankovich, 1995), as well as country-specific case studies conducted for a few OECD countries (McKinsey, 1993, 1994, 1995) which have the advantage that firms and products can be carefully matched, confirm the results obtained by the OECD Secretariat regarding the existence of large differences in performance across the OECD area. For instance, in food products, the United States is found to be the undisputed leader, with Japan particularly trailing far behind. In motor vehicles, Japan and the United States are the world productivity leaders, clearly outperforming the European countries. In computer equipment, the same studies point to only small differences between the three major OECD regions for which data are available.

8. Trends in relative levels of manufacturing productivity do not appear to have automatically translated into similar trends in absolute cost levels. In a number of countries cost levels in the manufacturing sector have also been markedly influenced by opposite developments in relative labour compensation levels and exchange rates. The United States is an exception to this overall picture. Indeed, estimates of absolute unit labour costs in manufacturing[6] suggest that the United States has generally been holding a cost advantage over its main OECD trading partners (Table 3). Since the late 1980s, this favourable cost differential has tended to widen, reflecting the depreciation of the US dollar *vis-à-vis* other major OECD currencies. On the other hand, while Japan was estimated to be one of the lowest OECD cost producers in the 1970s and in the early 1980s, its absolute cost competitiveness has deteriorated rapidly and continuously after 1985 when the yen started to appreciate, despite its improved productivity performance. Germany has experienced a larger relative deterioration in costs than in productivity since the mid-80s mainly reflecting a widening of the gap between this country's and other OECD countries' compensation rates[7]. Italy and Spain appear to enjoy lower levels of unit labour costs in manufacturing than other non-emerging OECD countries for which data are available. In the European Union as a whole however, as well as in Japan, relative absolute labour costs in 1996 were much higher than those in the United States. This may point to future potential exchange rate pressures for the yen and the future euro exchange rates *vis-à-vis* the US dollar, in the absence of adjustments in Japan's and EU productivity levels and/or levels of labour compensation.

9. Among emerging market economies for which absolute cost data are available, it appears that, over the 1975-96 period, Chinese Taipei and Korea have been able to maintain significantly lower levels of unit labour costs than other OECD countries, despite a substantial deterioration since the late 1980s. Although comparative data are not available, labour cost levels in other emerging market economies in East Asia are most certainly also lower than in OECD countries. The recent massive exchange rate depreciations of these economies' currencies will reinforce the absolute cost advantage that they already enjoy, making them even more competitive internationally.

III. Indicators of changes in international competitiveness

10. Given the difficulty in obtaining and constructing reliable data on comparative levels of unit labour costs for a sufficiently large number of countries, most analysis on international competitiveness focuses on variations in relative costs or prices. While this undoubtedly presents some drawbacks, it

---

6. These absolute cost estimates are based on a somewhat different methodology than the one used to derive estimates of productivity levels. Comparisons should therefore be interpreted with caution. For more details see D. Pilat (1996) and OECD (1993).

7. Figures in Table 3 refer to West Germany only. For developments in productivity and unit labour costs in Eastern Germany see OECD Economic Surveys, Germany (1997).

nonetheless provides useful information on comparative movements across countries since a base period. For a long time, the OECD Secretariat has calculated and published indicators based on relative unit labour costs and export prices for the manufacturing sector, as well as relative CPIs[8]. The principles guiding the construction of these indicators were that they should encompass most sectors exposed to competition, all markets where competition takes place and as many competitors as possible. In practice, the OECD indicators cover the manufacturing sector (taken as a proxy for the tradeable sector) or the whole economy, competition in all markets, and competitors from OECD countries as well as three Asian newly industrialising economies (Chinese Taipei, Singapore and Hong Kong, China). Regarding the coverage of competitors, the recent financial crisis in Asia has raised the question of whether other countries, mainly emerging market economies, should be included in the calculation of competitiveness indicators.

A. The emergence of new competitors in world markets

11. While OECD countries continue to dominate world trade, accounting for about three quarters of both world merchandise exports and imports (60 per cent if intra-EU trade is excluded), over the past two decades a number of countries outside the OECD area have become increasingly important players (Table 4). This reflects a major redistribution of both exports and imports within the non-OECD area. From the mid-1970s to the time of the sharp fall in oil prices in 1986, OPEC was by far the largest non-OECD exporter and importer. Since then, however, OPEC's importance in world trade has diminished substantially. In contrast, emerging economies in Asia -- China, in particular -- have seen their share in word trade expanding steadily, especially in manufacturing. By 1996, Korea, China and other Asian emerging market economies taken as a group had a higher share in world merchandise exports than the United States, at about 23 per cent, compared with 13 per cent in 1985.

12. The greater importance of emerging Asia in world trade of manufactured goods has had major implications for the pattern of competition of the three major OECD regions. Table 5 reports figures representing market shares held by competitors of the three major OECD regions on all their common markets, including the domestic market, weighted by the importance of these markets for each region. These figures can thus be interpreted as an indication of the relative weight of each competitor in the pattern of competition facing each major OECD economy on their domestic market as well as on third markets. While in 1970 competition on world markets exerted itself essentially among OECD countries, this is no longer the case. For instance, competition from emerging Asia represented about 6 to 8 per cent of overall competition on world markets for the United States and Europe and about 11 per cent for Japan in 1970. It now accounts for more than 20 per cent for Europe, about 25 per cent for the United States and more than 40 per cent for Japan. Among Asian emerging countries, competition facing OECD regions has increased most from Chinese Taipei and Korea in the late 70s and in the 80s, and especially from China since 1990. China is now half as important as a competitor for Japan as either the United States or the European Union. Other emerging market economies outside Asia have also become sizeable competitors for the OECD countries. This is especially the case of Mexico for the United States.

13. A more detailed analysis of changes in the pattern of competition for the major OECD regions can be obtained by decomposing overall competition according to individual markets. Such a decomposition (Table 6) shows that for the United States, the pattern of competition remains dominated by the home market (i.e. by competition facing US producers on their own market -- see bottom line of the

8. For a methodological review of the measures of international competitiveness calculated by the OECD, see Durand and Giorno (1987).

panel on the United States). On this market, exporters from Asian emerging countries have become increasingly important as competitors to US producers. Indeed, competition from Asian emerging market economies is now similar to that from Canada and Mexico combined, and has outpaced that from Japan and Europe. The second most important markets for the determination of competition facing the United States are the "other OECD countries", which consist mainly of Canada and Mexico, and the non-OECD countries. In the "other OECD" market, domestic producers have tended to remain the main competitors for US exporters. On the non-OECD market, competition from EU exporters -- albeit still the most important -- has declined significantly, compensated by an increase in competition from East Asian economies.

14. For Japan, the share of the domestic market in the determination of overall competitiveness has increased over time, though remaining much less important than in the case of the United States. The market share of exporters from Asian emerging countries on the Japanese home market has increased dramatically at the expense of US and EU exporters. Other important markets determining Japan's competition include the non-OECD countries and the United States. The relative shares of Japan's main competitors on the US market have changed little since 1980, US producers remaining by far the most important ones. On the non-OECD market, which includes mainly other countries in Asia, competition from domestic producers has increased substantially, mainly at the expense of EU exporters. By 1995, however, Japan's main competitors on the non-OECD Asian market remained EU exporters and, interestingly enough, not US exporters.

15. The pattern of EU competition remains dominated by the domestic and the non-OECD market. The importance of the latter has tended to decline however, mainly reflecting diminishing EU exports to non-OECD countries outside Asia. On all non-OECD markets, producers and exporters from Asian emerging countries have increased their importance as competitors to EU countries since 1980, at the expense of US and Japanese exporters. On the domestic market, main competition for EU producers in 1995 came about equally from emerging Asia and US exporters, while it was dominated by the latter fifteen years before.

16. The above analysis, while providing insights into how competition in manufacturing among major trading partners has evolved over time, should nonetheless be interpreted as representing possible, rather than actual, changes that have occurred over the past decades. Indeed, the calculations underlying the figures cited above are based on bilateral trade in aggregate manufactured goods. As such they do not allow for any degree of substitution between different categories of manufactured goods[9]. This caveat may be particularly important when looking at competition emanating from emerging market economies. Indeed, while the degree of intra-trade for similar products is generally high for OECD countries, this is not necessarily the case of trade between OECD and non-OECD countries[10]. In that respect, it is useful to also compare the composition of manufactured exports in OECD and non-OECD Asian countries. Two groups of non-OECD Asian countries seem to emerge. In the first group, which includes China, Indonesia and Hong Kong, China, exports are concentrated in products with relatively low technological content such as textile, footwear, toys and other consumer goods (Figure 2). By 1995, these products accounted for almost 50 per cent of these countries' merchandise exports. In contrast, in the second group of countries, which includes Chinese Taipei, Malaysia, Singapore and Thailand, exports consist more of high to medium-to-high technological goods, in particular computers, electrical and communication goods

9. The method for calculating the weights presented here derive from the Armington framework (1969), with the simplification that there is no substitution among manufactured goods, and that there is no pricing-to-market strategy from the part of competitors.

10. See OECD (1994).

which represent more than 50 per cent of these countries' total exports. The structure of Korea's exports lies in between the two groups identified above with about 23 per cent of its exports consisting of textile and apparel and about 35 per cent of electrical and electronic products. Exports from the second group of countries, and to a lesser extent from Korea, would therefore appear to enter more directly in competition with OECD countries' exports than exports from the first group. Among the major three OECD regions, Japan seems to be the most likely to be affected, given its export structure, and the European Union the least.

B. Changes in relative competitive positions

17. The characteristics of competition facing OECD countries described above and their evolution over time are those embodied in the weighting pattern used in the calculation of indices of nominal and real effective exchange rates reported in Figure 3[11]. For the majority of countries, relative CPIs and indices of relative manufacturing unit labour costs move broadly together and show less variability over time than corresponding nominal effective exchange rates. For a few countries, however, competitiveness indicators based on unit labour costs in the manufacturing sector tend to have more pronounced trends than those based on consumer prices and higher short-run volatility reflecting the offsetting effect of exchange rate movements on CPIs via import prices. Trends in these indicators since 1985 for OECD countries as well as for the EU aggregate[12], indicate that several periods can be distinguished (indicators for emerging market economies, are reported in the Annex Figure 1):

- -- despite significant bilateral movements, there has been a simultaneous nominal effective appreciation of the three major OECD regions' currencies between the late 1980s and early 1995. This was accompanied by very large depreciations in many emerging market economies over this period;

- -- on the other hand, over the same period, the Japanese yen and, to a lesser extent, some EU currencies have appreciated in real effective terms, while the US dollar has depreciated;

- -- this trend was reversed between early 1995 and mid-1997, with the Japanese yen and EU currencies depreciating in nominal and real effective terms and the US dollar appreciating;

- -- since mid-97, all OECD countries' nominal and real effective exchange rates have appreciated, as the result of the massive depreciations in the currencies of emerging market economies in Asia. By mid-March 1998 the nominal effective appreciation amounts to 11, 5 and 3 per cent for the United States, Japan and the European Union, respectively. In Japan and the EU, however, this appreciation has only partially unwound earlier depreciations.

18. The decomposition of competitiveness indicators, as measured by relative CPIs, according to OECD and emerging Asian competitors indicates that trends in relative prices since 1991 remain largely dominated by currency and price movements within the OECD area (Figure 4). However, there are a

---

11. Historical data on manufacturing unit labour costs for emerging market economies extend only through 1996. Thereafter, data are based on OECD Secretariat estimates. Unit labour costs are therefore more appropriate for examining longer-term trends, while CPI data, which are readily available for the most recent period, are more relevant for the analysis of the latest developments in competitiveness. See the Annex for a description of the sources of data.

12. See the Annex for details on how an aggregate EU exchange rate has been calculated.

number of episodes where developments *vis-à-vis* Asian emerging market economies have affected trends in OECD countries' overall competitive positions.

19. Movements in US competitiveness *vis-à-vis* Asian emerging market countries between 1995 and mid-1997 have to some extent worked to reduce the overall US competitiveness losses registered over that period. Indeed, there was no reversal in the trend of improved US competitiveness *vis-à-vis* emerging Asia when the competitive position of the United States *vis-à-vis* other OECD competitors deteriorated markedly. To a large extent, this reflects the exchange rate policies followed by most Asian emerging market economies during that period, to maintain close ties between their currencies and the US dollar.

20. Such ties have also tended to reinforce the influence of the movements in the dollar exchange rate on Japan's competitive position. Thus, the appreciation of the yen exchange rate between 1991 and mid-1993 corresponds to a period of loss in Japanese competitiveness *vis-à-vis* both the OECD and emerging Asia, while the reverse holds for the period between early 1995 and early 1997. On the other hand, the devaluation of the Chinese yuan during 1993-94 was responsible for some deterioration in Japan's overall competitiveness.

21. For the EU as a whole, as well as for EU countries individually, intra-ERM currency movements have had the major influence on overall competitiveness trends between 1992 and 1994, as a number of European currencies depreciated both against the Deutschemark and other core ERM currencies and against currencies outside the EU. Nevertheless, between late-1995 and mid-1997 improvements in the EU overall competitiveness have reflected ERM currencies' depreciations against the dollar but also a marked improvement in EU competitive position *vis-à-vis* emerging Asia.

22. Since mid-1997, the massive depreciations of the Korean and non-OECD Asian currencies have led to large deteriorations in the competitive positions of the three major OECD regions *vis-à-vis* Asian emerging market economies. For the United States, this added to the deterioration of competitiveness *vis-à-vis* other OECD countries. On the other hand, for Japan, the loss of competitiveness *vis-à-vis* emerging Asia has more than offset the improvement *vis-à-vis* other OECD countries since the third quarter of 1997. In contrast, the EU overall competitive position thus far appears to have been less affected by currency movements in East Asia.

IV. Implications for trade and FDI developments

23. As noted above, the measures of international competitiveness encompass competition in both domestic and external markets. They can *de facto* be seen as representing a weighted average of import and export competitiveness. These indicators therefore are relatively well suited to analysing trends in trade balances[13], although they are of course not the only determinant of these trends. This is done in the following section.

13. As opposed to indicators of import and export competitiveness that should be used to analyse import and export trends, respectively.

A. Indicators of international competitiveness and trade performance

24. For a number of countries there is a fairly good correlation[14] (allowing for time lags) between significant movements in indicators of OECD countries' international competitiveness and gains and losses of export market shares[15]. The real effective depreciation of the US dollar between 1985 and 1995 has been accompanied by substantial cumulative market share gains (Figure 5). Conversely, the deterioration in Japan's competitiveness was followed by large export market share losses since 1985. Among European Union countries, the correlation between competitiveness and export performance appears to have been the greatest in Italy, Sweden and to a lesser extent Germany. In France, Belgium and the Netherlands both competitiveness and export performance have remained remarkably stable since 1985. In a number of other European countries (e.g. Switzerland, Germany and the United Kingdom), there appears to be a trend deterioration in export performance. This generally can be associated with losses in competitiveness *vis-à-vis* Asian emerging market countries, but also *vis-à-vis* Spain and Portugal which have registered large market share gains since joining the European Community.

25. The rising importance of Asian emerging market countries as world exporters also reflects improvements in their aggregate competitiveness, although for a number of them, export market share gains have been achieved in spite of a marked deterioration in their competitive position (e.g. Singapore, and Hong-Kong, China). These developments, however, have to be seen against the background of the low levels of unit labour cost mentioned earlier. While reflecting third market gains, emerging Asia's improved trade performance also results, at least to some extent, from a deterioration in the relative import competitiveness of OECD countries. This is illustrated by the impressive increase in China's share in the Japanese market, from 4 to 13 per cent between 1985 and 1995 (Figure 6). China also gained market shares in the US and EU markets, although the rise was less dramatic than in Japan, from less than 2 per cent to around 6 per cent. China is now the fourth biggest foreign supplier in the United States while Korea, China and other Asian emerging countries taken as a group account for about 23 per cent of US imports, i.e. more than either Japan or the EU (Table 7). This group of countries have also by far surpassed the United States as the principal supplier of the Japanese market. The penetration of Chinese and other Asian emerging countries' imports in the European Union market is now just a little below that of the US once intra-EU trade is excluded.

26. Notwithstanding the higher import penetration of China and other Asian emerging economies on the Japanese market, Japan's overall trade openness indicator, as measured by the ratio of merchandise imports to GDP, despite fluctuations, was no higher recently than it was in the mid-1980s (Figure 7). This was also more or less the case for the European Union (once intra-EU trade is excluded) and for the United States until the late 1980s. Since the early 1990s, however, the import penetration ratio has tended to increase in the United States.

27. Overall, the changes in international competitiveness and related trade performance described above have contributed to the large shifts in major OECD regions' bilateral trade balances[16], especially

---

14. The OECD Secretariat has estimated a regression of manufacturing export performance on contemporaneous and lagged indicators of competitiveness over the period 1975-98. For the majority of countries analysed here, the *R*-squared was above 0.5.

15. The current pattern of trade balances of OECD countries is also reflecting an important absorption effect. For that reason, this section analyses the link between real effective exchange rates and export performance only.

16. Some care has to be taken in focusing analysis on bilateral balances, given that the fundamental nature of the international trading system is multi-lateral and multi-product.

with Asian emerging market economies. By 1996, China was running a trade surplus *vis-à-vis* all three OECD regions, and other non-OECD East Asian countries had a substantial surplus *vis-à-vis* the United States (Table 8). In contrast, in 1985 trade between the United States and China was virtually balanced, while Japan and the European Union had a surplus *vis-à-vis* China. In 1996, the combined US deficit *vis-à-vis* China and other Asian emerging countries amounted to around $80 billion, compared with a deficit of $50 billion *vis-à-vis* Japan.

28. The recent massive depreciations of the Korean and non-OECD East Asian currencies are likely to add to the present imbalances *vis-à-vis* emerging Asia. A simulation of the impact of the potential recent competitiveness changes on trade and current accounts has been conducted using the OECD INTERLINK model. This exercise is a partial simulation of the trade block of the model only. It does not take into account the adjustments in domestic demand resulting in part from the change in the policy framework that followed the depreciations in the affected countries, nor the eventual policy responses in the OECD countries[17]. The results of the simulation presented in Table 9 suggest that the potential adjustment might be quite substantial. By 1999, the positive swing in the Korean and affected non-OECD Asian countries' current accounts amounts to more than $40 billion and $20 billion, respectively. The counterpart is found for about half in the United States and for the other half in Europe and Japan combined. This estimated adjustment, however, is likely to represent an upper bound of the order of magnitude of competitiveness-induced trade changes. First, the pass-throughs of changes in nominal exchange rates into trade prices are particularly uncertain in the face of such large depreciations, and these could well be lower than those embodied in the simulation[18]. Second, a number of exporters in the affected countries seem to face financing constraints due to the underlying weak situation of the banking sectors. Third, the reservation made earlier regarding the fact that OECD and non-OECD East Asian countries have a different export structure also imply that potential exports may not translate into actual exports. Fourth, competitiveness gains might be reversed if the large nominal depreciations of Asian currencies prove temporary or translate into higher rates of inflation, as seems to be the case already for some of these countries.

B. Changes in competitiveness and FDI

29. Foreign direct investment has expanded rapidly since the mid-1980. Cumulative outflows from OECD countries totalled $2¼ trillion between 1985 and 1996, with the aggregate stock of outward direct investment rising from 6 per cent of OECD-wide GDP in 1985 to around 10 per cent in 1995[19]. The US companies remain the most active foreign investors, total outstanding direct investment abroad amounting to over $700 billion in 1995 (Table 10). Since 1990, the United States has invested directly abroad around $400 billion, or over a quarter of total OECD outflows. Around 44 per cent of these outflows were directed to the European Union, 8 per cent to emerging Asia and only 5 per cent to Japan.

---

17. The OECD Secretariat's most recent projections, which take these factors into account, envisage a larger swing in current accounts of these countries than presented in Table 9, which is concerned exclusively with the effects of competitiveness changes.

18. In the affected countries, the pass-through of the exchange rate changes on dollar import prices has been assumed to be equal to about 30 per cent after one year. For dollar export prices the pass-through has been assumed to be equal to 55 per cent after one year and declining thereafter.

19. The stock of foreign direct investment understates the level of multinational activity, since it does not include operations financed by funds raised from outside the home country.

30. After having invested primarily in OECD countries until the late 1980s, Japanese multinational firms have since directed large part of their foreign investment to emerging market economies in Asia. While until the second half of the 1980s, more than one half of Japanese investment in Asia went to the newly-industrialising economies (Chinese Taipei; Singapore; and Hong Kong, China), these locations were then superseded by the emerging markets of South-East Asia. Since 1993, China has become the favoured destination in Asia for direct investment by Japanese manufacturing companies. In contrast, although expanding, the share of FDI in East Asia has remained small for the major European countries; the largest share of the European Union investment has remained within Europe itself.

31. A number of factors play a role in the determination of the scale and location of foreign direct investment[20]. In particular, real effective exchange rates influence foreign direct investment decisions because they directly affect the relative competitive position of different locations. For example, empirical evidence suggests that the strong appreciation of the yen between 1985 and early 1995 has been a major determinant of Japanese direct investment in Asia and the United States.[21] The effective appreciation led to a growth in capital outflows, as Japanese multinational companies tried to take advantage of the relatively cheaper factor costs in host economies. In addition, it raised the relative wealth of Japanese firms, leading to an increase in purchases of foreign assets. Studies on the determinants of US and Japanese foreign direct investment flows in the European Union during the 1980s and early 1990s also show that the real exchange rate has been an important explanatory variable[22]. Recent exchange rate changes, if lasting, may therefore have important implications for future FDI flows, especially in Asia.

