The impact of low-cost economies on UK import prices

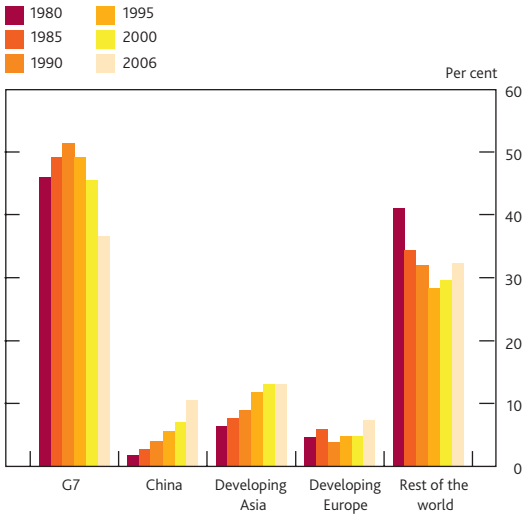
By Conall Mac Coille of the Bank's Structural Economic Analysis Division.

The share of UK imports from developing countries has increased sharply in recent years. Using measures of bilateral trade prices, this article suggests that increased sourcing from low-cost economies has put significant downward pressure on the relative price of UK goods imports. However, this effect may have dissipated over time as the prices of UK imports from low-cost economies have risen more rapidly than in the past and developing economies' increasing demand for raw materials has contributed to higher oil and commodities prices.

Introduction

The sharp expansion of exports from China and other developing economies in recent years (**Chart 1**) has been attributed to: reductions in legal barriers to trade; transitions towards market-orientated policies; and relatively low costs of production. The increasing importance of developing economies within world trade has been identified as one factor that may have pushed down on global and UK trade prices. This article examines how important these effects may have been for the United Kingdom.

Chart 1 Share of world trade(a)



Source: IMF Direction of Trade Statistics.

(a) The shares are calculated from nominal US dollar values. Developing Asia excludes China.

A key point in considering these channels is that aggregate UK consumer price inflation is determined by UK monetary policy in the medium to long run. And even in the short run there is a wide range of other, potentially offsetting, effects on aggregate inflation. Hence, increased sourcing of imports from developing economies has probably been associated with movements in the relative prices of some traded goods rather than any sustained effect on aggregate inflation. Nevertheless, it is important for central banks to understand movements in relative prices to assess their potential influence on aggregate inflation in the short run.(1)

In the past, analysis of UK trade prices has been hampered by the lack of available data. Price measures for goods imported into the United Kingdom from specific trading partners are not published. So it has not been possible to decompose aggregate import prices, in an accounting sense, into contributions from different trading partners. This article describes new measures of bilateral trade prices which allow such an accounting decomposition.

The second section discusses the many channels through which globalisation may have affected the UK economy and trade prices. The third section describes how a rising proportion of imports from low-cost economies may have reduced UK import prices. The fourth section measures the impact using bilateral trade price measures. The fifth section considers disaggregated data to analyse which categories of goods imports may have experienced the largest relative price falls. The sixth section concludes.

Channels through which globalisation may have affected the United Kingdom

One explanation for the sharp expansion of developing economy exports is the reduction in legal barriers to trade. Over the past two decades the process of global trade liberalisation has been facilitated by transitions towards

(1) For example, see Kamin, S, Marazzi, M and Schindler, J W (2004), 'Is China 'exporting deflation'?'.

market-orientated policies in many developing economies. Other key developments in international trade relations include the European Single Market programme, the accession of new EU member states, China's entry to the World Trade Organisation in 2001 and the completion of the Agreement on Textiles and Clothing (ATC) in 2005.

The integration of developing economies into international trade has been characterised as an increase in the effective global labour force and an improvement in labour productivity in developing economies following from the new production opportunities. Many macroeconomic models suggest that such changes should put downward pressure on the prices of tradable goods and services. However, there are several channels through which these changes in the global economy could affect prices in the United Kingdom.