32. While there is widespread evidence of a positive relationship between inward direct investment and export performance, empirical research on the impact of outward investment on exports remains largely inconclusive, the effects varying significantly between countries and the time period under consideration. On balance, the evidence from early cross-sectional studies and panel studies with a limited time dimension suggests a complementary relationship between exports and outward direct investment, owing to an increased demand for intermediate products and the expansion of distribution facilities. However, more recent time-series studies obtain stronger evidence of a substitution effect between foreign affiliates production and domestic exports, suggesting that the relationship may change over time, possibly reflecting the maturity of investments[23]. Given a negative relationship between FDI and exports, this could reinforce the response of trade flows to changes in competitiveness.

---

20. These factors include: relative factor costs and factor endowments; local market size; scale economies and the presence of firm-specific assets, such as managerial and production expertise and process innovations, which can act as "joint' inputs across plants for a firm operating in different countries; national and regional barriers to trade and non-trade barriers such as technical standards; different tax regimes; the development of distribution channels abroad and the provision of after-sales service facilities; the quality of infrastructure, research capacities, the level of education and training of the labour force. See, for example, Barrell and Pain (1997).

21. See Sianesi (1995). This study analyses Japanese FDI outflows directed to Malaysia, Thailand and Indonesia during 1973-1992. See also Cushman (1988).

22. See, for example, Aristotelous and Fountas (1996).

23. See Barrell and Pain (1997); Barry and Bradly (1997); and Blomström *et al.* (1997). A recent MITI study on the impact of Japanese overseas business activities in manufacturing on the balance of trade estimates that the positive impact of foreign affiliates on Japan's trade surplus has gradually declined from a peak of 2.7 trillion yen in 1992 to an insignificant amount (100 billion yen) in 1995, due to the increased export substitution effect. This corresponds to about 60 per cent of the overall decline in Japanese trade surplus.

BIBLIOGRAPHY

Aristotelous, K. and Fountas, S. (1996), “An empirical analysis of inward foreign direct investment flows in the EU with emphasis on the market enlargement hypothesis”, *Journal of Common Market Studies*, vol. 34, No. 4, pp. 571-583.

Armington, P. (1969), “A theory of demand for products distinguished by place of production”, *International Monetary Fund Staff Papers*, March, pp. 159-175.

Barrell, R. and N. Pain (1997), "The growth of foreign direct investment in Europe", *National Institute Economic Review*, April.

Barrell, R. and N. Pain (1997), “Foreign direct investment, technological change, and economic growth within Europe, *The Economic Journal*, vol. 107, No. 445, pp. 1770-1797.

Barry, F. and J. Bradley (1997), “FDI and Trade: the Irish host-country experience”, *The Economic Journal*, vol. 107, No. 445, pp. 1798-1811.

Blomström, M., G. Fors and R. E. Lipsey, “Foreign direct investment and employment: home country experience in the United States and Sweden”, *The Economic Journal*, Vol. 107, No. 445, pp. 1787-1797.

Cushman, D. O. (1988), “Exchange-rate uncertainty and foreign direct investment in the United States”, *Weltwirtschaftliches Archiv*, No. 2, pp. 322-36.

Durand, M. and C. Giorno (1987), “Indicators of international competitiveness: conceptual aspects and evaluation”, *OECD Economic Studies*, No. 9.

Durand, M., J. Simon J. and C. Webb (1992), “OECD’s Indicators of International Trade and Competitiveness, *OECD Economics Department Working Papers*, No. 120.

Hooper, P. (1996), "Comparing manufacturing output levels among the major industrial countries", in OECD, *Industry Productivity - International Comparison and Measurement Issues*.

Hooper, P. and E. Vrankovich (1995), “International comparisons of the levels of unit labor costs in manufacturing”, Board of Governors of the Federal Reserve System, *International Finance Discussion Papers*, No. 527.

Krugman, P. (1996), *Pop Internationalism*, The MIT Press, Cambridge, Massachusetts.

McKinsey (1992), *Service sector productivity*, McKinsey Global Institute, Washington D.C.

McKinsey (1993), *Manufacturing productivity*, McKinsey Global Institute, Washington D.C.

McKinsey (1994), *Employment performance*, McKinsey Global Institute, Washington D.C.

McKinsey (1995), *Sweden’s economic performance*, McKinsey Global Institute, Stockholm.

OECD (1993), "Absolute levels of cost-competitiveness: methodological aspects and preliminary estimates", mimeo.

OECD (1994), "Trends in international trade", *Economic Outlook*, No. 56, pp. 38-49.

OECD (1997), *Economic Surveys, Germany*.

OECD (1998), "The dynamics of industrial performance: what drives productivity growth?", *Science, Technology and Industry Outlook*, forthcoming.

Pilat, D. (1996), "Labour productivity levels in OECD countries: estimates for manufacturing and selected service sectors", *OECD Economics Department Working Papers*, No. 169.

Pilat, D. (1996), "Competition, productivity and efficiency", *OECD Economic Studies*, No. 27, pp. 107-46.

Sianesi, B. (1995), "Macroeconomic determinants of Japanese foreign direct investment in South-East Asia", *Rivista Internazionale di Scienze Economiche e Commerciali*, vol. 42, No. 12, pp. 1003-1024.

Turner, A. and Golub, S. (1997), "Towards a system of multilateral unit labor cost-based competitiveness indicators for advanced, developing, and transition countries", *IMF Working Papers*, No 151.

Table 1. **Relative labour productivity levels in manufacturing**
(USA = 100)
Value added per hour worked

	1960	1973	1985	1996[a]
United States	100	100	100	100
Japan	19	48	69	74
Germany[b]	56	76	86	82
France	46	70	86	84
Italy[c]	--	54	84	89
United Kingdom	45	54	60	67
Canada	68	82	84	68
Australia	50	50	56	52
Belgium	46	71	106	101
Finland	46	58	72	101
Mexico	25	32	31	n.a.
The Netherlands	51	88	107	97
Spain[c]	20	38	80	68
Sweden	50	80	87	90

Note: *a)* Our latest available year, i.e. 1992 for Australia and Spain; 1994 for Finland; 1995 for Belgium, Italy, and the Netherlands.
b) West Germany.
c) Spain/USA are inferential estimates, based on benchmark studies for Spain/UK. Data for Italy are also derived using a different methodology. They are therefore not entirely comparable with the other estimates.

Source: D. Pilat (1996) and OECD (1998).

Table 2. **Manufacturing labour productivity levels by sector**

Value added per hour worked, leader country = 100[a]

Sectors	United States	Japan	Germany[b]	France	United Kingdom	Canada	Australia	Nether-lands	Sweden
				Panel A: 1987					
Food, beverages and tobacco	**100.0**	32.3	75.3	65.3	46.1	59.6	45.9	95.4	57.3
Textiles, clothing & footwear	67.4	38.1	60.1	61.7	47.4	54.6	42.2	**100.0**	60.8
Wood products & furniture	69.5	15.6	50.2	52.4	38.1	63.8	32.7	**100.0**	64.1
Paper products & printing	97.2	47.5	61.2	65.0	64.7	81.4	53.2	62.7	**100.0**
Chemical products	80.8	52.9	60.1	58.0	59.5	68.0	44.9	**100.0**	72.4
Non-metallic mineral products	77.0	55.1	67.1	**100.0**	59.9	75.1	56.4	97.7	75.5
Basic metal products	94.4	**100.0**	80.3	77.0	74.2	89.3	57.1	80.3	93.3
Metal products	86.3	76.0	76.3	57.3	50.6	70.1	42.3	68.9	**100.0**
Machinery & equipment	99.0	85.6	73.8	**100.0**	65.4	64.2	61.1	59.1	66.5
Electrical machinery	**100.0**	82.7	67.6	90.0	51.3	66.4	35.8	93.7	75.6
Transport equipment	96.9	**100.0**	76.7	84.9	42.1	69.7	39.3	47.0	55.8
Other manufacturing	**100.0**	39.4	45.3	40.1	52.5	58.3	33.0	47.2	67.0
Total manufacturing	**100.0**	66.5	78.5	80.3	59.4	76.0	51.8	98.5	82.0
				Panel B: 1993[b]					
Food, beverages and tobacco	**100.0**	35.6	88.7	87.0	41.7	64.3	51.1	96.6	72.8
Textiles, clothing & footwear	78.3	41.9	72.1	67.1	51.5	46.3	32.3	**100.0**	66.5
Wood products & furniture	56.0	17.6	55.7	55.3	28.1	52.6	27.1	**100.0**	71.9
Paper products & printing	85.0	49.7	59.0	64.3	76.4	67.6	53.7	64.5	**100.0**
Chemical products	66.9	52.6	55.4	56.9	79.7	52.6	39.8	**100.0**	89.4
Non-metallic mineral products	81.8	62.9	79.5	99.4	70.6	78.4	77.4	**100.0**	81.0
Basic metal products	76.8	78.3	72.9	63.3	61.4	87.9	56.8	70.4	**100.0**
Metal products	68.9	67.6	64.6	46.4	42.5	54.8	35.9	54.0	**100.0**
Machinery & equipment	**100.0**	67.4	49.2	67.3	47.9	55.5	46.4	34.6	45.2
Electrical machinery	80.3	89.0	49.9	78.9	48.2	51.9	28.0	82.2	**100.0**
Transport equipment	88.4	**100.0**	68.0	85.0	47.8	71.9	45.5	41.8	49.5
Other manufacturing	**100.0**	41.4	43.1	31.4	43.5	33.5	22.1	27.0	47.4
Total manufacturing	**100.0**	76.6	79.8	84.2	64.1	71.3	52.0	95.6	91.8

a) The productivity level of the leader country in each industry is indicated in bold.

b) West Germany.

Source: D. Pilat (1996).

Table 3. **Relative levels of unit labour costs in manufacturing**
(USA = 100)
Based on 1990 PPPs

	1975	1985	1990	1996
United States	100	100	100	100
Japan	91	74	116	169
Germany[a]	104	71	144	166
France	148	96	154	163
Italy	107	60	114	101
United Kingdom	125	100	158	148
Canada	105	84	118	102
Australia	151	98	118	145
Belgium	167	75	135	156
Denmark	162	97	205	218
Korea	26	29	51	58
Netherlands	131	65	122	120
Spain	74[b]	49	108	100
Sweden	144	82	158	160
Chinese Taipei	40	41	70	70

a) West Germany.
b) 1977.
Source: OECD calculations. For details on the methodological aspects, see OECD (1993).

Table 4. **Shares in world merchandise trade**
Per cent

	Imports		Exports	
	1985	1995	1985	1995
United States	24.1	19.5	15.0	15.4
Japan	8.7	8.5	12.4	11.7
European Union[a]	22.2	18.9	22.7	19.4
Rest of OECD[b]	14.6	13.6	16.0	14.2
OECD[b]	69.6	60.4	66.1	60.7
China	2.8	3.3	1.9	3.9
Hong Kong, China	2.0	4.9	2.1	4.6
Chinese Taipei	1.3	2.6	2.1	3.0
Korea	2.1	3.4	2.1	3.3
Singapore	1.7	3.1	1.6	3.1
Malaysia	0.8	2.0	1.1	2.0
Indonesia	0.7	1.0	1.3	1.1
Philippines	0.4	0.7	0.3	0.5
Thailand	0.6	1.9	0.5	1.5
Total of above countries	12.4	22.9	13.1	23.0
Non-OECD[c]	30.4	39.6	33.9	39.3

a) Excluding intra-trade.
b) Excluding Korea.
c) Including Korea.
Source: IMF, *Direction of Trade Statistics* (1996).

Table 5. **The importance of emerging market economies in the determination of major OECD regions' pattern of competition**[a]

Per cent

	1970			1980			1990			1995		
	United States	Japan	EU	United States	Japan	EU	United States	Japan	EU	United States	Japan	EU
Korea	1.2	2.1	0.2	3.1	7.1	1.4	4.5	7.7	1.8	3.4	7.1	1.6
Hong Kong, China	3.2	1.5	2.8	3.7	1.8	3.4	2.5	1.8	3.0	1.8	1.3	2.0
Singapore	0.2	0.1	0.3	1.3	1.2	1.0	2.4	1.6	2.1	2.7	2.5	2.6
Chinese Taipei	1.8	2.4	0.7	5.3	5.1	2.5	5.7	6.0	4.5	4.9	5.9	4.1
China	0.0	2.0	1.6	0.6	3.9	1.8	3.1	5.7	2.6	5.9	13.2	5.8
Indonesia	0.0	0.3	0.1	0.2	1.3	0.2	0.4	2.0	0.6	0.8	2.8	1.0
Malaysia	0.5	2.0	0.3	0.9	1.5	0.6	1.0	1.1	0.8	2.2	2.6	1.5
Philippines	0.4	0.3	0.1	0.8	0.9	0.3	0.7	0.8	0.3	0.8	1.0	0.4
Thailand	0.3	0.6	0.1	0.4	1.3	0.4	1.0	2.4	1.0	1.5	3.9	1.6
Total of above countries	7.7	11.3	6.3	16.2	24.1	11.7	21.3	29.1	16.8	24.0	40.3	20.7
Mexico	2.3	0.5	0.7	4.1	1.3	1.0	6.0	0.5	0.8	8.0	0.4	1.0
Brazil	0.5	0.6	1.0	1.3	1.5	2.2	1.5	1.3	1.9	1.3	1.0	1.9
Argentina	0.5	0.4	1.8	0.3	0.5	0.9	0.3	0.3	0.7	0.2	0.2	0.6
India	0.7	1.7	1.4	0.6	1.1	1.5	0.6	1.0	1.8	0.8	1.1	1.6
Russia	-	-	-	-	-	-	0.3	0.5	0.9	0.4	0.6	0.8
Memorandum items:												
United States	-	44.1	44.1	-	35.1	35.7	-	31.1	31.9	-	27.1	31.8
Japan	20.6	-	13.8	23.8	-	21.3	23.3	-	22.1	22.2	-	21.6
European Union	35.7	29.7	-	29.9	26.5	-	25.5	27.4	-	22.0	22.4	-
Other	32.0	11.7	30.9	23.8	9.9	25.7	21.2	8.8	23.1	21.1	6.9	20.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a) Figures represent the weights used in the calculation of effective exchange rates. They are based on a double trade weighting system which, for each country, takes into account relative market shares held by its competitors on their common markets, including the home market, as well as the importance of these markets for the country in question. For further details, see Annex and Durand *et al*. (1992).

Table 6. **Decomposition by market of the pattern of competition of the three major OECD regions**[a]

Per cent

United States

Markets	1980 Japan	1980 European Union	1980 Other OECD	1980 Domestic[b]	1980 Non OECD	1995 Japan	1995 European Union	1995 Other OECD	1995 Domestic[b]	1995 Non OECD
Competitors										
United States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Japan	60.5	10.6	4.9	24.5	23.2	57.4	11.3	7.1	22.3	26.4
EU	14.7	61.4	8.0	28.6	54.5	12.4	58.1	9.3	21.1	41.5
Other OECD[c]	6.4	14.7	85.4	27.0	8.2	4.0	11.5	78.0	28.2	6.5
Emerging Asia[d]	16.7	10.5	1.3	17.9	10.3	25.1	16.7	4.9	26.6	20.0
Other non-OECD	1.7	2.9	0.4	2.0	3.8	1.1	2.4	0.7	1.9	5.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Weight of each market	3.4	14.6	17.4	45.0	19.7	4.0	9.3	18.0	56.1	12.6

Japan

Markets	1980 United States	1980 European Union	1980 Other OECD	1980 Domestic[b]	1980 Non OECD	1995 United States	1995 European Union	1995 Other OECD	1995 Domestic[b]	1995 Non OECD
Competitors										
United States	57.0	20.3	22.2	34.6	21.8	56.3	15.5	26.5	25.7	21.6
Japan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EU	16.3	54.7	18.2	24.4	53.1	11.9	55.4	22.0	21.6	39.6
Other OECD[c]	15.4	13.1	54.0	10.6	7.6	15.9	10.9	39.4	7.0	6.9
Emerging Asia[d]	10.2	9.4	5.2	27.6	15.4	14.9	15.9	10.8	43.8	29.6
Other non-OECD	1.1	2.5	0.4	2.7	2.1	1.1	2.3	1.3	1.8	2.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Weight of each market	20.4	12.5	9.4	17.9	39.9	22.0	11.4	8.9	27.5	30.2

European Union

Markets	1980 United States	1980 Japan	1980 Other OECD	1980 Domestic[b]	1980 Non OECD	1995 United States	1995 Japan	1995 Other OECD	1995 Domestic[b]	1995 Non OECD
Competitors										
United States	58.4	19.7	9.1	37.1	30.8	55.9	14.4	14.1	27.9	26.3
Japan	14.3	56.9	4.7	17.2	34.5	12.4	56.1	8.2	19.4	28.3
EU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other OECD[c]	15.8	6.1	84.0	23.9	16.4	15.8	3.9	71.1	19.7	11.6
Emerging Asia[d]	10.5	15.7	1.6	17.2	13.6	14.8	24.6	5.7	28.8	29.2
Other non-OECD	1.1	1.6	0.6	4.6	4.7	1.0	1.0	0.8	4.2	4.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Weight of each market	9.6	1.8	14.7	29.4	44.5	12.5	3.6	13.5	35.0	35.4

a) The table should be interpreted as follows: f or the United States, in 1995, domestic market competitiveness represented 56.1 per cent of overall competitiveness; and the market share of Japan in the home market was 22.3. Similarly, competitiveness on the EU market represented 9.3 per cent of overall US competitiveness, and on this market, competition from EU producers for US exporters represented 58.1 per cent of overall competition.

b) The domestic markets are taken into account with an equal weighting to that of imports.

c) Korea is included in emerging Asia.

d) Includes: China; Hong-Kong, China; Korea; Chinese Taipei; Indonesia; Malaysia; The Philippines; and Thailand.

Table 7. **Direction of trade**
Per cent of total exports and imports

Destination of exports	United States	Japan	European Union	Korea	Rest of OECD	China	Other Asia[b]	Rest of the world
			Exports, 1985					
United States	-	10.6	24.3	2.8	33.7	1.8	7.3	19.5
Japan	37.6	-	13.1	4.0	8.2	7.1	12.9	17.0
European Union[a]	22.0	2.7	-	0.7	32.1	1.9	4.3	36.2
Korea	35.6	15.0	11.8	-	7.9	0.0	10.8	18.9
China	8.5	22.3	8.7	0.0	4.7	-	36.5	19.3
Other Asia[b]	30.9	15.9	11.6	2.2	7.3	6.6	17.5	7.8
			Exports, 1996					
United States	-	10.9	20.5	4.3	35.0	1.9	12.0	15.4
Japan	27.5	-	15.4	7.1	5.6	5.3	30.0	9.1
European Union	18.3	5.7	-	2.3	25.7	2.3	10.5	35.2
Korea	16.7	12.3	10.8	-	5.1	8.8	25.9	20.5
China	17.7	20.4	13.1	5.0	8.6	-	29.5	5.6
Other Asia[b]	20.6	11.7	14.4	2.6	7.2	13.7	23.5	6.3

Origin of imports	United States	Japan	European Union	Korea	Rest of OECD	China	Other Asia[b]	Rest of the world
			Imports, 1985					
United States	-	20.0	21.5	3.0	27.4	1.2	11.7	15.2
Japan	20.5	-	7.8	3.2	13.5	5.0	17.3	33.1
European Union	16.8	7.2	-	0.8	27.4	0.9	4.9	41.9
Korea	21.1	24.3	10.7	-	8.4	0.0	10.5	25.0
China	12.2	35.7	15.8	0.0	8.3	-	16.1	11.8
Other Asia[b]	15.7	22.5	13.2	2.3	7.9	9.7	17.8	10.8
			Imports, 1996					
United States	-	14.4	18.0	2.8	31.3	6.7	13.4	13.4
Japan	22.9	-	14.2	4.6	9.9	11.6	19.1	17.9
European Union	19.7	9.3	-	1.8	22.0	4.5	10.8	31.7
Korea	22.1	20.9	14.1	-	8.6	5.7	10.1	18.5
China	11.7	21.0	14.3	9.0	14.8	-	24.8	4.4
Other Asia[b]	13.5	20.5	13.6	4.6	9.4	13.4	20.8	4.3

a) Does not include intra EU trade.
b) Includes: Chinese Taipei; Hong Kong, China; Indonesia; Malaysia; Philippines; Singapore; and Thailand.
Source: IMF, *Direction of Trade Statistics* (1997).

Table 8. **Bilateral trade balances**[a]
US $billion, customs basis

	1985					
	United States	Japan	European Union	Korea	China	Other Asia[b]
United States	-	-49.8	-26.0	-4.7	-0.4	-26.8
Japan	40.6	-	12.9	3.0	6.0	0.3
European Union	12.5	-14.6	-	-0.6	2.5	-2.4

	1996					
	United States	Japan	European Union	Korea	China	Other Asia[b]
United States	-	-50.4	-19.9	3.3	-42.4	-34.4
Japan	33.3	-	13.7	13.4	-18.6	56.6
European Union	-7.2	-27.0	-	4.2	-16.2	-0.3

a) 1996. Due to time lags and other statistical problems, there may be large differences in bilateral customs basis imports and exports according to reporting countries.

b) Includes: Chinese Taipei; Hong Kong, China; Indonesia; Malaysia; Philippines; Singapore; and Thailand.