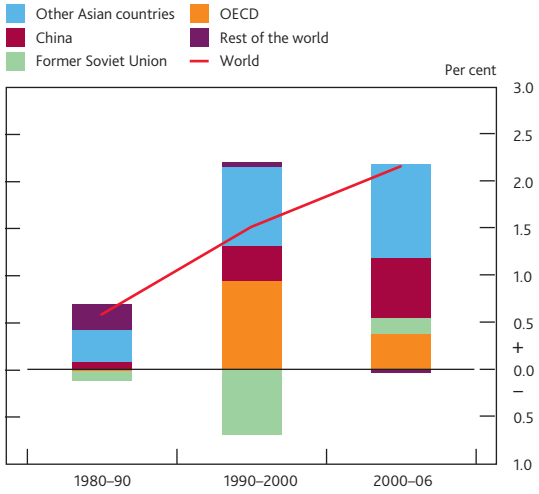
Increased competition in global markets from developing economies may have led UK firms, and exporters in other advanced economies, to lower their mark-ups over costs. Globalisation pressures may also work through the domestic labour market. As global trade becomes more integrated, employees and companies may take more account of lower labour costs in other countries when bargaining for wages. For example, the potential for UK firms to relocate production abroad may restrain wage demands and hence costs. Globalisation may also affect domestic prices by raising productivity and hence lowering unit labour costs: increased trade allows countries to concentrate their resources in the sectors in which they are relatively more efficient, for example by relocating inefficient processes abroad, so that overall labour productivity growth increases. And increased competition may raise firms' incentives to innovate.

A full discussion of these channels is beyond the scope of this article.(1) But a key channel through which globalisation may have affected the UK economy is through lower imported goods prices as companies have increasingly been able to access the cheapest goods on world markets.

That said, the integration of developing economies into the global economy is likely to have put upward pressure on other domestic prices. Increased demand for raw materials from developing economies as they expand production has put upward pressure on the prices of oil and commodities imported into the United Kingdom. Indeed, **Chart 2** illustrates the increasingly important contribution of developing economies to world oil demand over the recent past.(2)

Another potential offset to cheaper import prices comes from the boost to real incomes that consumers of cheaper imports enjoy. As the prices of some imports fall, consumers have more income to spend on domestically produced goods and services. And the prices of these goods and services are likely to rise in response to increased demand, offsetting the impact

Chart 2 Contributions to average annual oil consumption growth(a)



Source: US Energy Information Administration.

(a) Consumption is measured in volumes. The 'other Asian countries' group excludes Japan and South Korea which are members of the OECD, and China. The group includes India, Taiwan and Hong Kong in addition to other Asian countries.

of lower import prices on aggregate inflation. The impact of any movement in import prices on other prices will also depend on households' expectations about the future. For example, if people expect the fall in import prices to be permanent, or that import prices will continue falling, they may bring forward consumption as they expect their real incomes to be persistently higher in the future. Again, this extra demand would offset any downward pressure on aggregate prices. In the medium term, inflation is determined by monetary policy. And UK monetary policy would react to any shock to import prices, and the related expected changes in other relative prices, to ensure UK CPI inflation remained close to target in the medium term.

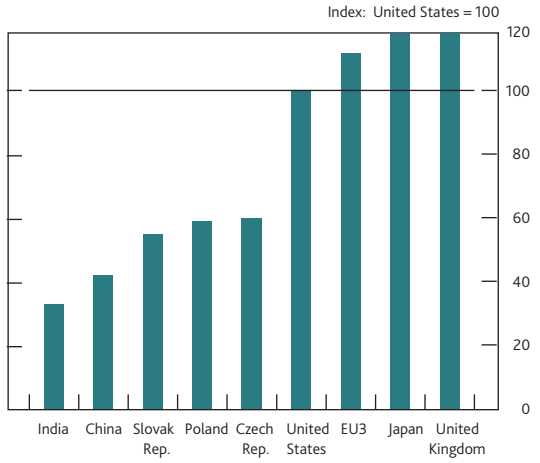
The impact on UK import prices

How much cheaper are goods imported from developing economies likely to be? **Chart 3** illustrates that overall price levels are low in India, China and eastern European countries relative to the prices of similar goods in developed economies after accounting for exchange rate differences.

Differences in the prices of traded goods may be less marked: in the long run, competition should ensure that the prices of similar traded goods sourced from different countries converge, in common currency terms. But at shorter horizons, price differentials between different countries can persist, even for traded goods. Such price differences are more likely where trade barriers prevent firms and consumers from taking

(1) See for example IMF (2006), 'How has globalization affected inflation?' and IMF (2007), 'The globalization of labor'.
(2) See 'Developments in primary commodity prices', November 2007 *Inflation Report*, page 34.

Chart 3 Relative price levels in 2005[a]

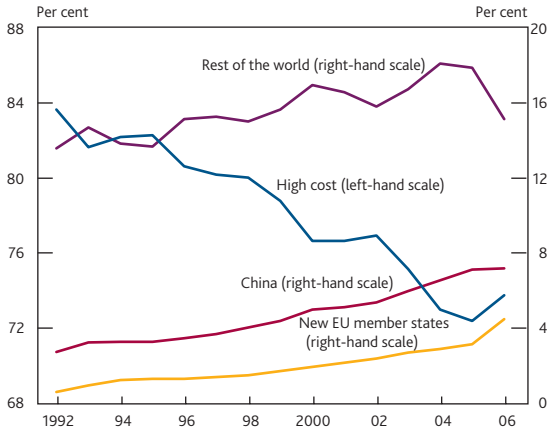


Source: World Bank International Comparison Program.

(a) The comparisons are made using nominal exchange rates. The EU3 figure is an average of France, Germany and Italy. The goods compared include a broad range of consumer goods and also capital and government expenditures.

advantage of lower production costs in developing economies. But **Chart 4** illustrates that over the past ten years the United Kingdom has seen substantial substitution towards goods sourced from lower-cost economies such as China and the new EU member states.

Chart 4 UK goods import shares[a]



Source: ONS *Pink Book* (2007).

(a) The 'high-cost' country grouping is defined as: Australia, Canada, the EU15 countries, Japan, New Zealand, Norway, Switzerland and the United States. The 'new member states' include Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. The 'rest of the world' is defined as a residual relative to total UK imports. These same country groups are illustrated in **Charts 5** and **6** and **Table A**. The shares are calculated in nominal £ terms.

Equation **(1)** describes, in an accounting sense, the potential impact of the increasing share of low-cost imports on UK import prices. Aggregate import price inflation (π_{MP}) is a function of the inflation rate of goods imported from high-cost countries (π_{HC}) the change in the share of low-cost countries in total imports (ΔS_{LC}) the extent of the price-level differences ($P_{HC} - P_{LC}$), and relative price movements ($\Delta P_{HC} - \Delta P_{LC}$), between goods imported from high and low-cost countries, where P indicates the price level. Here, all inflation and price levels are in sterling rather than foreign currency terms.

$$\pi_{MP} = f\left(\pi_{HC}, \Delta S_{LC}, \left(P_{HC} - P_{LC}\right), \left(\Delta P_{HC} - \Delta P_{LC}\right)\right) \quad (1)$$

The import price inflation rate is depressed over time as imports with a low price level replace similar goods with a high price level. The magnitude of this 'share' effect within product categories depends upon the extent of price-level differentials between the high and low-cost countries and how quickly low-cost countries increase their share of UK imports.

The final term in equation **(1)** captures relative price movements between goods imported from low and high-cost countries. For example, if the prices of goods imported from low-cost countries are rising faster than those from the high-cost countries, this 'price' effect will push up on UK import prices.(1)

The magnitude and sign of these effects may change over time and potentially offset each other. For example, if the rising share of goods from developing economies in UK imports has accelerated over time the 'share' effect may become more pronounced. That is, there might be greater downward pressure on UK import prices over time from substitution towards cheaper goods within product categories. In contrast, if inflationary pressure in developing economies has picked up in recent years the 'price' effect may have increasingly pushed up on UK import price inflation. Of course, movements in sterling exchange rates have the potential to offset such pressures. Hence, this article analyses the sterling prices of manufactured goods imported from different countries.