Source: IMF, *Direction of Trade Statistics* (1997).

Table 9. **Impact of recent exchange rate changes on current-account balances**[a]
$billion, difference from baseline

	1998	1999
United States	-7	-36
Japan	-7	-11
European Union	-13	-17
Korea	17	42
Total OECD	-10	-21
Affected Asian countries[b]	12	23
Other non-OECD countries	-2	-2

a) The figures presented in this table are the result of a simulation run with the trade block of the INTERLINK model. In this simulation, only pure competitiveness-induced effects resulting from exchange rate changes since mid-97 have been taken into account. See main text for more details.

b) Includes: Thailand; Malaysia; the Philippines; and Indonesia.

Table 10. **Geographical breakdown of stocks of direct investment abroad in selected countries**
As a percentage of total

	1985				1995			
From:	United States	Japan	EU15[a]	EU15[b]	United States	Japan[c]	EU15[a]	EU15[b]
To:								
United States	..	30.0	48.2	30.0	..	41.9	44.7	22.2
Japan	4.0	..	1.9	1.2	5.5	..	2.3	1.1
EU15	37.2	9.6	..	37.7	44.3	18.2	..	50.4
Canada and Mexico	22.6	3.6	6.1	3.8	13.4	2.4	4.0	2.0
Other OECD countries[d]	12.4	7.8	17.3	10.8	10.5	6.5	16.9	8.4
Emerging Asia[e]	6.5	22.7	4.9	3.1	8.0	16.2	7.5	3.7
Other non OECD countries	17.3	26.2	21.6	13.5	18.3	14.7	24.6	12.2
Memorandum item:								
Total, $ billion	230.3	92.5	237.3	385.8	717.6	463.6	549.7	1107
of which: Manufacturing	94.7	26.7	..	189.6	257.6	128.9	..	459.1
Services	72.5	47.8	..	149.6	374.9	303.8	..	570.9
Total, per cent of GDP	5.5	6.9	5.9	9.6	9.8	9.9	7.7	15.5

a) Austria, Finland, France, Germany, Italy, Netherlands, Sweden, United Kingdom. Excluding intra-trade.

b) Austria, Finland, France, Germany, Italy, Netherlands, Sweden, United Kingdom. Including intra-trade.

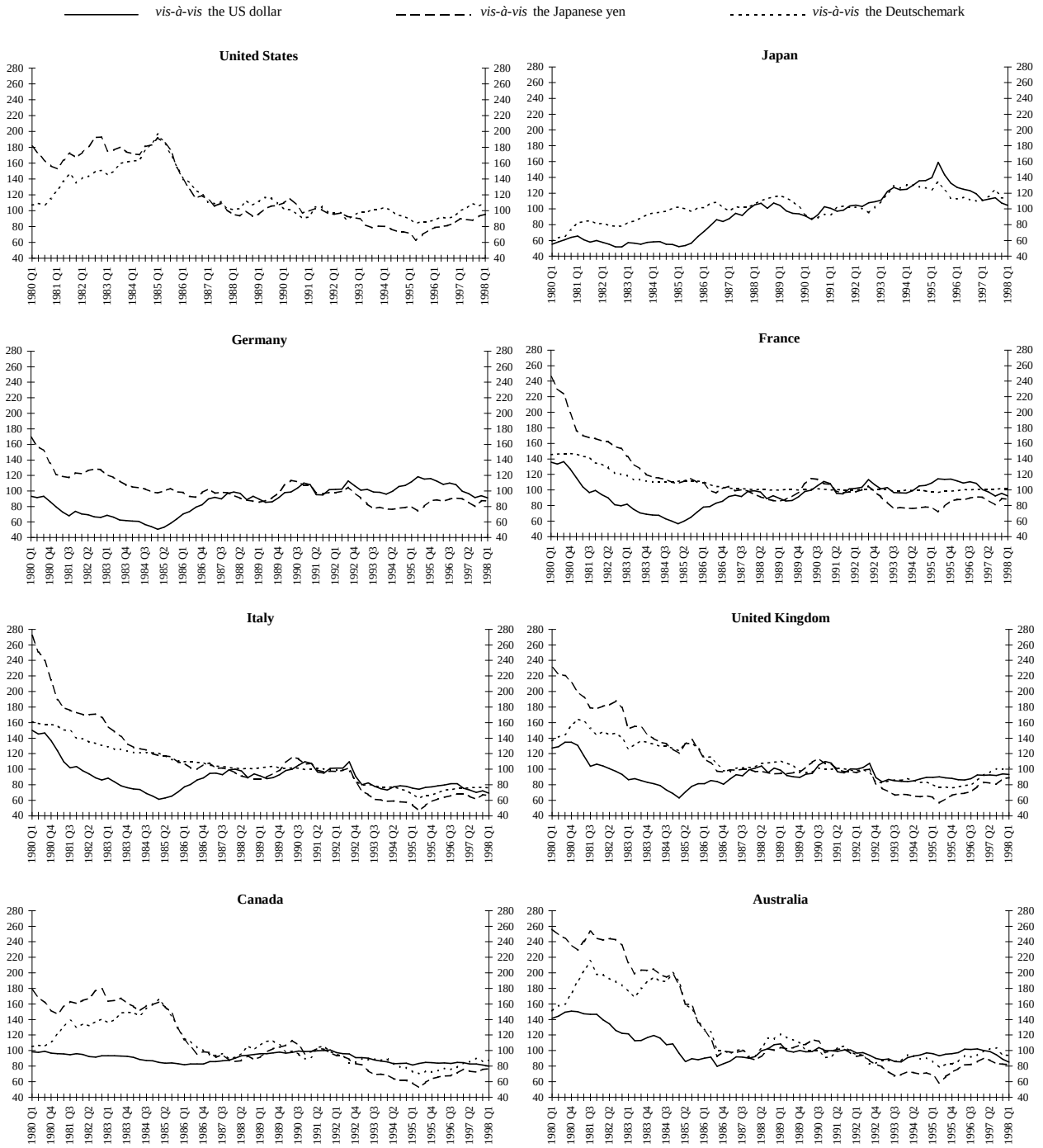
c) 1994.

d) Korea is included in the Emerging Asia area.

e) Includes: China; Chinese Taipei; Hong Kong, China; India; Indonesia; Korea; Malaysia; Philippines; Singapore; and Thailand.

Figure 1. **Movements in nominal exchange rates**[a]

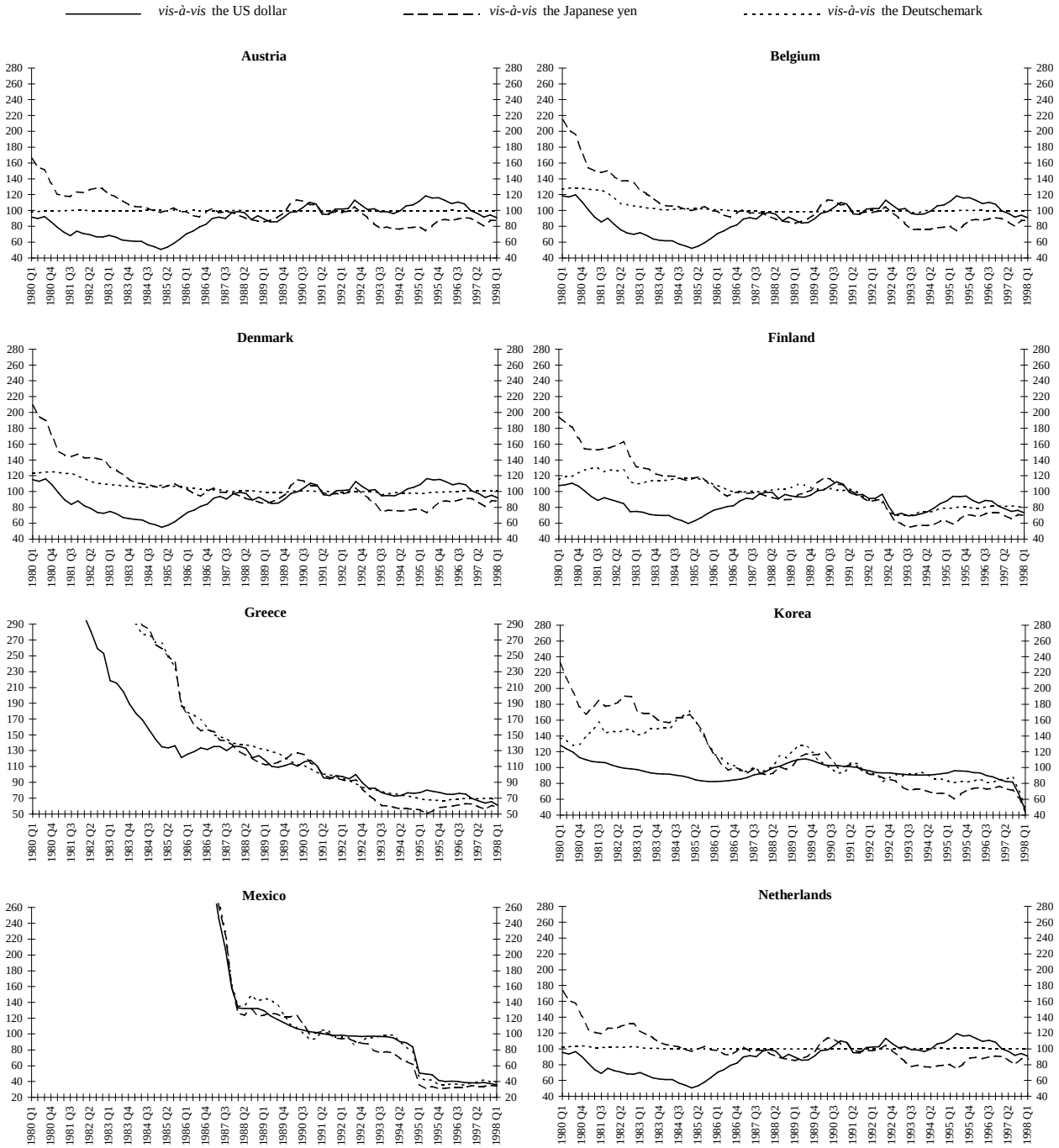
Indices 1991 = 100



a) The last quarter is based on the technical assumption that exchange rates remain at their levels of 18 March 1998.

Figure 1(cont'd). **Movements in nominal exchange rates**[a]

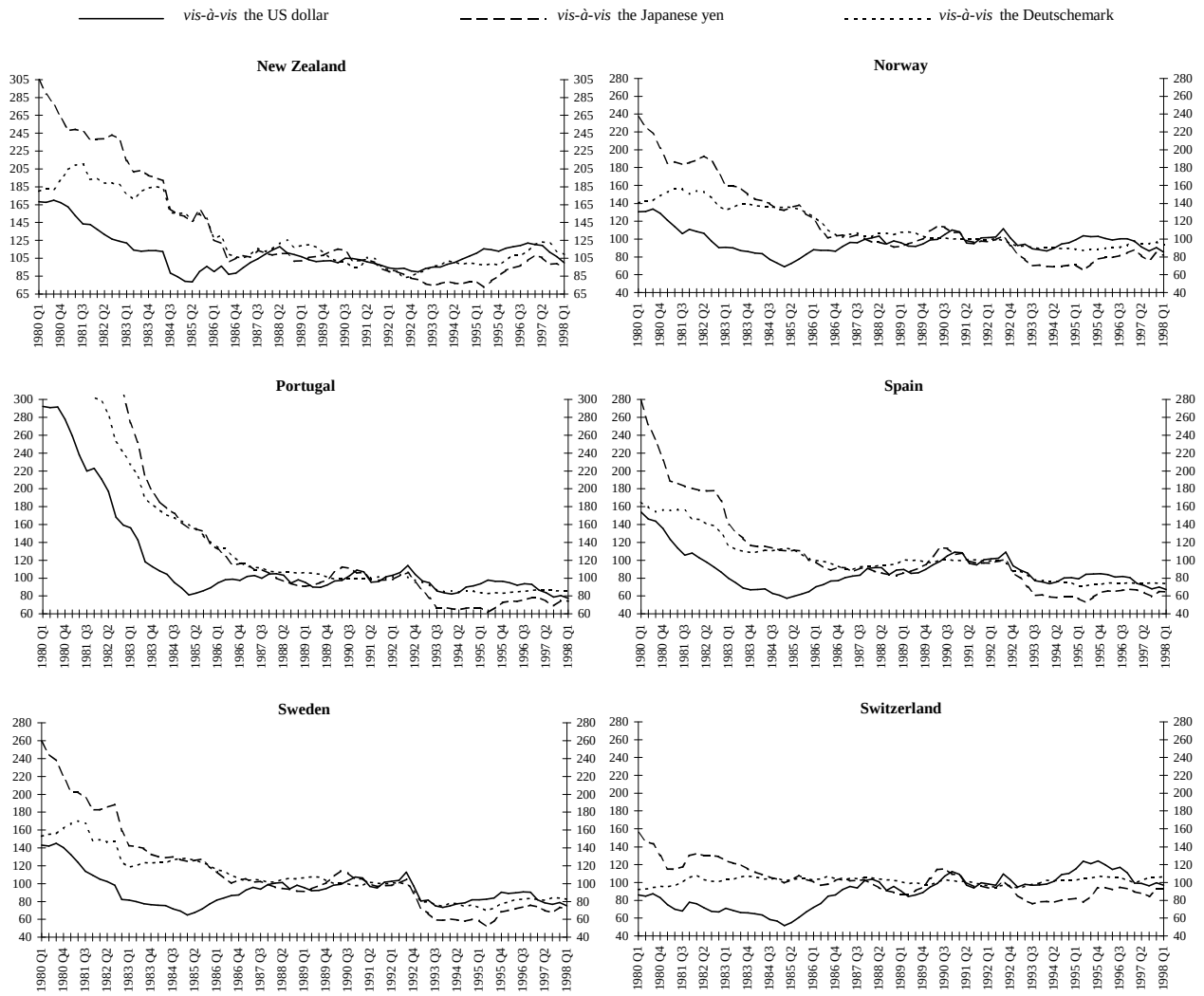
Indices 1991 = 100



a) The last quarter is based on the technical assumption that exchange rates remain at their levels of 18 March 1998.

Figure 1(cont'd). **Movements in nominal exchange rates**[a]

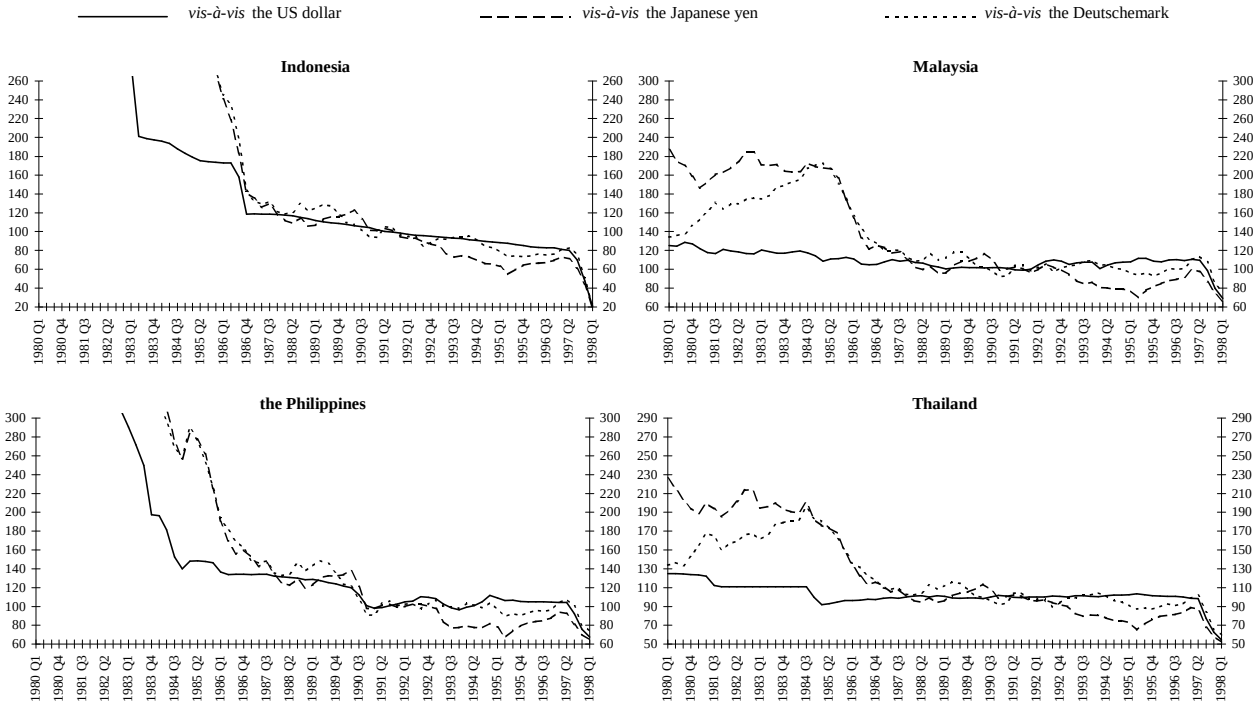
Indices 1991 = 100



a) The last quarter is based on the technical assumption that exchange rates remain at their levels of 18 March 1998.

Figure 1(cont'd). **Movements in nominal exchange rates**[a]

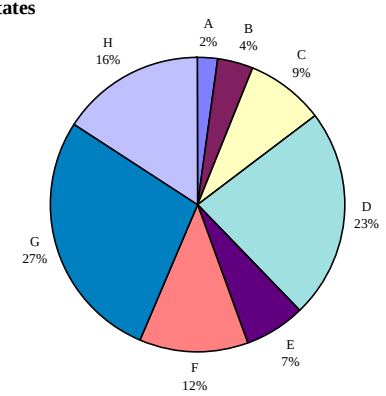
Indices 1991 = 100



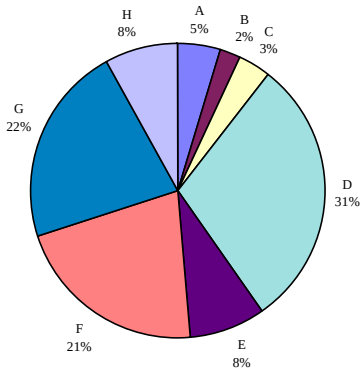
a) The last quarter is based on the technical assumption that exchange rates remain at their levels of 18 March 1998.

Figure 2. **Structure of manufactured exports in selected OECD and Non OECD Asian countries, 1995**
As a percent of their total manufactured exports

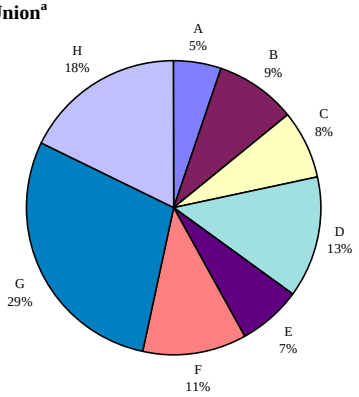
United States



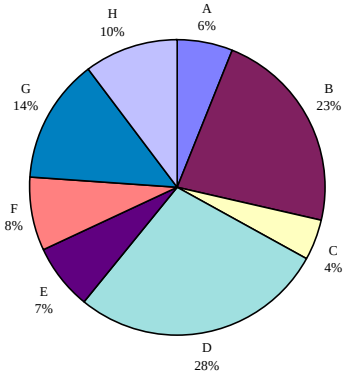
Japan



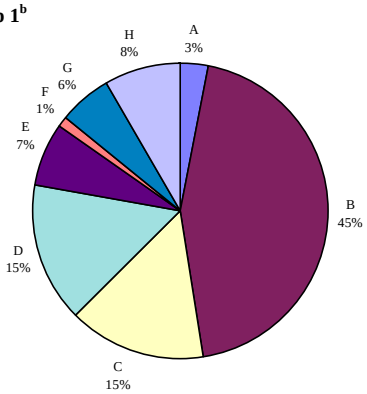
European Union[a]



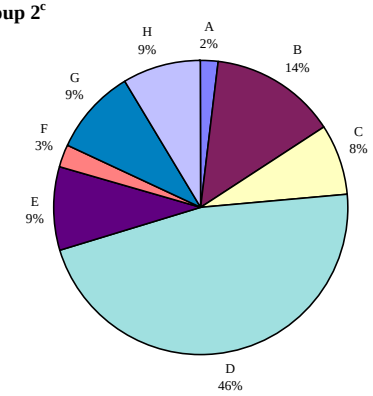
Korea



Asia Group 1[b]



Asia Group 2[c]



A: Basic Metal Industries
B: Textiles, Apparel & Leather
C: Wood and Paper Products
D: Electronic Products
E: Electrical Machinery
F: Motor Vehicles
G: Machinery , Equipment & Transport Equipment
H: Chemical Products

a) Excluding intra-EU trade.
b) Asia Group 1 includes China; Hong kong, china; India and Indonesia.
c) Asia Group 2 includes Chinese Taipei; Malaysia; Singapore and Thailand.
Source: Centre d'études prospectives et d'informations internationales: CHELEM database.