Assessing the magnitude of these effects has been the focus of several recent studies. Nickell (2005) calculated that the 'share' effect accounted on average for a 0.5 percentage point reduction in a UK-weighted measure of annual world trade price inflation over the period 2000–05. Pain *et al* (2006) argued that developing economy imports reduced US inflation (measured by the domestic demand deflator) by 0.1 percentage points on average over 2001–05 and by 0.3 percentage points for the euro area over the same period. Using a similar method to this article, a recent European Central Bank study found that the increase in import penetration from low-cost countries may have dampened annual euro-area import price inflation for manufactured goods by 2 percentage points each year over the period 1995–2004.(2) In the next section the evidence on 'share' and 'price' effects from low-cost countries on UK import prices is discussed.

(1) A more formal description of these effects is provided in the appendix to this article.
(2) 'Globalisation, trade and the euro area macroeconomy', *ECB Monthly Bulletin*, January 2008.

Measuring the impact of low-cost economies on UK import prices

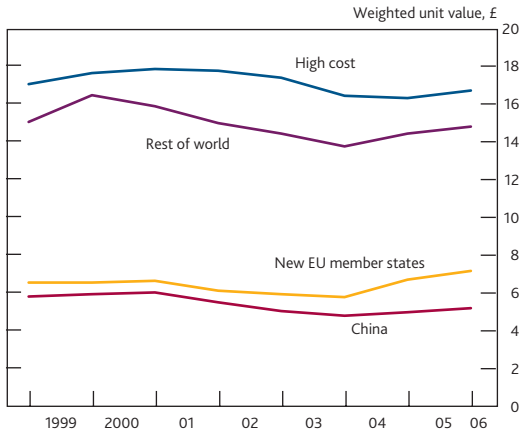
Previous analysis of UK trade prices has been hampered by the lack of available data. The Office for National Statistics (ONS) measures aggregate trade prices but does not publish measures disaggregated by individual trading partners.(1) Furthermore, due to measurement limitations, the ONS data may not fully capture the impact of substitution towards cheaper goods and services, ie the 'share' effect, on import price inflation.(2) In this case, true UK import price inflation may have been weaker than indicated by the official data.

In the absence of direct survey data on bilateral trade prices, proxies for the price of imported goods can be constructed from unit values data collected by Her Majesty's Revenue and Customs (HMRC).(3) Unit values are derived by dividing the sterling value of imported goods by their quantity or weight. There are several caveats to using unit values as a proxy for trade prices. First, unlike the consumer prices index, unit values are not derived from direct surveys of prices and are therefore less reliable. Second, unit values should only be compared for narrowly defined product categories as comparing unit values at an aggregated level risks confusing price changes with changes in the composition of imported goods. This is a drawback to this method, as arguably many — perhaps most — categories of goods do not have identical compositions between countries. Clearly, the more detailed the level of disaggregation, the less of a problem this is; although even the lowest categories may well differ between countries. A related, third, point is that no adjustment for quality improvements is made. The proxy measure for the UK import price of manufactured goods discussed in this article is derived from nearly 2,200 distinct product categories in 35 categories for each of 32 of the United Kingdom's trading partners.(4)

Chart 5 illustrates the price levels (unit values) of UK manufactured goods imports sourced from different countries. The 'high-cost' countries account for around three quarters of UK manufactured goods imports. The proxy measure of manufactured goods imports from the new EU member states and China were 42% and 30% respectively of the 'high-cost' price in 2006. This suggests that, in an accounting sense, the increasing import share of low-cost economies may have depressed UK import price inflation. That is, the share effect may have been negative in recent years.

Chart 6 illustrates the inflation rates of UK import prices for high and low-cost countries using the same data as **Chart 5**. Import price inflation from all economies picked up between 2004 and 2006. The import price inflation rate for manufactured goods from China rose to close to 5% in 2006. Noticeably, import price inflation from low-cost countries was

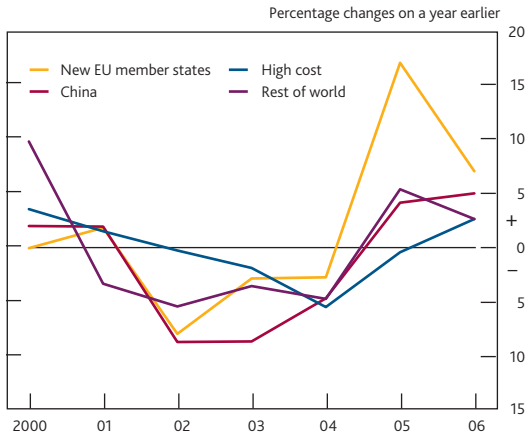
Chart 5 A measure of price levels for UK manufactured goods imports(a)



Sources: HMRC and Bank calculations.