Figure 3. **Nominal and real effective exchange rates**

Indices 1991 = 100

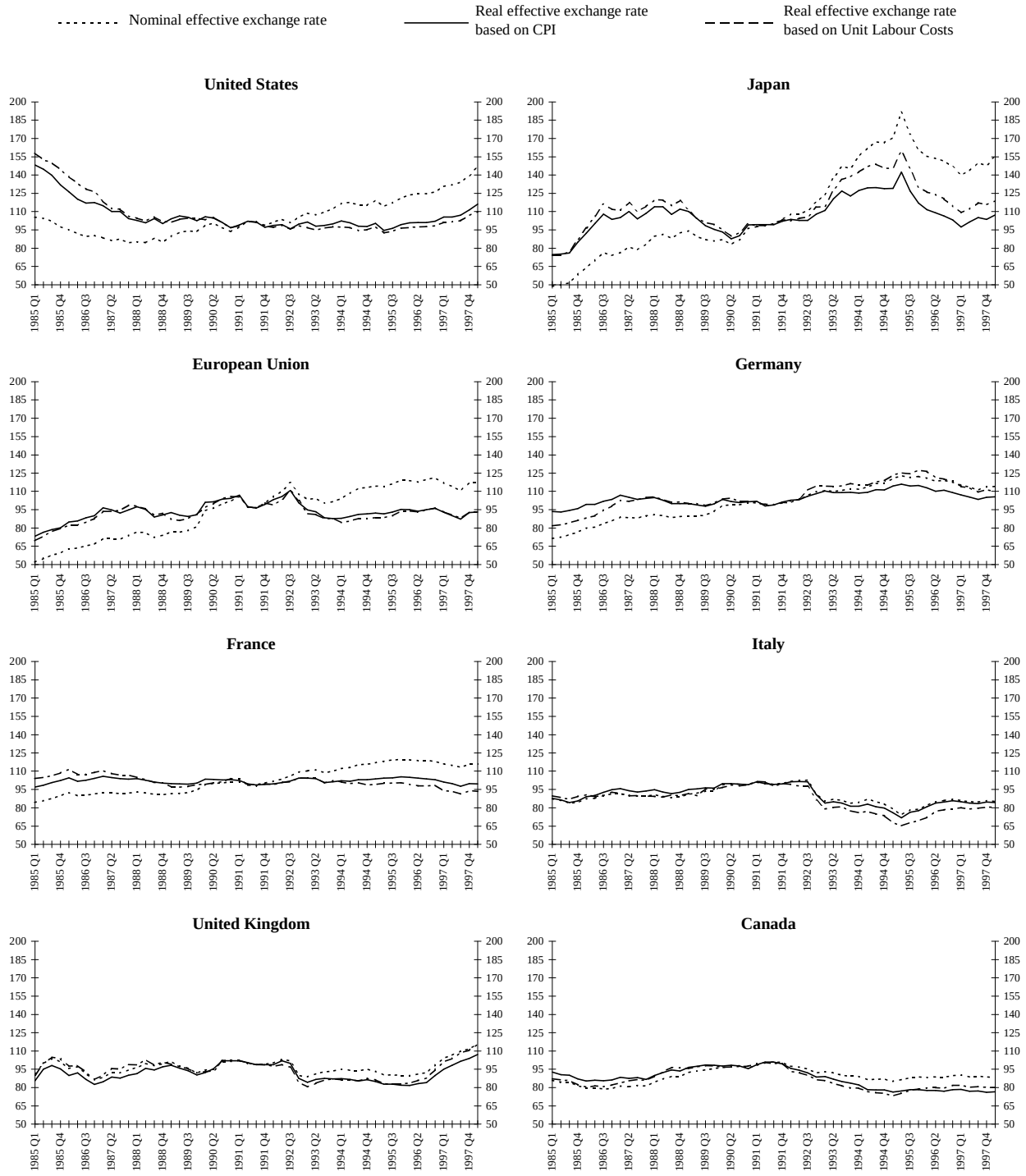


Figure 3 (cont'd). **Nominal and real effective exchange rates**

Indices 1991 = 100

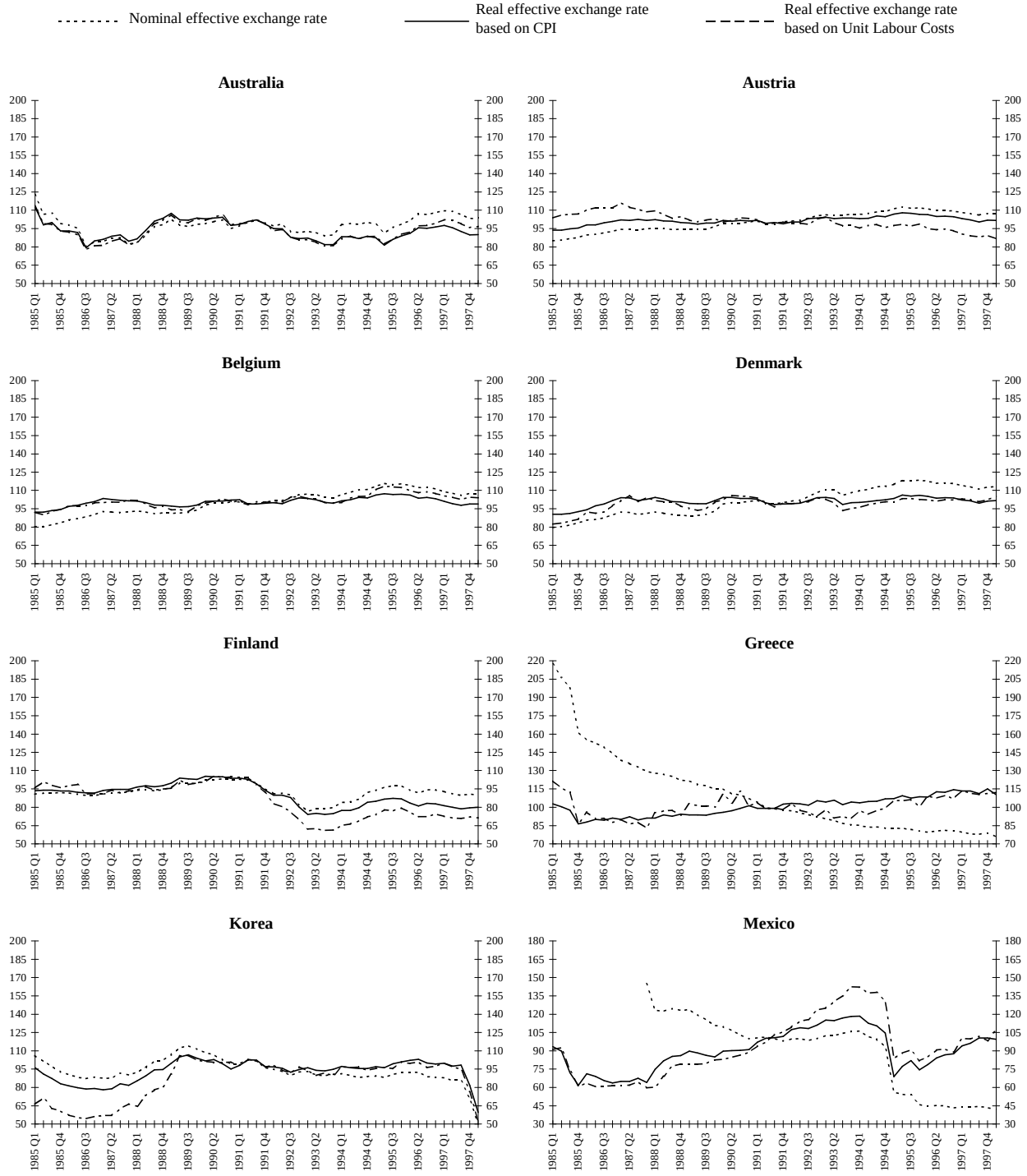


Figure 3 (cont'd). **Nominal and real effective exchange rates**

Indices 1991 = 100

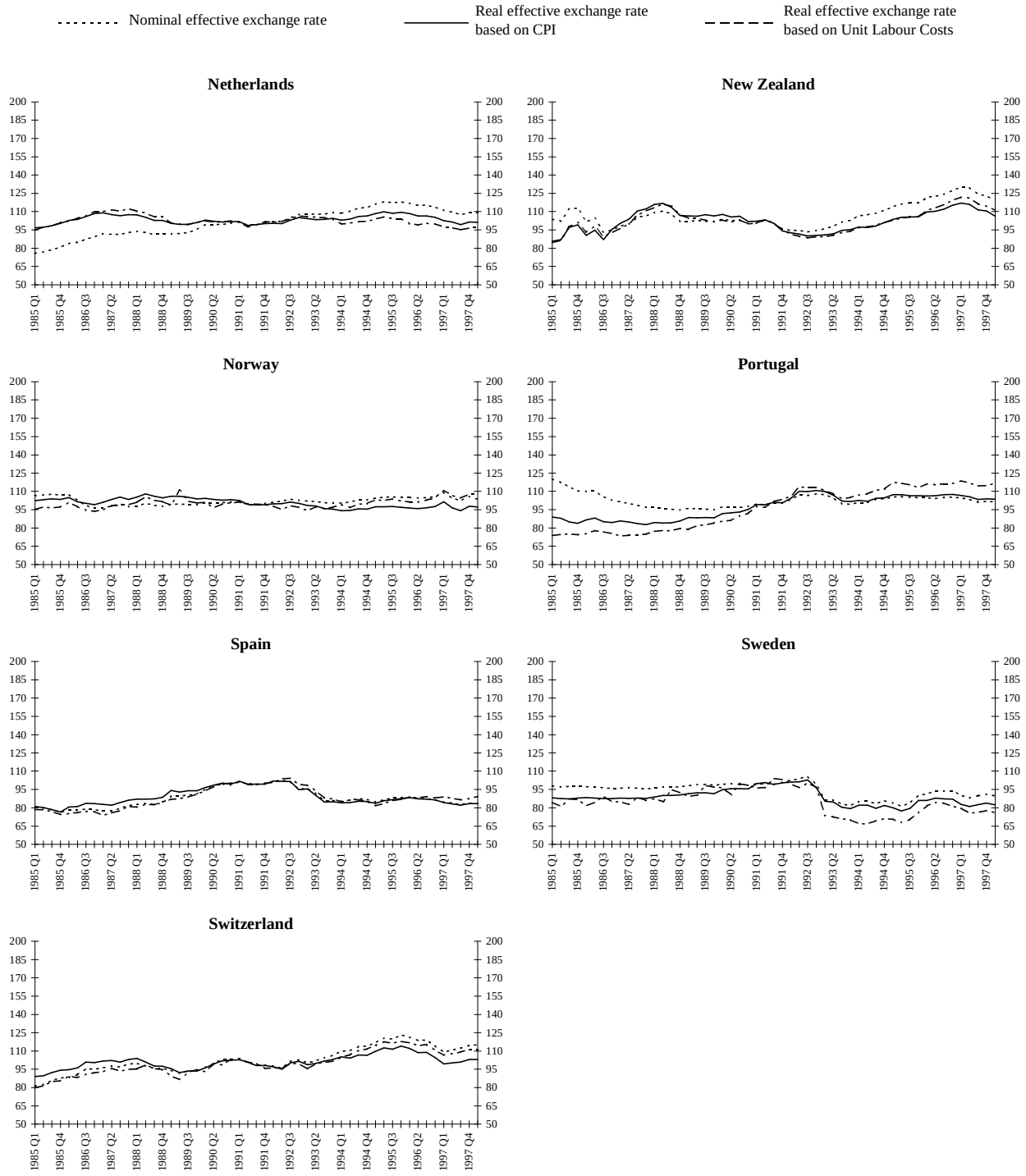
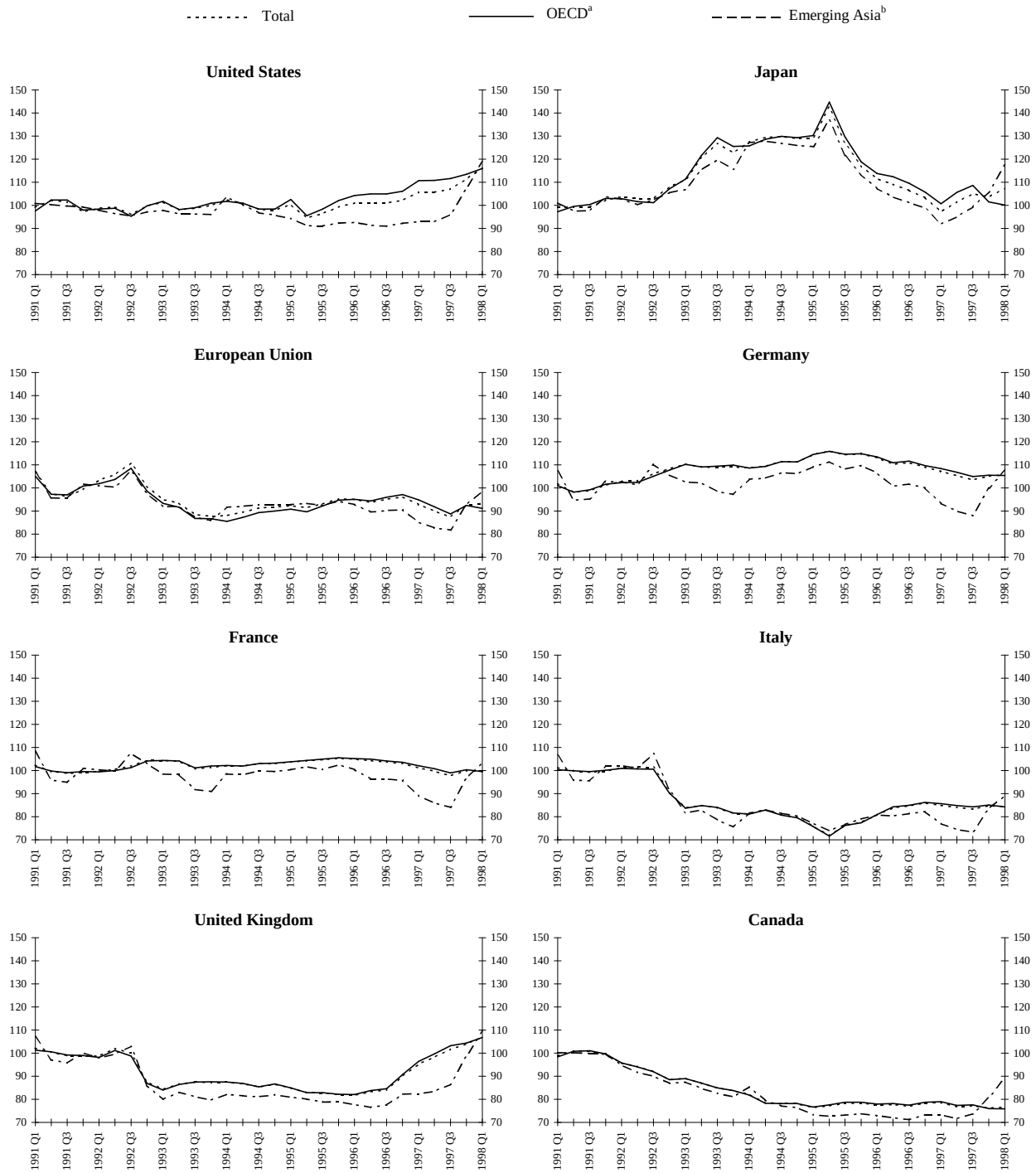


Figure 4. **Decomposition of real effective exchange rates based on CPI by region**

Indice 1991 = 100

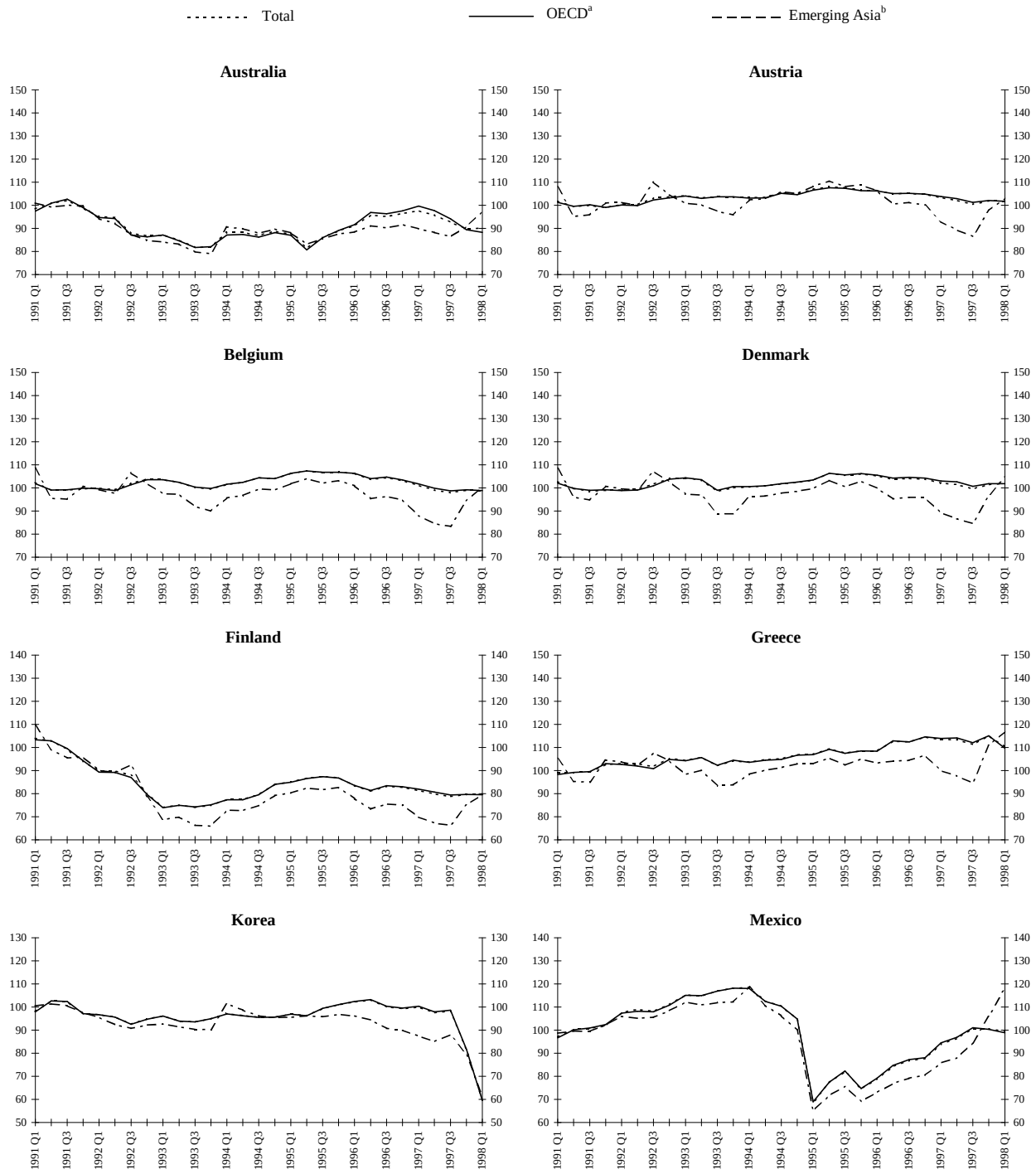


a) Korea has been excluded from the OECD aggregate.

b) Includes China; Chinese Taipei; Hong Kong,China; India; Indonesia; Korea; Malaysia; the Philippines; Singapore and Thailand.

Figure 4 (cont'd). **Decomposition of real effective exchange rates based on CPI by region**

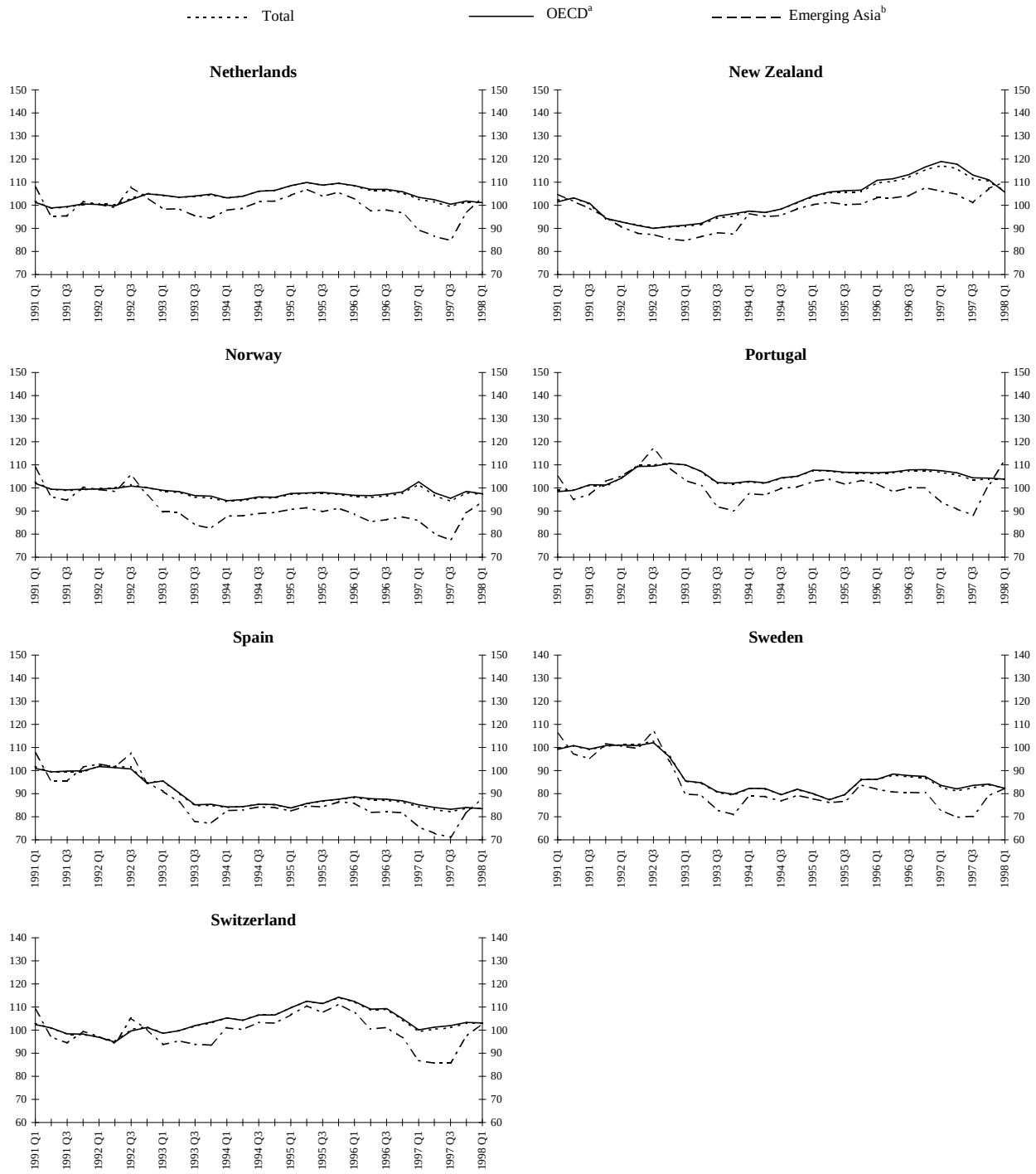
Indice 1991 = 100



a) Korea has been excluded from the OECD aggregate.
b) Includes China; Chinese Taipei; Hong Kong,China; India; Indonesia; Korea; Malaysia; the Philippines; Singapore and Thailand.