(a) The country groupings are the same as those used in **Chart 4**.

Chart 6 Manufactured goods import price inflation(a)



Sources: HMRC and Bank calculations.

below that of high-cost economies during 2000–03, but was higher in 2003–06. This suggests that the 'price' effect has pushed up on UK import prices in recent years.

One possibility is that these apparent differences across countries may to some extent reflect the composition of trade. That is, if the United Kingdom tends to import more expensive items (eg motor cars) with a common price on world markets from high-cost countries and cheaper goods (eg clothing and footwear) from developing economies. Hence, the next section of the article discusses evidence that even for similar categories of specific manufactured goods, imports from China tend to be cheaper.

(1) The ONS do provide a decomposition of aggregate goods imports into those goods from EU and non-EU countries.
(2) This is because it is difficult to measure the impact on aggregate import prices when goods imported from one country are replaced by similar cheaper goods from another country. See 'Box 3, 'An example of measurement challenges exacerbated by globalisation: the case of 'phantom GDP'', *ONS Economic and Labour Market Review*, September 2007.
(3) The data are available from the HMRC website at www.uktradeinfo.com.
(4) See the appendix for details of the construction of these aggregate measures.

Table A provides an accounting decomposition of UK manufactured goods import price inflation. The figures here are the average accounting contributions across 35 manufactured goods sectors, weighted according to their aggregate nominal shares of UK manufactured goods imports. Together the share and price effects from the new EU member states, China and rest of the world are estimated using this technique, to have pushed down on import price inflation for manufactured goods by 0.7 percentage points on average across sectors and over 2000–06 (row (1)). The increasing share of imports from China contributed -0.5 percentage points on average, and that of the new EU member states -0.2 percentage points on average (row (2)).

Table A Average contribution across sectors to UK manufactured goods annual import price inflation

	Average 2000–06
(1) Aggregate low-cost effect (= 2 + 3)	**-0.7**
of which:	
New EU member states	-0.2
China	-0.5
Rest of the world	-0.1
(2) Low-cost share effect	**-0.6**
of which:	
New EU member states	-0.2
China	-0.5
Rest of the world	0.1
(3) Low-cost price effect	**-0.2**
of which:	
New EU member states	0.0
China	0.0
Rest of the world	-0.2

Sources: HMRC and Bank calculations.

It is important to remember that these contributions may have varied over time. **Chart 7** illustrates the average contribution of China to UK import price inflation for manufactured goods over time. The share effect has remained negative as the share of China in UK imports has increased. In contrast, the price effect turned from negative to positive in 2004 and thereafter.

In summary, the evidence from unit values data suggests that increases in the share of imports from low-cost economies have pushed down on the relative price of UK imports, in an accounting sense, though this has been offset at times by more rapid inflation in import prices from these economies.

Evidence at the disaggregated level

The previous section described the possible downward impact of a rising share of UK imports from low-cost economies on the aggregate price of UK imports of manufactured goods. However, the increasing share of China has been concentrated in specific categories of manufactured goods. And the share

Chart 7 Average contribution to UK manufactured goods import price inflation

Sources: HMRC and Bank calculations.

of China in UK services imports remains very low.[1] Hence, any downward impact on aggregate import prices from low-cost economies is likely to have reflected declines in the relative price of specific types of imported manufactured goods and increases in the relative price of other goods and services.

Table B shows that China has increased its share of UK manufactured goods imports most sharply in those sectors with a relatively low technological content and high labour intensity of production, such as clothing, footwear and furniture. With China now accounting for large shares of UK imports in these sectors, there may be less potential for China to continue increasing its share of UK imports in the low technology sectors rapidly. However, there is evidence that China has increased the technological intensity of its exports over time.[2] As a result, China has also increased its share in some of the sectors with a higher technological content such as office and data processing equipment, telecommunications and sound recording equipment and electrical machinery. These sectors accounted for around a quarter of UK manufactured good imports in value terms in 2006.

Table B also shows that in the product categories where China has increased its share of UK imports most sharply, Chinese prices tend to be lower than similar categories of goods imported from the G7 economies. This is consistent with evidence from the World Bank and other sources that wages and costs are lower in common currency terms in developing economies. That said, these apparent price differences could partially reflect differences in quality not captured by unit values data.

(1) In 2006, the share of China in UK services imports was 0.8%.
(2) See 'Globalisation, trade and the euro area macroeconomy', *ECB Monthly Bulletin*, January 2008.

Table B Changes in China's import share and relative prices

	Change in China's share of UK imports for each sector 1999–2006	Relative price of imports from China against G7 average in 1999
	Percentage points	Per cent
Furniture	18.3	43
Footwear	13.4	45
Metal manufactures	10.4	33
Cork and wood manufactures	10.4	93
Textiles	9.0	71
Office and data processing equipment	8.7	15
Clothing	8.6	46
Prefabricated buildings and their manufactures	8.3	29
Travel goods	8.1	29
Miscellaneous manufactured articles	7.7	12
Electrical machinery	6.9	12
Leather manufactures	6.5	26
Rubber manufactures	5.4	58
Telecommunications and sound recording equipment	4.4	20

Sources: HMRC Trade Database and Bank calculations.

Although the impact of increases in the trade share of China has most probably lead to changes in the relative import prices for specific goods categories, there may not have necessarily been corresponding changes in relative prices within the CPI basket. For example, UK importers could in the short run have absorbed some or all of the lower import prices in higher mark-ups leaving their retail prices unchanged.

If UK firms have reduced their retail prices for those categories of goods where China has increased its share of UK imports most sharply, this effect may not have pushed down on the aggregate CPI inflation rate. As noted earlier, if the price of clothing and footwear has fallen in response to increased import sourcing from China, this will have increased the proportion of income UK consumers can spend on other goods and services in the CPI basket. And these prices may have increased in response to higher demand. In summary, increased sourcing of imports from low-cost economies is likely to have led to movements in relative prices rather than sustained effects on aggregate inflation, which is determined by UK monetary policy in the medium to long run.

Conclusion

This article has discussed whether greater sourcing of imports from low-cost economies has reduced UK import prices over the recent past.

Detailed bilateral measures of trade prices suggest that goods imported from China and new EU member states cost less than similar goods imported from traditional trading partners. So, in an accounting sense, increases in the import share of China, other Asian economies and new EU member states may have reduced annual manufactured goods import price inflation by 0.7 percentage points on average over the period 2000–06. However, this effect may have dissipated over time as the price inflation rate of Chinese imports has picked up.

Increased sourcing of imports from China has been concentrated in specific categories of manufactured goods. These categories include labour-intensive goods, such as clothing and footwear, but also more technology-intensive goods. This is consistent with evidence that China has increasingly concentrated in labour-intensive assembly processes for goods with a high technological content.

The overall UK inflation rate is determined by UK monetary policy in the medium to long run. Falling import prices may have pushed down on aggregate inflation in the short run but the overall impact will have crucially depended on the monetary policy response in addition to a plethora of other channels through which trade liberalisation and globalisation may have affected the UK and global economy.(1) Furthermore, the expansion of exports from developing economies has been associated with a range of effects on the global economy such as increased demand for oil and commodities. Hence, increased import sourcing from China and other developing economies is likely to have led to movements in relative prices rather than any sustained impact on aggregate inflation.

(1) For example, see Bernanke, B (2005), 'The global saving glut and the US current account deficit'.

Appendix

To construct price measures of UK manufactured goods imports on a bilateral basis, data were obtained from the Her Majesty's Revenue and Customs (HMRC) Trade Database.(1) Bilateral data for sterling values and volumes of UK imports for manufactured goods product groups were acquired over the period 1999–2006 from each country. The product groups are defined according to the Standard International Trade Classification (SITC) definitions. In particular, data were acquired for each five-digit sector corresponding to the SITC groups five to eight. That is, those groups that represent semi-manufactured and finished manufactured products.