Figure 4 (cont'd). **Decomposition of real effective exchange rates based on CPI by region**

Indice 1991 = 100



a) Korea has been excluded from the OECD aggregate.
b) Includes China; Chinese Taipei; Hong Kong,China; India; Indonesia; Korea; Malaysia; the Philippines; Singapore and Thailand.

Figure 5. **Real effective exchange rates based on CPI and merchandise export performance**

Indices 1991 = 100

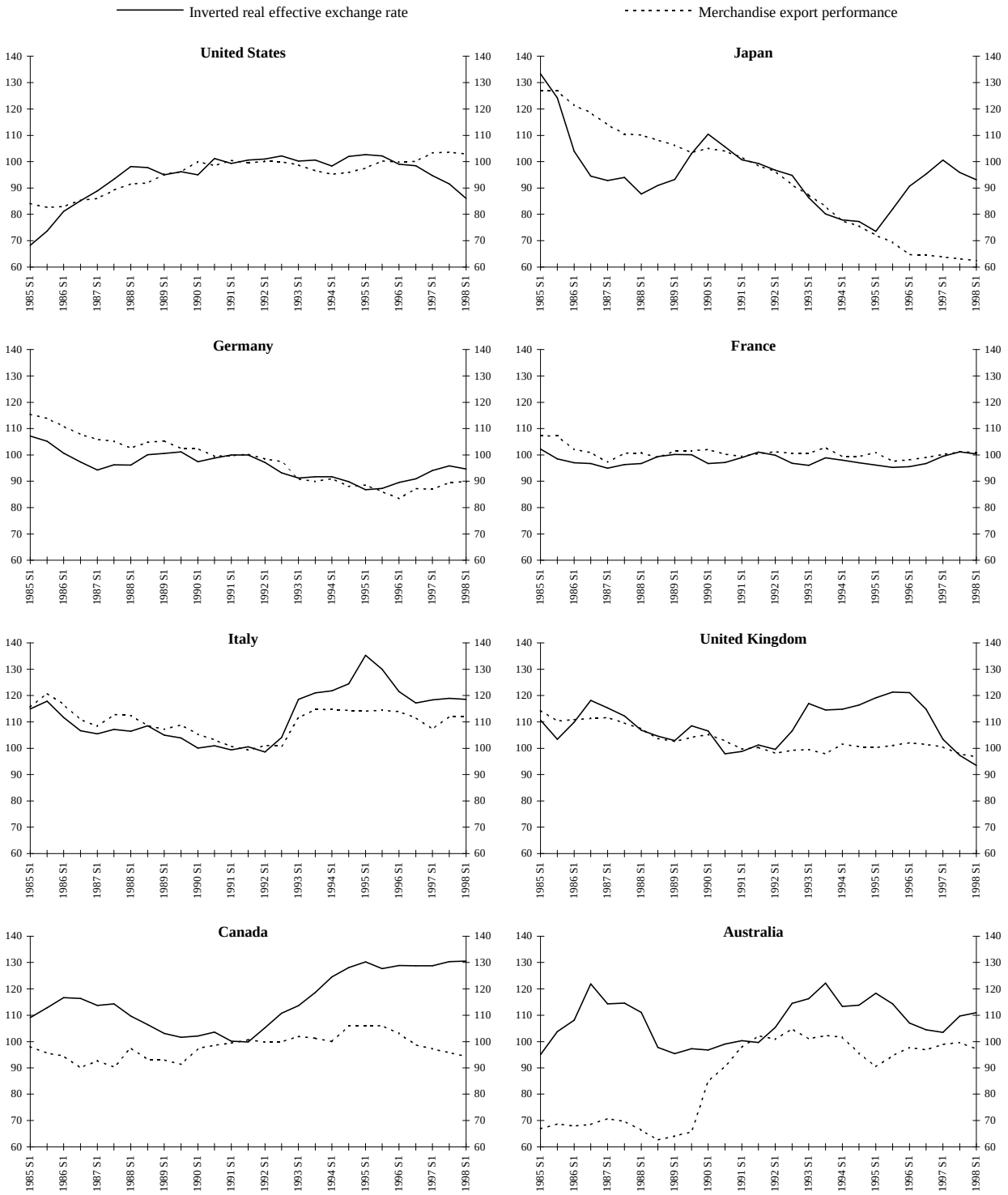


Figure 5 (cont'd). **Real effective exchange rates based on CPI and merchandise export performance**

Indices 1991 = 100

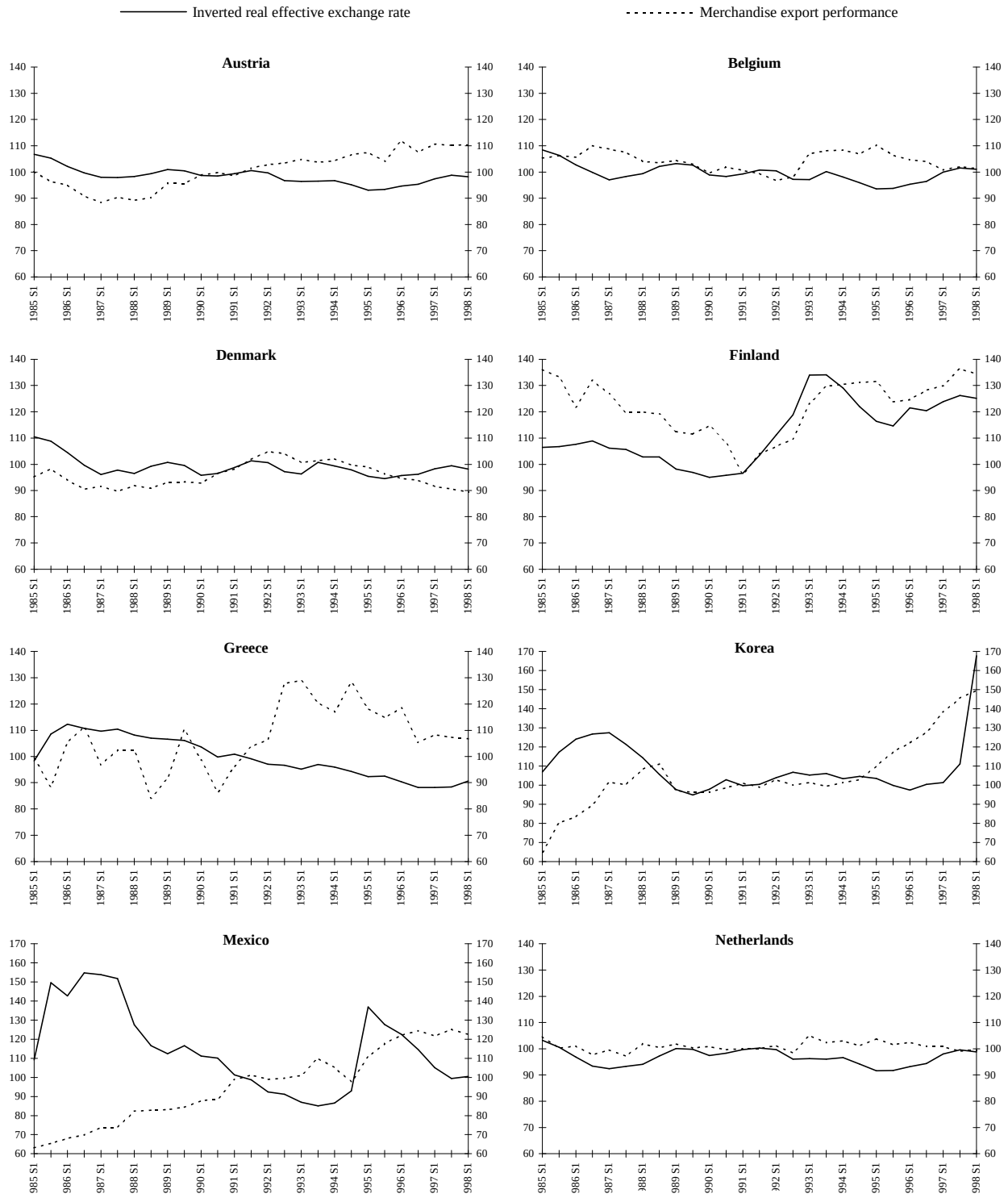


Figure 5 (cont'd). **Real effective exchange rates based on CPI and merchandise export performance**

Indices 1991 = 100

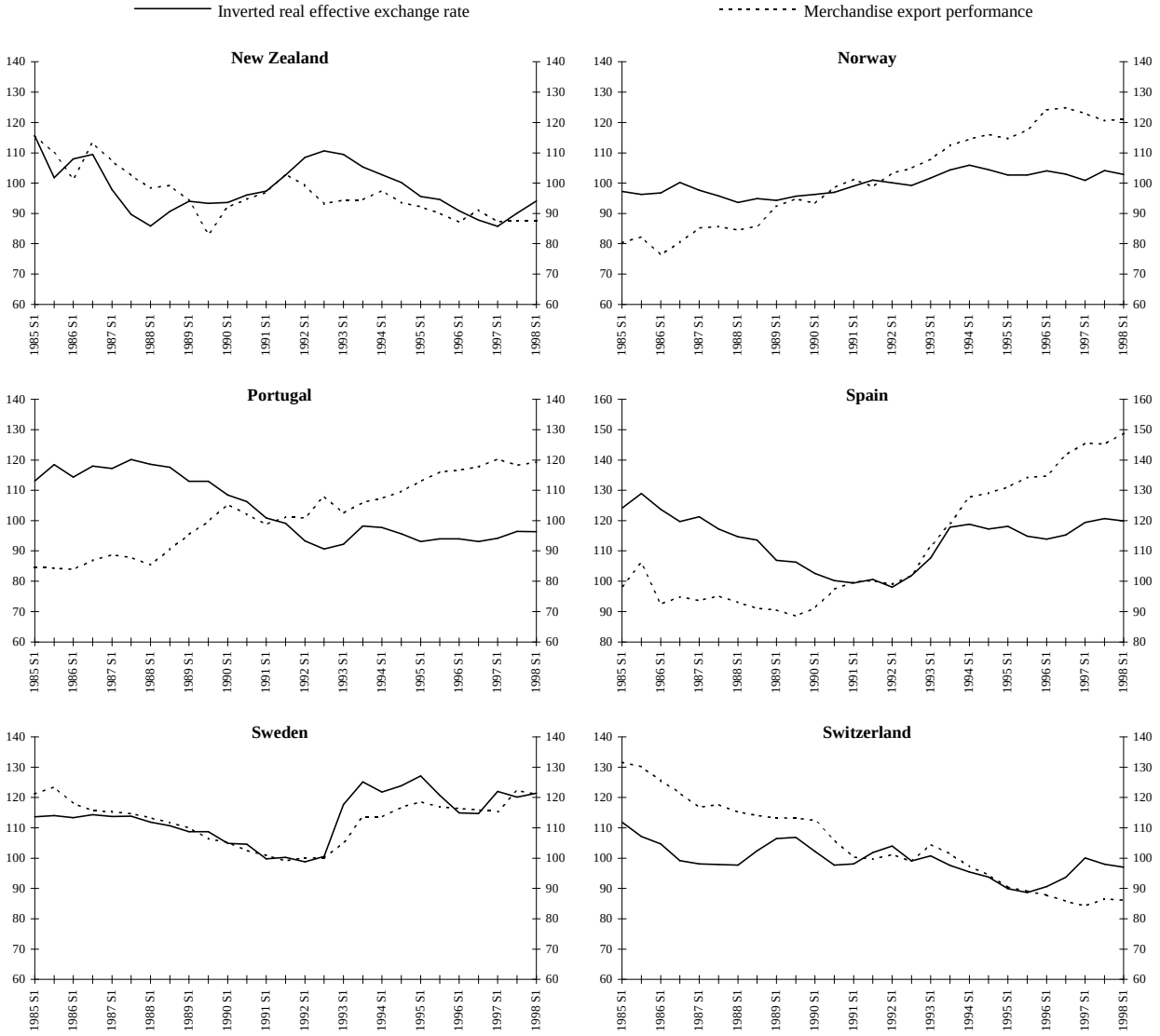
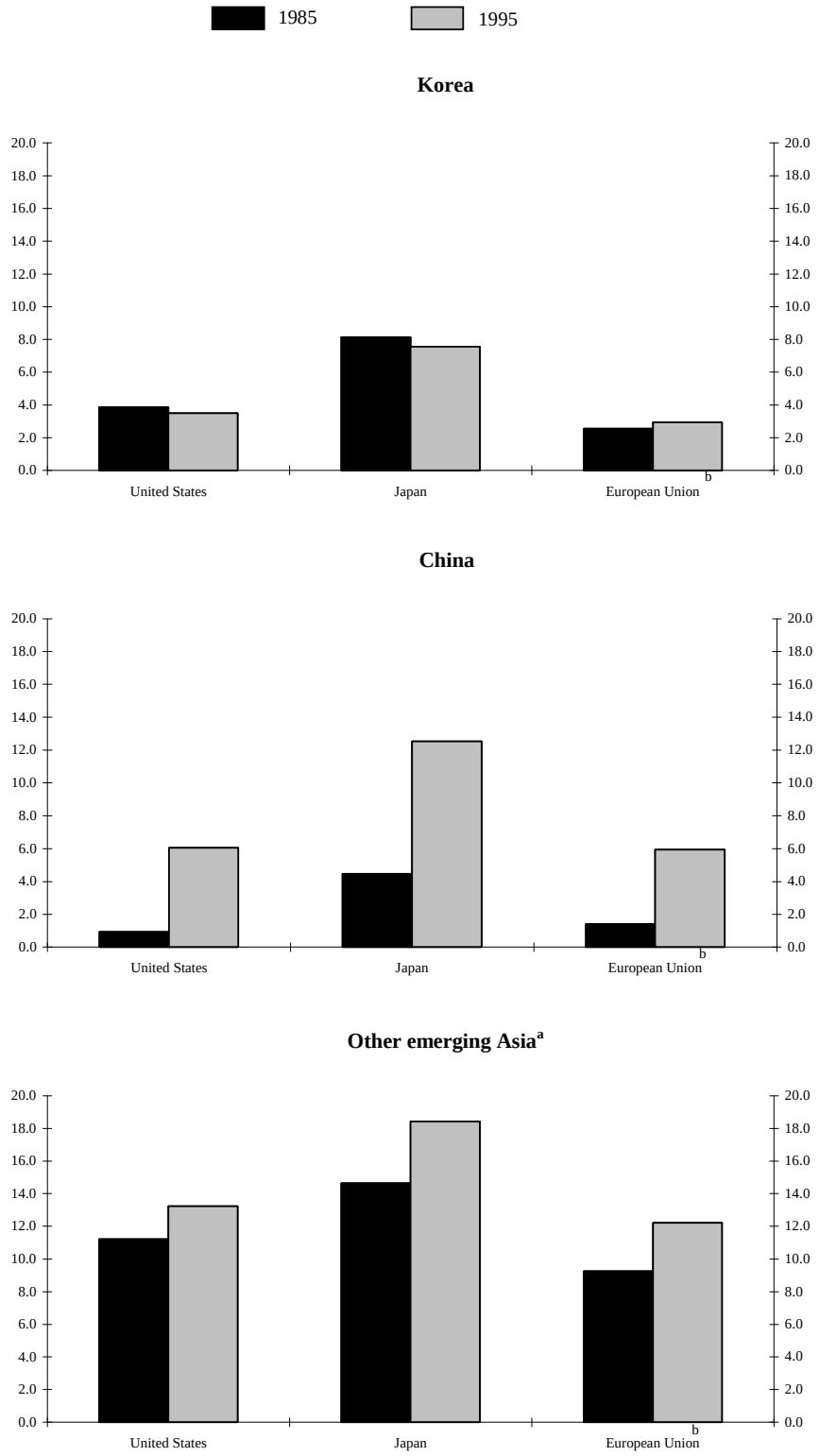
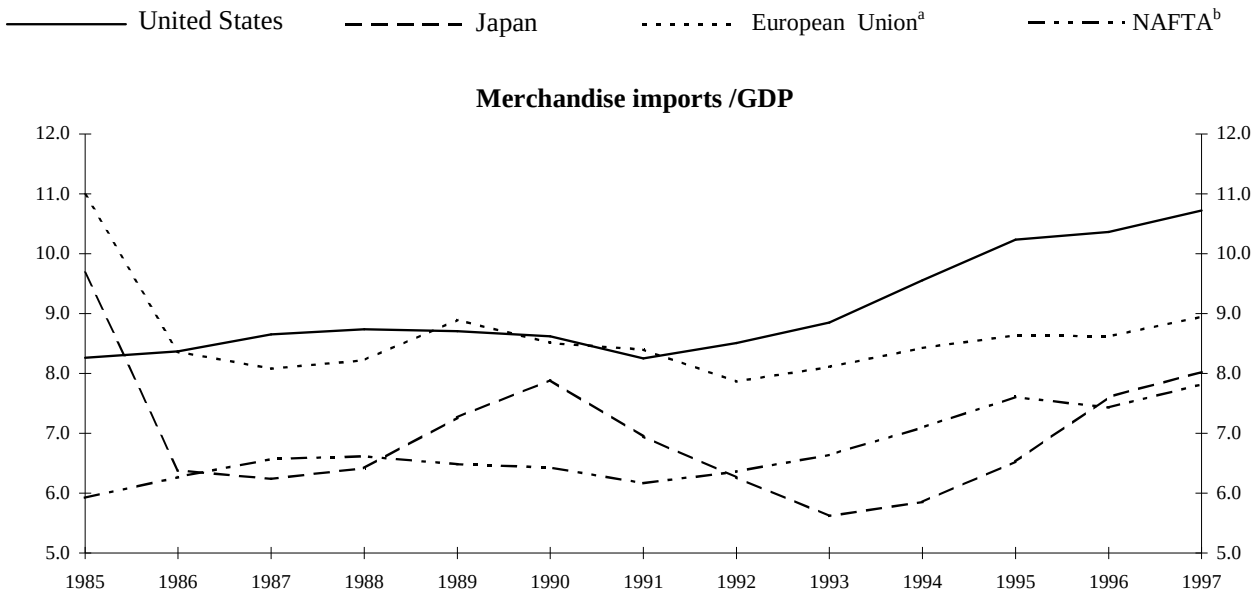


Figure 6. **Shares held in manufactured imports of the three major OECD markets** (per cent of total manufactured imports)



a) Includes Chinese Taipei; Hong Kong,China; Indonesia; Malaysia; the Philippines; Singapore and Thailand.
b) Excluding intra-EU trade.
Source: Centre d'études prospectives et d'informations internationales: CHELEM database.

Figure 7. **Import penetration in major OECD regions**



a) Excluding intra-EU trade.
b) Excluding intra-NAFTA trade.

ANNEX

RECENT REVISIONS TO INTERNATIONAL COMPETITIVENESS INDICATORS

1. The OECD Secretariat calculates three different measures of relative competitiveness, which are published in the *Economic Outlook*. These are based on the ratio between domestic and competitors' average values of manufactured exports, unit labour costs in manufacturing and consumer prices indices expressed in a common currency. The OECD also produces indices of nominal effective exchange rates.

2. Competitiveness indicators are currently calculated for twenty-two OECD countries and three Asian newly industrialising economies (Chinese Taipei; Singapore; and Hong Kong, China)[1]. Thirty-one export markets are considered: twenty-five OECD countries and six non-OECD zones[2]. The revised indicators presented in this paper expand the group of competitor countries to include China, Indonesia, Malaysia, the Philippines, Thailand, India, Argentina, Brazil and Russia (the latter from 1992 onwards). Nominal and real effective exchange rates are also calculated for the EU aggregate.

3. The calculation of competitiveness indicators and nominal effective exchange rates uses a system of weights based on a double-weighting principle, which takes account of the structure of competition in both export and import markets (see weighting matrices reported in Annex Table 1). A discussion of this methodology is given in Durand *et al.* (1992). For each year, starting in 1970, the procedure calculates for a given country the relative importance of its competitors in the domestic and foreign markets (which is determined by the pattern of supply on that markets), and then weights it according to the relative share of the different markets in the total demand directed at this country.

4. The nominal effective exchange rate index is a chain-linked index with base period 1991. Changes in the index are calculated by comparing each country's percentage change in the nominal exchange rate index to a weighted average of changes in its competitors' nominal exchange rate indices,

---

1. The following twenty-two countries, for which homogeneous unit labour cost data are available, are included in the calculations: United States, Japan, Germany, France, Italy, United Kingdom, Canada, Australia, Austria, Belgium, Denmark, Finland, Greece, Korea, Mexico, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, and Switzerland. Iceland, Ireland, and Turkey, and since January 1991, the Czech Republic, Hungary and Poland, are covered in the calculation of the nominal effective exchange rates published in the *Economic Outlook*, but are not included in the competitiveness indicators due to a lack of comparative data on manufacturing unit labour costs.

2. Iceland, Ireland, and Turkey are included in the export markets. The six non-OECD zones cover the following countries: OPEC countries; Asian newly industrialising economies (Chinese Taipei, Singapore and Hong Kong, China); other non-OECD Asian countries and the Middle East, excluding OPEC countries; Africa excluding OPEC countries; Latin-America excluding OPEC countries; Central and Eastern European countries.

using the weighting matrix of the previous year. The indices of nominal effective exchange rates are then calculated from a starting period by cumulating changes[3]. This gives a set of effective exchange rates based on moving weights.

5. The competitiveness indicators presented in this paper are also calculated by chain-linking percentage changes in relative manufacturing unit labour costs and consumer prices indices from a starting period (1970). 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 other OECD countries, the three Asian newly industrialising economies and the nine emerging market countries (also expressed in US dollars).

6. More precisely, the calculation of real effective exchange rate is done in the following way: Let $R_{i,0}^{t}$ be the index of real effective exchange rate of country *i* with base period 0. X_i^t is the exchange rate against the US dollar in period t (expressed as US dollars per unit of country *i*'s currency) and P_i^t represents alternatively country *i*'s consumer prices or unit labour costs in the manufacturing sector. The formula to compute real effective exchange rates is the following:

$$\Delta \ln R_{i,0}^{t} = \Delta \ln\left(\frac{P_i^t}{P_i^0}\cdot\frac{X_i^t}{X_i^0}\right) - \sum_{j\neq i} w_{ij}^{t-1}.\Delta \ln\left(\frac{P_j^t}{P_j^0}\cdot\frac{X_j^t}{X_j^0}\right)$$

$$\text{or equivalently:}\quad \Delta \ln R_{i,0}^{t} = \ln\frac{P_i^t X_i^t}{P_i^{t-1} X_i^{t-1}} - \sum_{j\neq i} w_{ij}^{t-1}\cdot \ln\frac{P_j^t X_j^t}{P_j^{t-1} X_j^{t-1}}$$

7. The inclusion of new emerging market economies influences more the trends in nominal effective rates than that of real rates. This is because most phases of effective nominal depreciations experienced by these economies have, to a large extent, been associated with rising inflation. As a result, movements in these countries' real effective exchange rates are much less pronounced than movements in nominal rates. Nevertheless, emerging market economies have more influence on the United States and Japan's competitiveness indicators, than on those of the European countries, reflecting the relative weights of these economies as competitors for each OECD region (see Annex Figure 2).

Sources of data for non-OECD countries and the European Union aggregate

8. For each year, starting in 1970, a country by market matrix (34 competitors x 31 markets) has been constructed for the calculations of weights. The use of moving weights allows to take into account changing trade patterns. The diagonal elements of this matrix represent the production of manufactured goods (net of exports) of individual countries and the off-diagonal elements represent the exports of manufactured goods from one country (row) to other OECD countries or non-OECD zones (column). For the non-OECD countries, the annual data used for the construction of this matrix are derived from the CEPII database, CHELEM (*Comptes Harmonisés sur les Echanges et l'Economie Mondiale*).

---

3. By calculating nominal and real effective exchange rates from percentage changes rather than indices, the indicators are not base-dependent.

9. The main source of data for non-OECD countries' consumer prices and nominal exchange rates is the IMF *International Financial Statistics* database (series 64 and rf). Recent data for 1998 are obtained from Bloomberg. Consumer prices data for the EU aggregate are derived from the OECD *Main Economic Indicators* database. The index is a chain-linked Laspeyres index, with weights for each link based on the previous year's private consumption expenditure and purchasing power parities (PPPs). The fictive nominal exchange rate for EU is based on a weighted average of the dollar exchange rates of the EU member countries, with GDP weights adjusted for PPPs.

10. Unit labour costs in the manufacturing sector for Chinese Taipei, Singapore and Hong Kong, China are primarily obtained from national sources. The United Nations Industrial Development Organisation (UNIDO) *Industrial Statistics Database* is the main source of data on manufacturing unit labour costs for the other non-OECD countries[4]. This database provides time series on value added, wages and salaries, and employment in the manufacturing sector. Manufacturing value added deflators are obtained from the World Bank *Development Indicators* database.

11. For some countries, unit labour cost data were not available for some years -- i.e. Argentina 1991-96, Brazil and China 1987-96, and India 1994-96. In such cases, the series were extended using the growth rate of unit labour costs in the manufacturing sector obtained from the International Labour Office (ILO) *Labour Statistics*. This source of data provides measures of employment, wages and labour costs in the manufacturing sector, but the data suffer from various breaks in the series, so the UNIDO database was selected when estimates were available from both sources. For reasons of comparability of data, measures of manufacturing labour costs and employment for Thailand were obtained entirely from the ILO (supplemented with data on manufacturing value added at constant prices from the World Bank).

12. The data from UNIDO present several drawbacks. First, wages and salaries in the manufacturing sector include all payments in cash or in kind made to employees[5], but excludes employers' contributions on behalf of their employees paid to social security, pension and insurance schemes. However, compared to OECD economies, employers' contributions represent a smaller share of labour costs in these countries. Second, the measure of manufacturing value added normally used is based on the census definition rather than the national accounting concept. Thus, the costs of some non-industrial services are included in value added, whereas the receipts for those services are excluded from output. Third, differences in definitions and evaluation of labour costs, value added and employment affect the reliability and comparability of data across countries. However, this problem is mitigated to the extent that changes over time are less affected by these differences than absolute levels. Indeed, where data were available from both sources, ILO and UNIDO, changes in unit labour costs presented similar trends.

---

4. This database has also been used to extend the range of countries covered by the IMF's real effective exchange rate indices based on manufacturing unit labour costs, though the procedure and type of weighting are different from those used by the OECD. See Turner and Golup (1997) for a description of the IMF's system of competitiveness indicators for advanced, developing and transition countries.

5. Payments include: *a)* direct wages and salaries; *b)* remuneration for time not worked; *c)* bonuses and gratuities; *d)* housing allowances and family allowances paid directly by the employer; and *e)* payments in kind.

Annex Table 1. **Weighting Matrices**

1970	CAN	USA	JAP	AUS	NZD	EU15	NOR	SWI	MEX	KOR	HKG	SIN	TWN	CHN	IDN	MYS	PHI	THA	IND	ARG	BRA	RUS
Canada	0.0	74.8	5.0	0.8	0.3	15.9	0.1	0.7	0.3	0.1	0.6	0.1	0.4	0.1	0.0	0.1	0.0	0.0	0.2	0.1	0.1	0.1
United States	27.7	0.0	20.6	1.4	0.5	35.7	0.4	1.7	2.3	1.2	3.2	0.2	1.8	0.0	0.0	0.5	0.4	0.3	0.7	0.5	0.5	0.4
Japan	2.9	44.1	0.0	3.0	1.1	29.7	0.4	3.3	0.5	2.1	1.5	0.1	2.4	2.0	0.3	2.0	0.3	0.6	1.7	0.4	0.6	0.9
Australia	4.3	25.6	17.8	0.0	2.5	42.5	0.2	1.7	0.1	0.1	1.9	0.1	0.6	0.9	0.0	0.1	0.0	0.1	0.8	0.0	0.1	0.4
New Zealand	4.0	15.4	12.2	19.3	0.0	45.0	0.3	1.1	0.1	0.1	2.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
European Union	6.2	44.1	13.8	2.7	1.5	0.0	6.3	13.5	0.7	0.2	2.8	0.3	0.7	1.6	0.1	0.3	0.1	0.1	1.4	1.8	1.0	0.7
Norway	0.9	7.4	6.4	0.2	0.1	80.7	0.0	2.8	0.1	0.0	0.7	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1
Switzerland	1.1	12.9	4.6	0.5	0.1	77.4	0.9	0.0	0.4	0.1	0.7	0.0	0.2	0.3	0.0	0.1	0.0	0.0	0.2	0.3	0.2	0.1
Mexico	3.4	63.5	4.3	0.1	0.1	24.6	0.2	2.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.6	0.0
Korea	1.8	44.5	38.8	0.4	0.1	12.6	0.1	0.8	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.1
Hong Kong, China	3.1	37.6	13.5	2.9	0.8	35.1	0.8	2.1	0.2	0.0	0.0	0.2	1.3	0.9	0.1	0.3	0.0	0.1	0.4	0.2	0.1	0.2
Singapore	3.4	33.4	13.0	2.2	0.5	38.9	0.5	1.8	0.1	0.0	2.7	0.0	1.2	0.9	0.1	0.3	0.0	0.1	0.3	0.2	0.2	0.2
Chinese Taipei	3.9	42.7	18.9	2.2	0.2	25.0	0.3	1.5	0.1	0.0	2.7	0.2	0.0	0.9	0.1	0.3	0.0	0.1	0.3	0.1	0.1	0.2
China	1.8	11.0	21.4	3.1	0.2	52.0	0.7	2.9	0.1	0.0	2.4	0.2	1.1	0.0	0.1	0.5	0.1	0.1	1.2	0.2	0.2	0.6
Indonesia	0.9	17.4	30.6	1.0	0.2	41.3	0.6	2.0	0.1	0.4	2.0	0.2	0.9	1.2	0.0	0.5	0.1	0.1	0.2	0.2	0.2	0.1
Malaysia	3.4	34.1	29.9	1.4	0.1	24.0	0.3	1.4	0.1	0.1	1.9	0.2	0.9	1.2	0.1	0.0	0.1	0.1	0.3	0.1	0.1	0.1
the Philippines	2.1	59.4	12.4	1.1	0.1	20.9	0.5	1.1	0.1	0.1	0.8	0.1	0.3	0.4	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1
Thailand	1.2	48.5	24.7	1.3	0.1	18.5	0.3	1.7	0.1	0.1	1.3	0.1	0.6	0.8	0.1	0.3	0.0	0.0	0.2	0.1	0.1	0.1
India	2.8	26.7	14.4	2.7	0.2	46.2	0.6	2.4	0.2	0.1	1.0	0.1	0.4	1.3	0.0	0.1	0.0	0.0	0.0	0.2	0.1	0.4
Argentina	2.1	25.2	5.6	0.4	0.2	58.9	1.2	3.2	1.0	0.0	0.6	0.1	0.2	0.3	0.0	0.1	0.0	0.0	0.3	0.0	0.5	0.1
Brazil	3.3	31.9	9.2	0.8	0.2	46.7	0.8	2.5	2.0	0.0	0.7	0.1	0.3	0.4	0.0	0.1	0.0	0.0	0.2	0.6	0.0	0.1
Russia	2.8	26.6	14.3	2.7	0.2	46.0	0.6	2.4	0.2	0.1	1.0	0.1	0.4	1.3	0.0	0.1	0.0	0.0	0.8	0.2	0.1	0.0

1980	CAN	USA	JAP	AUS	NZD	EU15	NOR	SWI	MEX	KOR	HKG	SIN	TWN	CHN	IDN	MYS	PHI	THA	IND	ARG	BRA	RUS
Canada	0.0	73.4	6.3	0.5	0.3	13.8	0.2	0.7	0.4	0.8	1.0	0.2	1.1	0.3	0.0	0.1	0.1	0.1	0.2	0.1	0.5	0.1
United States	19.7	0.0	23.8	1.1	0.4	29.9	0.3	1.8	4.1	3.1	3.7	1.3	5.3	0.6	0.2	0.9	0.8	0.4	0.6	0.3	1.3	0.3
Japan	2.4	35.1	0.0	2.8	1.1	26.5	0.4	2.7	1.3	7.1	1.8	1.2	5.1	3.9	1.3	1.5	0.9	1.3	1.1	0.5	1.5	0.6
Australia	2.5	25.7	22.5	0.0	3.7	32.0	0.3	1.3	0.1	1.2	2.9	3.1	0.2	1.3	0.1	0.6	0.4	0.4	0.7	0.1	0.6	0.4
New Zealand	2.4	19.2	20.5	19.1	0.0	30.5	0.2	1.2	0.3	0.7	2.0	0.5	0.4	0.9	0.0	0.4	0.1	0.1	0.7	0.1	0.4	0.4
European Union	3.4	35.7	21.3	2.1	0.7	0.0	4.2	14.6	1.0	1.4	3.4	1.0	2.5	1.8	0.2	0.6	0.3	0.4	1.5	0.9	2.2	0.8
Norway	0.6	8.3	5.8	0.5	0.1	78.2	0.0	2.6	0.1	0.3	0.8	0.3	0.4	0.3	0.0	0.2	0.1	0.1	0.2	0.1	1.0	0.1
Switzerland	0.8	11.9	6.1	0.4	0.1	75.4	0.6	0.0	0.4	0.3	1.2	0.3	0.6	0.3	0.1	0.1	0.1	0.2	0.3	0.2	0.4	0.1
Mexico	2.0	65.7	7.2	0.1	0.2	19.7	0.2	1.3	0.0	0.1	0.3	0.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.4	1.9	0.0
Korea	3.5	42.2	24.8	1.6	0.3	22.7	0.5	1.8	0.3	0.0	0.5	0.2	0.5	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.1
Hong Kong, China	2.7	32.9	14.6	2.6	0.5	35.2	0.6	3.2	0.4	0.3	0.0	1.0	3.0	0.8	0.2	0.5	0.2	0.2	0.3	0.2	0.5	0.2
Singapore	1.9	33.4	16.1	6.6	0.5	30.0	0.6	2.3	0.3	0.3	2.8	0.0	2.8	0.7	0.2	0.4	0.1	0.2	0.3	0.2	0.4	0.1
Chinese Taipei	2.9	40.6	18.8	0.8	0.3	27.0	0.4	2.0	0.5	0.2	2.9	0.9	0.0	0.7	0.2	0.5	0.1	0.2	0.3	0.1	0.4	0.1
China	2.1	18.9	25.3	2.7	0.5	39.1	0.8	2.5	0.6	0.2	1.8	0.6	1.8	0.0	0.2	0.6	0.2	0.2	0.5	0.3	0.9	0.2
Indonesia	0.8	21.3	36.8	1.5	0.2	26.5	0.3	2.3	0.2	0.3	2.6	0.8	2.6	1.3	0.0	0.9	0.2	0.3	0.3	0.1	0.4	0.2
Malaysia	1.5	36.9	22.4	2.4	0.4	25.3	0.5	2.0	0.2	0.3	2.2	0.7	2.2	1.2	0.4	0.0	0.2	0.3	0.3	0.1	0.4	0.2
the Philippines	2.6	45.7	17.1	2.3	0.2	24.2	0.5	1.8	0.3	0.4	1.2	0.4	1.2	0.5	0.2	0.4	0.0	0.2	0.2	0.1	0.4	0.1
Thailand	1.5	29.0	24.9	2.5	0.3	30.4	0.5	4.0	0.2	0.4	1.6	0.5	1.5	0.7	0.2	0.5	0.2	0.0	0.3	0.1	0.4	0.1
India	2.0	22.3	14.7	2.2	0.6	48.4	0.7	3.2	0.2	0.4	1.2	0.4	1.1	0.8	0.1	0.3	0.1	0.1	0.0	0.3	0.6	0.3
Argentina	2.0	25.3	12.3	0.5	0.2	47.4	0.7	3.3	2.1	0.4	1.0	0.3	0.9	0.8	0.1	0.2	0.1	0.1	0.4	0.0	1.9	0.2
Brazil	2.8	30.0	12.7	1.1	0.3	41.5	1.3	2.7	3.0	0.3	0.9	0.3	0.8	0.8	0.1	0.2	0.1	0.1	0.3	0.6	0.0	0.2
Russia	2.0	22.3	14.6	2.2	0.6	48.2	0.7	3.2	0.2	0.4	1.2	0.4	1.1	0.8	0.1	0.3	0.1	0.1	0.6	0.3	0.6	0.0

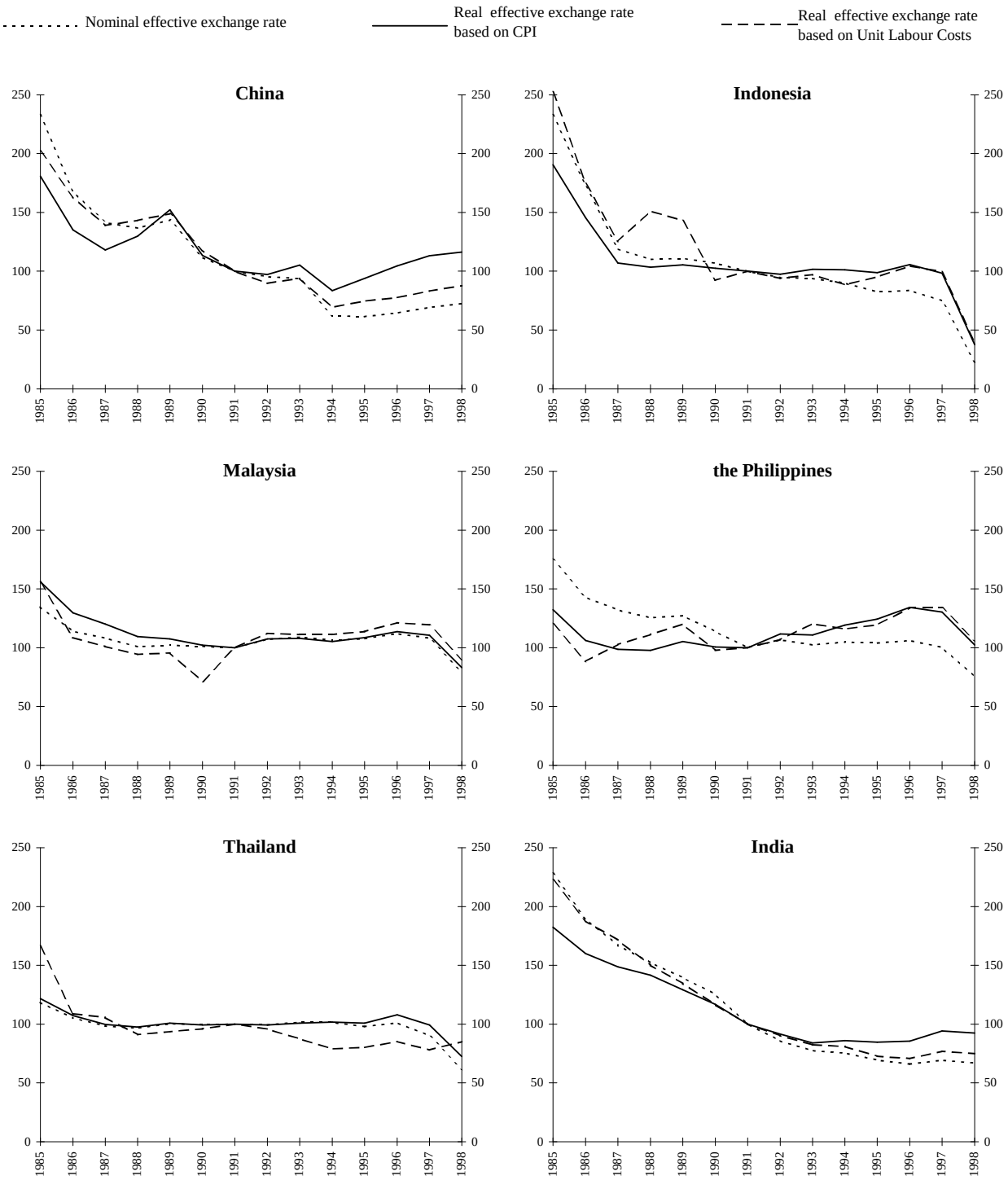
Annex Table 1 (cont'd). **Weighting Matrices**