In calculating bilateral trade prices in **Charts 5** and **6**, for each country group '*j*' the aggregate UK import price in the initial year $t = 0$ is defined as a geometric average

$$p_{j,0} = \prod_i \prod_k p_{ik,0}^{\alpha_{ik,0}} \qquad (1)$$

for each country '*i*' and five-digit sector '*k*'. That is, the weighted average of the unit values of each five-digit SITC classification in each country included in the country group. Here α is the value share of imports in each sector from each country in total UK imports from the country group j = {China, new EU member states, rest of the world}. For subsequent years ($t > 0$) the UK import price from country group j is defined as

$$p_{j,t} = p_{j,t-1}\pi_{j,t} \qquad (2)$$

where $$\pi_t = \frac{\prod_i \prod_k p_{ik,t}^{\alpha_{ik,t-1}}}{\prod_i \prod_k p_{ik,t-1}^{\alpha_{ik,t-1}}}$$

The decomposition illustrated in **Table A** of the impact of low-cost countries on UK manufactured goods import price inflation is carried out on a sectoral basis for each of the 35 manufactured goods sectors defined according to the two-digit SITC classifications.

The UK import price 'p_t' for each sector is derived as a weighted average of the prices of goods imported from each country group.

$$p_t = \sum_j \alpha_{j,t} p_{j,t} + \left(1 - \sum_j \alpha_{j,t}\right) p_{HC,t} \qquad (3)$$

where $\alpha_{j,t}$ is the value share of country group j in total UK imports and $p_{j,t}$ is the unit value for each country group j in that sector: and $p_{HC,t}$ is the unit value of the high-cost countries.(2)

For each sector the impact of low-cost economies is split into two effects. The UK import price inflation rate (for each sector) is given by:

$$\frac{\Delta p}{p_{t-1}} = \sum_j \left[\frac{p_{j,t} - p_{HC,t}}{p_{t-1}} \Delta\alpha_{j,t}\right] + \sum_j \alpha_{t-1}\left[\frac{\Delta p_{j,t} - \Delta p_{HC,t}}{p_{t-1}}\right] + \frac{\Delta p_{HC,t}}{p_{t-1}} \qquad (4)$$

The first term on the right-hand side of equation **(4)** is the 'share' effect. That is, the downward impact on the UK import price from low-cost countries as they increase their import share.

The second term represents the 'price' effect. If the UK import price of country group j rises by less than the reference 'high-cost' countries this has a negative impact on the UK import price.

The third term represents the remaining part of UK import price inflation due to changes in import prices from high-cost countries.

The aggregate figures for 'share', 'price' and 'high-cost' effects reported in **Table A** are weighted arithmetic averages across the sectors for each country group. Here, the weights for each sector are the nominal share in the preceding year of that sector in total UK manufactured goods imports.

(1) The underlying data are available from the HMRC website www.uktradeinfo.com.
(2) The 'high-cost' country grouping is defined as: Australia, Canada, the EU15 countries, Japan, New Zealand, Norway, Switzerland and the United States. The 'new member states' include Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. The 'rest of the world' is defined as a residual relative to total UK imports.

References

Bank of England (2007), *Inflation Report*, November.

Bernanke, B (2005), 'The global saving glut and the US current account deficit', April, remarks at the Homer Jones Lecture, St Louis, Missouri.

ECB (2008), 'Globalisation, trade and the euro area macroeconomy', *Monthly Bulletin*, January.

IMF (2006), 'How has globalization affected inflation?', Chapter III, *IMF World Economic Outlook*, April.

IMF (2007), 'The globalization of labor', Chapter 5, *IMF World Economic Outlook*, April.

Kamin, S, Marazzi, M and Schindler, J W (2004), 'Is China 'exporting deflation'?', Board of Governors of the Federal Reserve System *International Finance Discussion Paper No. 791*.

Nickell, S (2005), 'Why has inflation been so low since 1999?', www.bankofengland.co.uk/publications/speeches/2005/sninflation050127.pdf.

Office for National Statistics (2007), *Economic and Labour Market Review*, September.

Office for National Statistics (2007), 'United Kingdom, Balance of Payments', *The Pink Book*.

Pain, N, Koske, I and Sollie, M (2006), 'Globalisation and inflation in OECD economies', *OECD Economics Department Working Papers No. 524*.