1990	CAN	USA	JAP	AUS	NZD	EU15	NOR	SWI	MEX	KOR	HKG	SIN	TWN	CHN	IDN	MYS	PHI	THA	IND	ARG	BRA	RUS
Canada	0.0	72.3	6.6	0.6	0.1	11.2	0.1	0.6	1.2	1.6	0.8	0.5	1.7	1.0	0.1	0.3	0.1	0.3	0.2	0.1	0.5	0.1
United States	18.1	0.0	23.3	1.1	0.3	25.5	0.3	1.5	6.0	4.5	2.5	2.4	5.7	3.1	0.4	1.0	0.7	1.0	0.6	0.3	1.5	0.3
Japan	1.6	31.1	0.0	3.4	0.7	27.4	0.4	2.9	0.5	7.7	1.8	1.6	6.0	5.7	2.0	1.1	0.8	2.4	1.0	0.3	1.3	0.5
Australia	1.9	24.6	22.7	0.0	3.9	27.5	0.3	1.7	0.3	2.5	1.8	1.9	4.1	2.7	0.5	0.8	0.3	1.0	0.5	0.1	0.6	0.3
New Zealand	1.7	17.0	19.0	21.7	0.0	25.5	0.5	1.8	0.5	2.0	1.7	1.4	3.5	1.3	0.3	0.5	0.2	0.5	0.3	0.1	0.5	0.2
European Union	2.6	31.9	22.1	1.8	0.5	0.0	3.9	14.2	0.8	1.8	3.0	2.1	4.5	2.6	0.6	0.8	0.3	1.0	1.8	0.7	1.9	0.9
Norway	0.7	9.2	6.4	0.4	0.1	73.1	0.0	2.8	0.1	1.1	1.3	0.8	1.3	0.9	0.1	0.2	0.1	0.3	0.3	0.1	0.5	0.2
Switzerland	0.7	10.1	8.3	0.7	0.1	72.2	0.7	0.0	0.2	0.7	1.3	0.6	1.3	0.7	0.1	0.3	0.1	0.4	0.4	0.2	0.5	0.2
Mexico	2.6	72.2	6.4	0.3	0.3	12.9	0.1	0.9	0.0	0.6	0.6	0.2	1.0	0.6	0.0	0.1	0.0	0.1	0.1	0.2	0.8	0.0
Korea	4.5	44.1	25.3	1.9	0.3	16.7	0.7	1.9	0.7	0.0	0.5	0.4	0.9	0.6	0.1	0.2	0.1	0.2	0.2	0.1	0.4	0.1
Hong Kong, China	2.7	30.4	16.7	1.9	0.4	31.0	0.9	3.5	0.6	0.5	0.0	2.1	4.9	1.2	0.4	0.8	0.1	0.5	0.4	0.2	0.6	0.2
Singapore	2.2	34.5	17.0	2.2	0.4	27.8	0.7	2.6	0.4	0.5	2.6	0.0	4.9	1.2	0.4	0.8	0.1	0.4	0.3	0.2	0.5	0.2
Chinese Taipei	2.8	34.9	20.6	2.1	0.4	26.2	0.5	2.4	0.6	0.5	2.7	2.2	0.0	1.2	0.4	0.8	0.1	0.4	0.3	0.2	0.5	0.2
China	3.1	34.4	24.2	2.3	0.3	24.1	0.7	2.4	0.7	0.6	1.3	1.0	2.2	0.0	0.3	0.7	0.1	0.4	0.3	0.2	0.5	0.2
Indonesia	1.7	22.5	35.3	2.0	0.3	24.5	0.5	2.2	0.3	0.5	1.7	1.3	3.1	1.3	0.0	1.0	0.2	0.5	0.3	0.1	0.6	0.2
Malaysia	2.3	33.7	22.2	2.0	0.3	23.4	0.5	2.4	0.4	0.5	2.1	1.7	3.9	1.8	0.6	0.0	0.2	0.7	0.3	0.1	0.6	0.2
the Philippines	3.2	44.7	21.8	1.5	0.2	18.6	0.4	1.8	0.5	0.6	1.0	0.8	1.8	0.9	0.3	0.6	0.0	0.4	0.2	0.1	0.5	0.1
Thailand	2.5	31.7	26.7	2.2	0.3	24.3	0.6	2.9	0.4	0.6	1.2	0.9	2.2	1.1	0.3	0.7	0.1	0.0	0.3	0.2	0.6	0.2
India	1.9	23.9	16.5	1.5	0.3	42.6	0.8	3.9	0.4	0.7	1.2	0.9	1.9	1.0	0.3	0.4	0.1	0.4	0.0	0.3	0.7	0.5
Argentina	2.2	27.0	13.9	0.9	0.2	40.7	0.8	3.6	1.5	0.6	1.2	0.9	1.9	1.0	0.2	0.3	0.1	0.4	0.5	0.0	1.7	0.3
Brazil	3.0	34.4	15.0	1.2	0.2	33.3	0.8	3.1	1.4	0.7	1.1	0.8	1.8	1.0	0.3	0.4	0.1	0.4	0.4	0.5	0.0	0.2
Russia	1.9	23.8	16.4	1.5	0.3	42.3	0.8	3.9	0.4	0.7	1.2	0.9	1.9	1.0	0.3	0.4	0.1	0.4	0.9	0.3	0.7	0.0

1995	CAN	USA	JAP	AUS	NZD	EU15	NOR	SWI	MEX	KOR	HKG	SIN	TWN	CHN	IDN	MYS	PHI	THA	IND	ARG	BRA	RUS
Canada	0.0	75.8	5.0	0.6	0.1	8.2	0.1	0.4	2.0	1.1	0.6	0.6	1.4	1.8	0.2	0.6	0.2	0.4	0.2	0.1	0.4	0.1
United States	18.5	0.0	22.2	0.8	0.2	22.0	0.2	1.4	8.0	3.4	1.8	2.7	4.9	5.9	0.8	2.2	0.8	1.5	0.8	0.2	1.3	0.4
Japan	1.2	27.1	0.0	2.8	0.7	22.3	0.3	1.9	0.4	7.1	1.3	2.5	5.9	13.2	2.8	2.6	1.0	3.9	1.1	0.2	1.0	0.6
Australia	1.5	21.2	22.6	0.0	5.0	26.0	0.2	1.5	0.3	2.5	1.4	2.8	4.0	5.0	1.0	1.6	0.3	1.3	0.7	0.1	0.6	0.4
New Zealand	1.2	16.2	17.9	27.6	0.0	20.6	0.2	1.2	0.3	1.6	1.3	1.8	3.1	3.2	0.6	1.0	0.2	0.8	0.5	0.1	0.4	0.3
European Union	2.2	31.8	21.6	2.2	0.5	0.0	3.3	11.8	1.0	1.6	2.0	2.6	4.1	5.8	1.0	1.5	0.4	1.6	1.6	0.6	1.9	0.8
Norway	0.9	9.0	7.8	0.4	0.1	70.0	0.0	2.7	0.2	1.0	0.9	0.7	1.3	2.2	0.3	0.4	0.1	0.4	0.5	0.1	0.5	0.3
Switzerland	0.6	11.1	7.6	0.5	0.1	70.8	0.6	0.0	0.3	0.7	1.0	0.7	1.3	1.7	0.3	0.5	0.1	0.6	0.5	0.2	0.5	0.3
Mexico	2.9	73.4	6.1	0.2	0.1	10.5	0.1	0.6	0.0	0.8	0.4	0.5	0.7	0.8	0.2	0.5	0.1	0.3	0.2	0.2	1.2	0.1
Korea	3.7	41.3	27.4	2.2	0.4	15.9	0.6	1.9	1.3	0.0	0.4	0.6	0.9	1.4	0.2	0.4	0.1	0.4	0.3	0.1	0.4	0.2
Hong Kong, China	2.5	32.3	18.6	2.1	0.4	26.8	0.7	3.0	0.9	0.5	0.0	2.2	3.8	1.8	0.6	1.3	0.2	0.8	0.5	0.2	0.6	0.3
Singapore	2.1	33.9	20.5	2.6	0.5	25.1	0.5	2.2	0.7	0.5	1.6	0.0	3.8	1.7	0.6	1.3	0.2	0.8	0.5	0.2	0.5	0.3
Chinese Taipei	2.5	34.6	23.1	2.3	0.5	23.6	0.4	2.1	0.7	0.5	1.6	2.2	0.0	1.6	0.6	1.3	0.2	0.8	0.5	0.2	0.5	0.3
China	2.7	35.0	26.9	2.1	0.4	22.4	0.6	2.2	0.7	0.6	0.6	0.9	1.4	0.0	0.4	0.7	0.2	0.6	0.4	0.2	0.6	0.2
Indonesia	1.7	25.5	32.3	2.2	0.4	22.7	0.4	2.1	0.7	0.5	1.1	1.5	2.5	2.0	0.0	1.6	0.3	1.0	0.5	0.2	0.6	0.3
Malaysia	2.4	35.8	24.4	2.1	0.4	19.7	0.4	1.9	0.9	0.5	1.2	1.7	2.9	2.0	0.9	0.0	0.3	1.2	0.5	0.1	0.5	0.3
the Philippines	3.2	44.9	22.5	1.5	0.2	15.9	0.4	1.7	0.9	0.6	0.7	0.9	1.6	1.6	0.5	1.1	0.0	0.7	0.4	0.1	0.4	0.2
Thailand	2.2	30.9	29.1	2.0	0.3	21.5	0.4	2.4	0.7	0.5	0.9	1.3	2.2	1.8	0.7	1.4	0.2	0.0	0.5	0.1	0.5	0.3
India	1.9	27.9	19.0	1.8	0.4	32.7	0.8	3.3	0.7	0.7	1.0	1.4	2.2	2.2	0.6	1.0	0.2	0.8	0.0	0.2	0.7	0.4
Argentina	1.6	30.0	13.6	0.7	0.2	35.5	0.7	3.1	1.7	0.6	0.8	1.1	1.7	2.2	0.5	0.6	0.2	0.6	0.5	0.0	3.8	0.3
Brazil	2.3	35.2	15.1	1.1	0.2	30.5	0.6	2.5	2.9	0.6	0.7	1.0	1.6	2.0	0.5	0.7	0.2	0.6	0.5	1.1	0.0	0.3
Russia	1.9	27.9	18.9	1.8	0.4	32.6	0.8	3.3	0.7	0.7	1.0	1.4	2.2	2.2	0.6	1.0	0.2	0.8	0.7	0.2	0.7	0.0

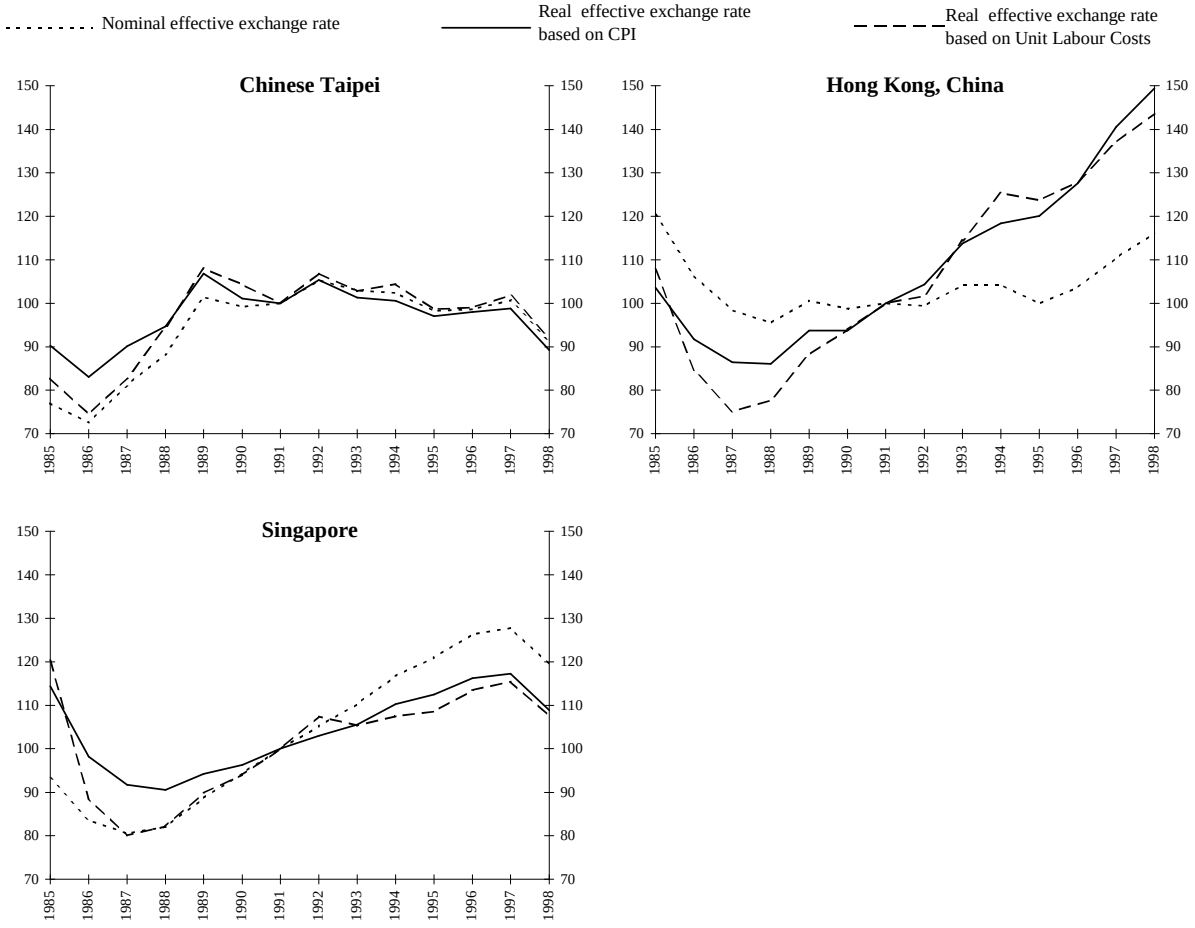
Annex figure 1. **Real and nominal effective exchange rates in selected non-OECD countries**

Indices 1991 = 100



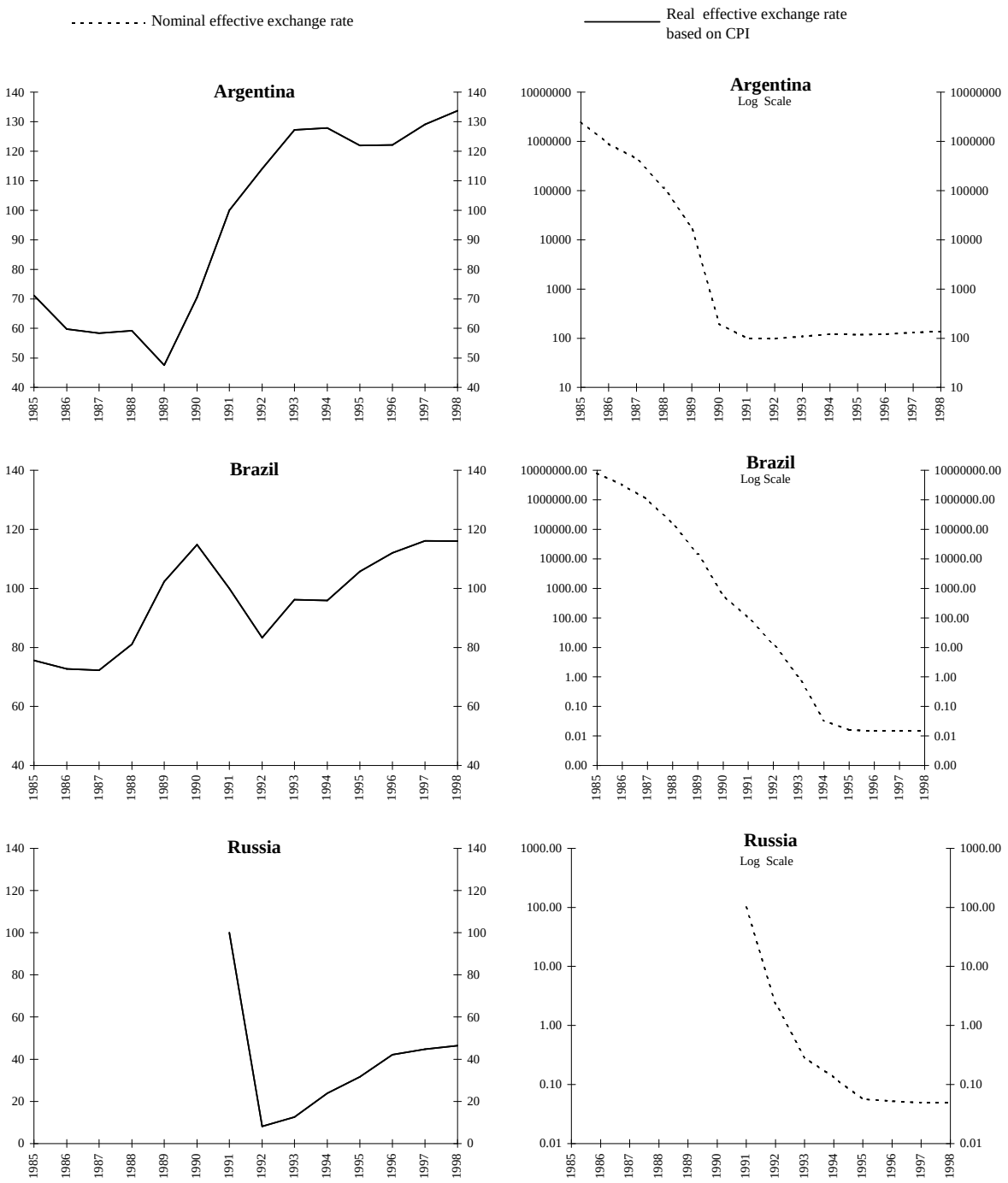
Annex figure 1(cont'd). **Real and nominal effective exchange rates in selected non-OECD countries**

Indices 1991 = 100

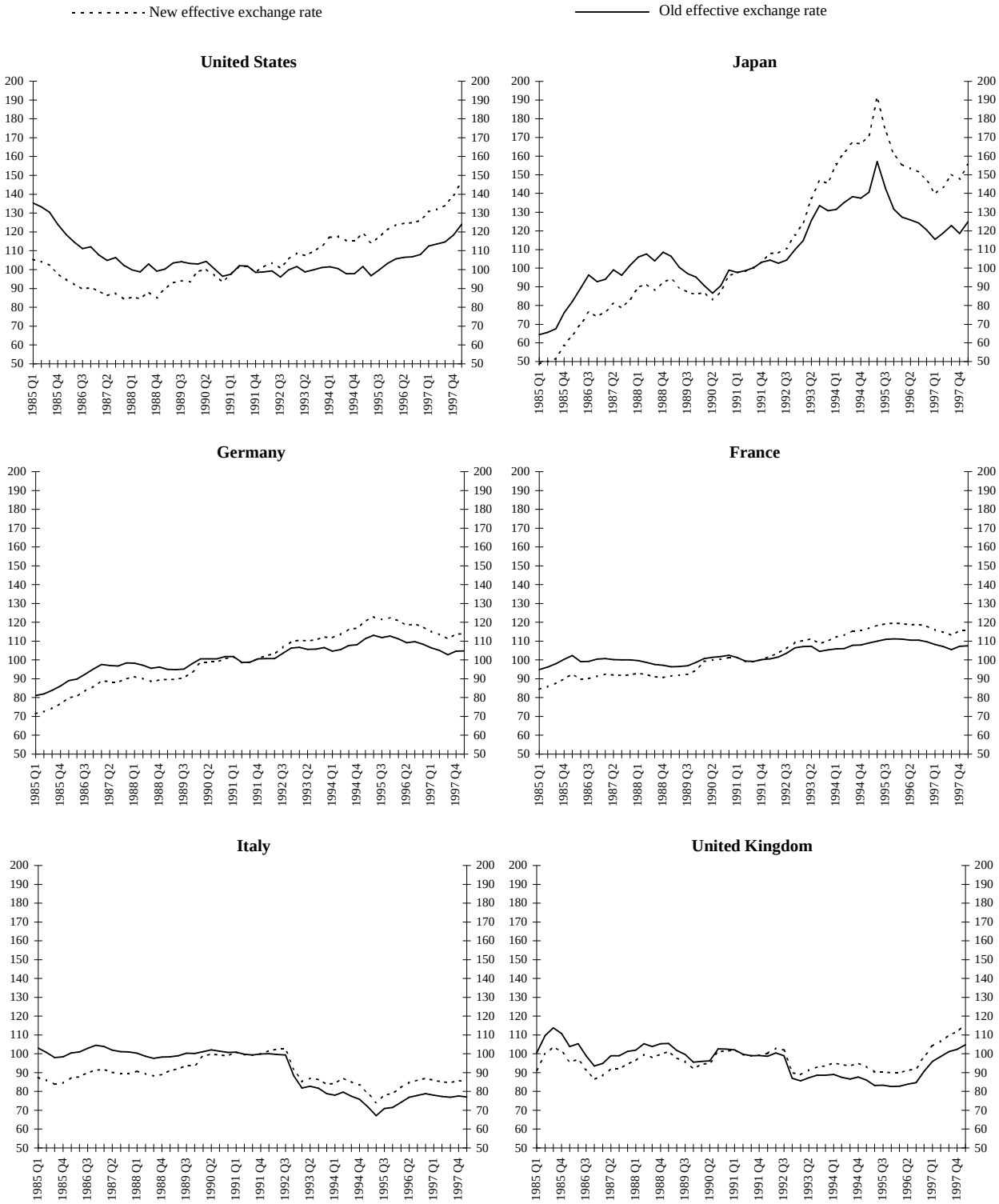


Annex figure 1 (cont'd). **Real and nominal effective exchange rates in selected non-OECD countries**

Indices 1991 = 100

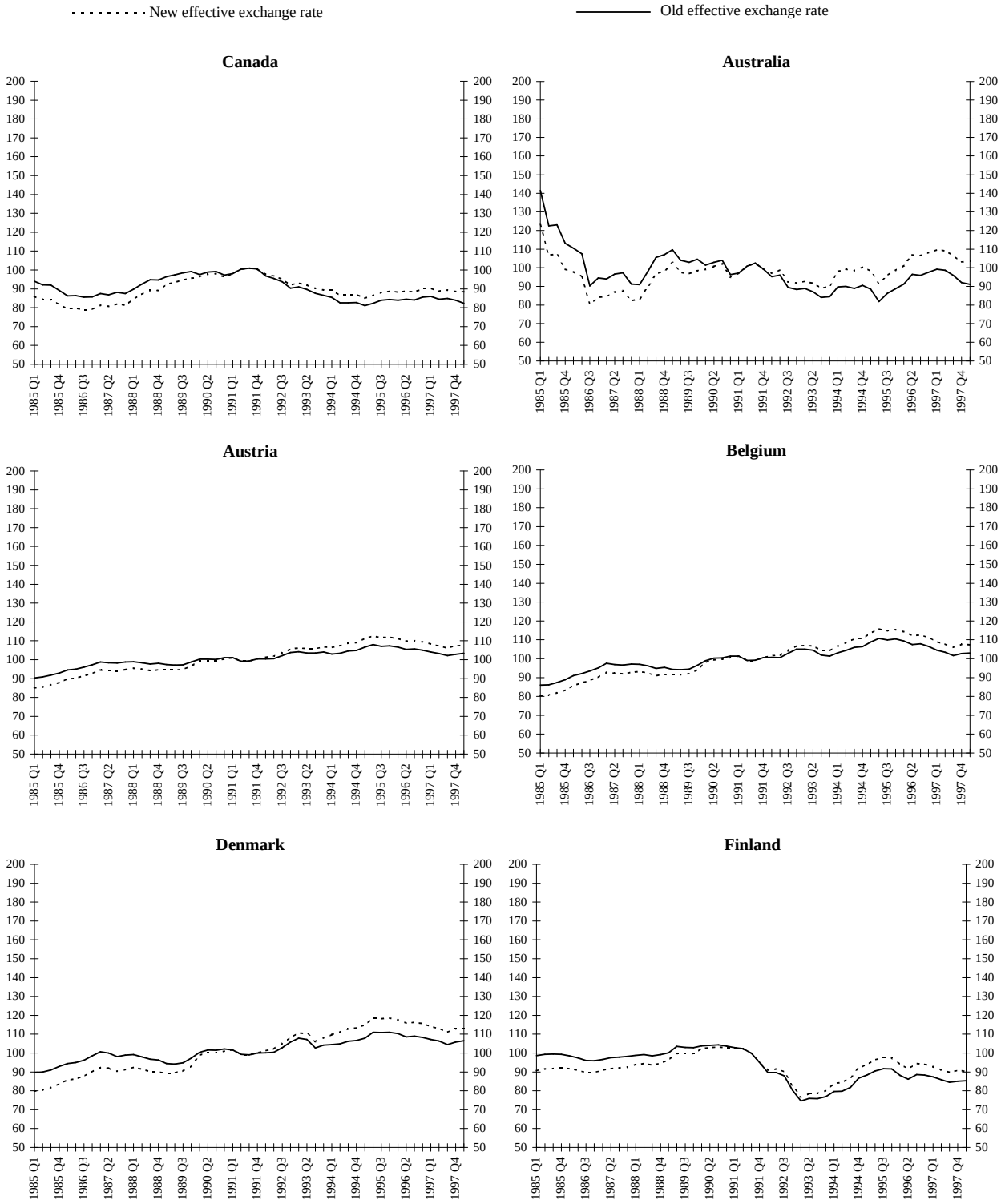


Annex figure 2. **Nominal effective exchange rates**[a]
Indices 1991 = 100



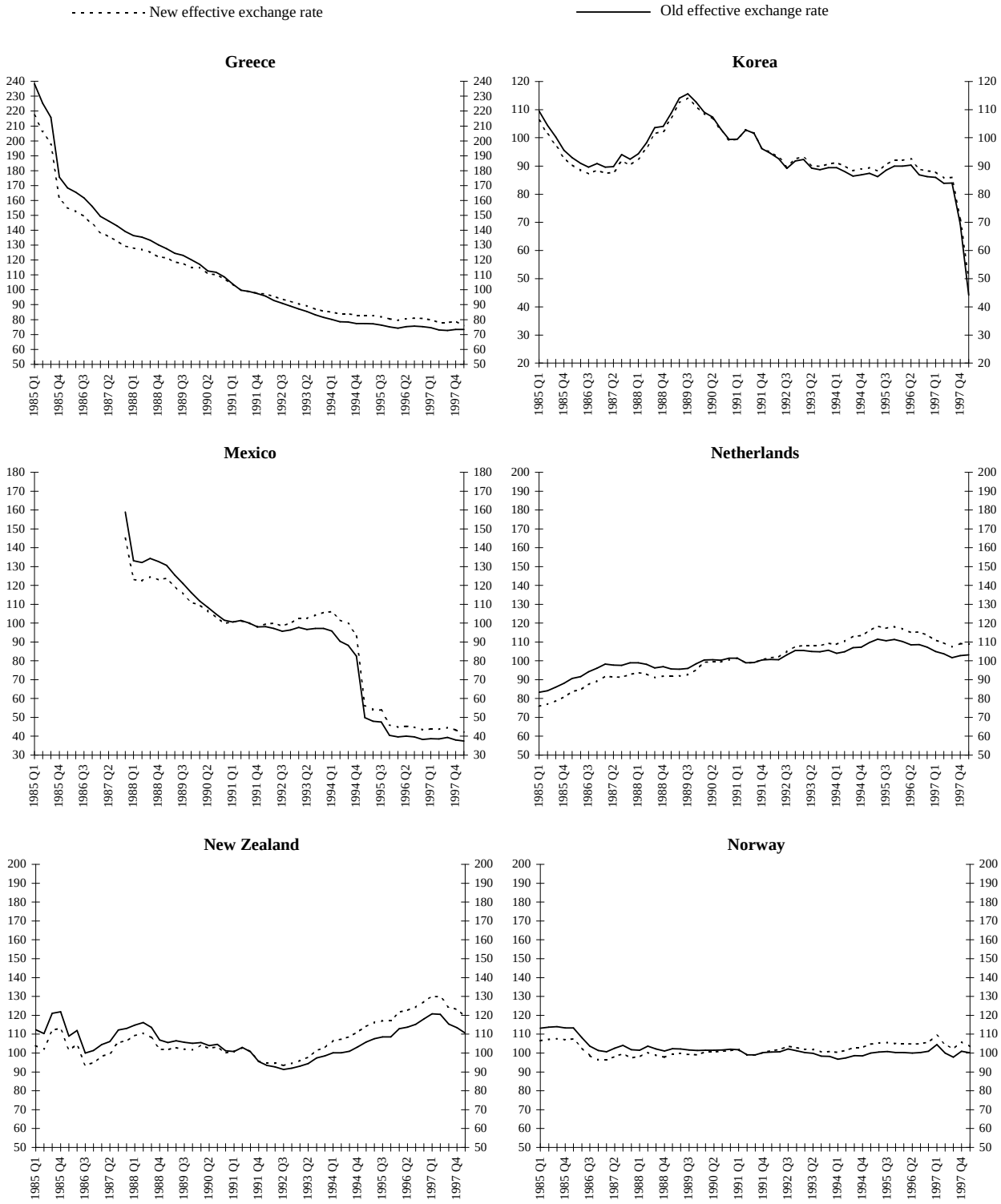
a) The "old" nominal effective exchange rates were calculated for twenty-two OECD countries and three Asian newly industrialising economies (Chinese Taipei; Singapore; and Hong Kong,China). The "new" indicators presented in this paper expand the group of competitor countries to include China, Indonesia, Malaysia, the Philippines, Thailand, India, Argentina, Brazil and Russia (the latter from 1992 onwards).

Annex figure 2 (cont'd). **Nominal effective exchange rates**[a]
Indices 1991 = 100



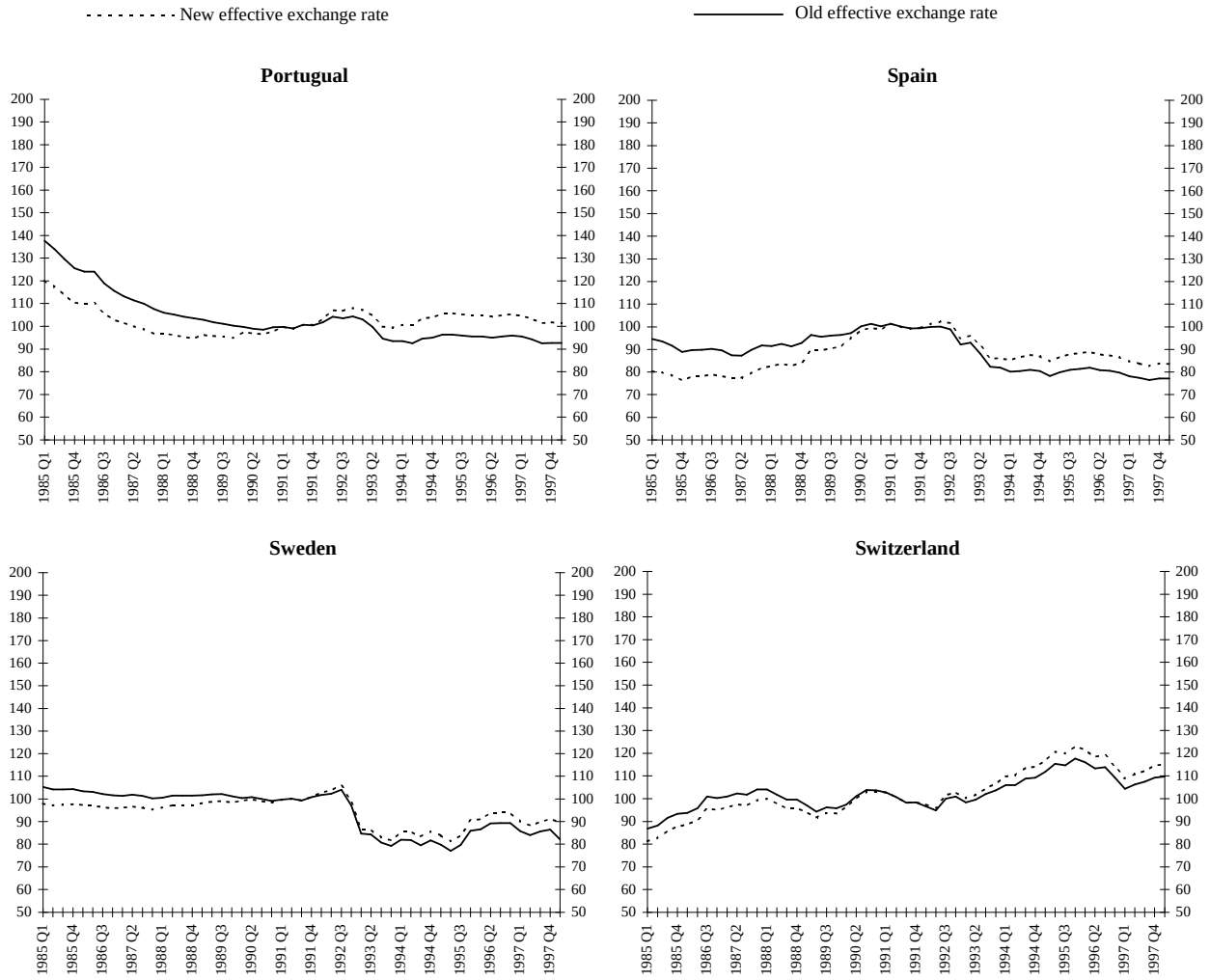
a) The "old" nominal effective exchange rates were calculated for twenty-two OECD countries and three Asian newly industrialising economies (Chinese Taipei; Singapore; and Hong Kong,China). The "new" indicators presented in this paper expand the group of competitor countries to include China, Indonesia, Malaysia, the Philippines, Thailand, India, Argentina, Brazil and Russia (the latter from 1992 onwards).

Annex figure 2 (cont'd). **Nominal effective exchange rates**[a]
Indices 1991 = 100



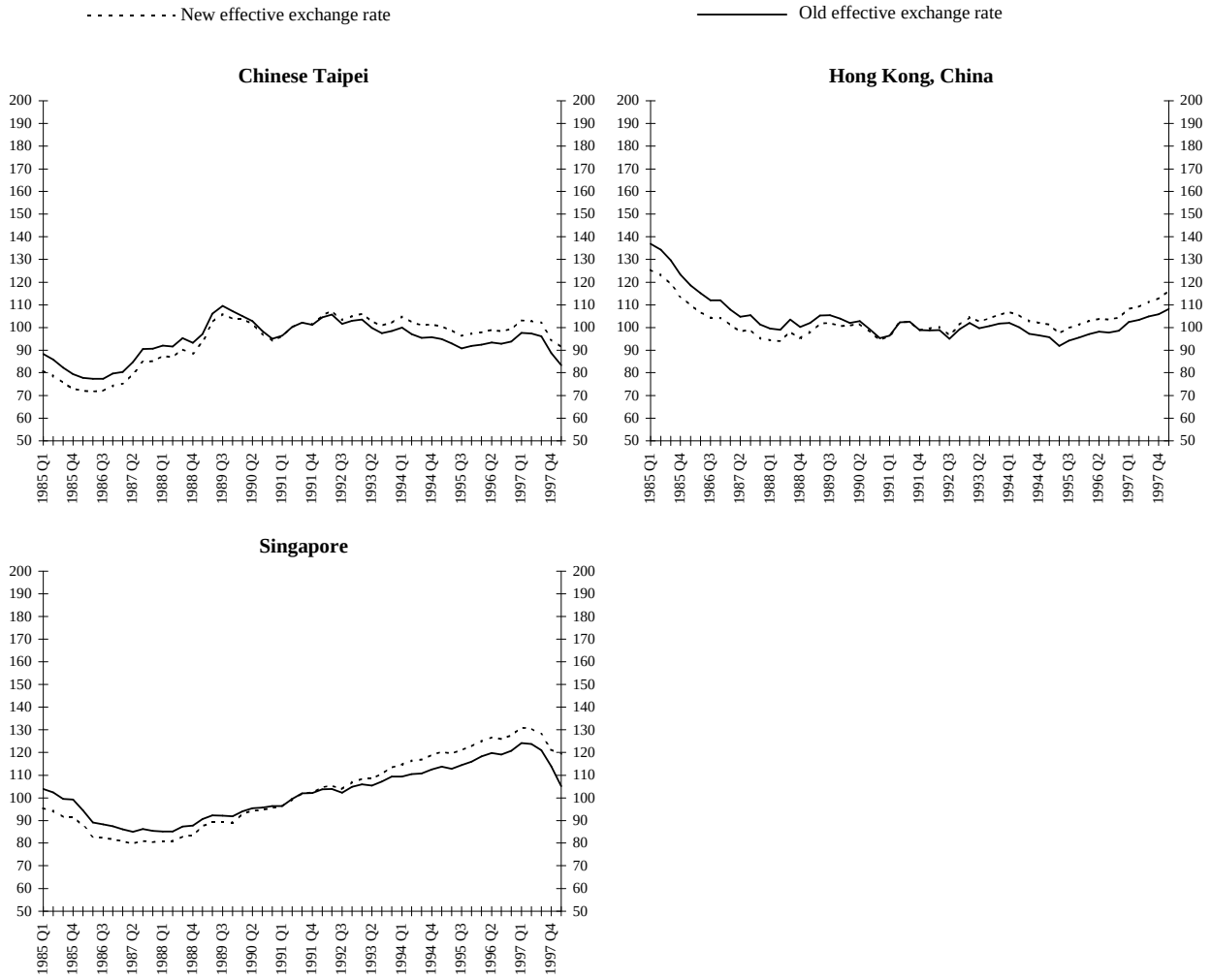
a) The "old" nominal effective exchange rates were calculated for twenty-two OECD countries and three Asian newly industrialising economies (Chinese Taipei; Singapore; and Hong Kong,China). The "new" indicators presented in this paper expand the group of competitor countries to include China, Indonesia, Malaysia, the Philippines, Thailand, India, Argentina, Brazil and Russia (the latter from 1992 onwards).

Annex figure 2 (cont'd). **Nominal effective exchange rates**[a]
Indices 1991 = 100



a) The "old" nominal effective exchange rates were calculated for twenty-two OECD countries and three Asian newly industrialising economies (Chinese Taipei; Singapore; and Hong Kong,China). The "new" indicators presented in this paper expand the group of competitor countries to include China, Indonesia, Malaysia, the Philippines, Thailand, India, Argentina, Brazil and Russia (the latter from 1992 onwards).

Annex figure 2 (cont'd). **Nominal effective exchange rates**[a]
Indices 1991 = 100



a) The "old" nominal effective exchange rates were calculated for twenty-two OECD countries and three Asian newly industrialising economies (Chinese Taipei; Singapore; and Hong Kong,China). The "new" indicators presented in this paper expand the group of competitor countries to include China, Indonesia, Malaysia, the Philippines, Thailand, India, Argentina, Brazil and Russia (the latter from 1992 onwards).

ECONOMICS DEPARTMENT
WORKING PAPERS

194. *The European Union's Trade Policies and their Economic Effects*
(April 1998) Peter Hoeller, Nathalie Girouard and Alessandra Colecchia

193. *The Macroeconomic Implications of Ageing in a Global Context*
(March 1998) Dave Turner, Claude Giorno, Alain De Serres, Ann Vourc'h and Pete Richardson

192. *Efficiency and Distribution in Computable Models of Carbon Emission Abatement*
(March 1998) Joaquim Oliveira Martins and Peter Sturm

191. *Monetary Policy when Inflation is Low*
(March 1998) Charles Pigott and Hans Christiansen

190. *Submission by the OECD to the G8 Growth, Employability and Inclusion Conference*
(March 1998)

189. *Income Distribution and Poverty in Selected OECD Countries*
(March 1998) Jean-Marc Burniaux, Thai-Thanh Dang, Douglas Fore, Michael Förster, Marco Mira d'Ercole and Howard Oxley

188. *Asset Prices and Monetary Policy*
(February 1998) Mike Kennedy, Angel Palerm, Charles Pigott and Flavia Terribile

187. *NAIRU: Incomes Policy and Inflation*
(January 1998) Silvia Fabiani, Alberto Locarno, Gian Paolo Oneto and Paolo Sestito

186. *OECD Submission to the Irish National Minimum Wage Commission*
(December 1997)

185. *OECD Submission to the UK Low Pay Commission*
(December 1997)

184. *Concept, Measurement and Policy Implications of the NAIRU - Perspective from Belgium*
(October 1997) Joost Verlinden

183. *Structural unemployment in Denmark*
(September 1997) Agnete Gersing

182. *The United Kingdom NAIRU: Concepts, Measurement and Policy Implications*
(September 1997) Chris Melliss and A.E. Webb

181. *Globalisation and Linkages: Macro-Structural Challenges and Opportunities*
(August 1997) Pete Richardson

180. *Regulation and Performance in the Distribution Sector*
(August 1997) Dirk Pilat

179. *Measurement of Non-tariff Barriers*
(July 1997) Alan Deardorff and Robert M. Stern

178. *The NAIRU-Concept: A Few Remarks*
(July 1997) Karl Pichelmann and Andreas Ulrich Schuh

177. *Structural Unemployment in Finland*
(July 1997) Pasi Holm and Elina Somervouri

176. *Taxation and Economic Performance*
(June 1997) Willi Leibfritz, John Thornton and Alexandra Bibbee

175. *Long-Term Interest Rates in Globalised Markets*
(May 1997) Hans Christiansen and Charles Pigott

174. *International Implications of European Economic and Monetary Union*
(May 1997) Norbert Funke and Mike Kennedy

173. *The NAIRU in Japan: Measurement and its implications*
(March 1997) Fumihira Nishizaki

172. *The Unemployment Problem - A Norwegian Perspective*
(February 1997) Steinar Holden

171. *The Reliability of Quarterly National Accounts in Seven Major Countries: A User's Perspective*
(February 1997) Robert York and Paul Atkinson

170. *Confidence Indicators and their Relationship to changes in Economic Activity*
(November 1996) Teresa Santero and Niels Westerlund.

169. *Labour Productivity Levels in OECD Countries. Estimates for Manufacturing and Selected Service Sectors*
(September 1996) Dirk Pilat

168. *Ageing Populations, Pension Systems and Government Budgets: Simulations for 20 OECD Countries*
(September 1996) Deborah Roseveare, Willi Leibfritz, Douglas Fore and Eckhard Wurzel

167. *Modelling the Supply Side of the Seven Major OECD Economies*
(September 1996) Dave Turner, Pete Richardson and Sylvie Rauffet

166. *Size Distribution of Output and Employment: A Data Set For Manufacturing Industries in Five OECD Countries, 1960s-1990*
(August 1996) Bart van Ark and Erik Monnikhof

165. *Trade and Competition: Frictions after the Uruguay Round*
(July 1996) International Trade and Investment Division

164. *Corporate Governance, Competition and Performance*
(June 1996) Colin Mayer

163. *Fiscal Relations within the European Union*
(May 1996) Peter Hoeller, Marie-Odile Louppe and Patrice Vergriete