

International trade

5.1 INTRODUCTION

The balance of payments

In this chapter we are concerned with the remaining two items that enter GDP: exports and imports. The difference between exports and imports, which is what enters GDP, is the *trade balance*. This should be distinguished from both the *current account balance* and the *balance of payments* (the balance for official financing through changes in foreign exchange reserves). The differences between these various concepts are illustrated in table 5.1 which gives figures for 1988. In table 5.1 exports and imports of goods and services are entered separately: trade in goods is defined as 'visible' and trade in services as 'invisible'. The balance of trade which enters into national income is the sum of the invisible and visible balances. It is important to note that the commonly used term 'invisibles' covers both trade in services and current account transfers (such as dividends, rents, interest, gifts and so on). When these transfers are added to the trade balance we have the current account balance.

The behaviour of the current account since 1950 is shown in figure 5.1. Two things stand out from this: the importance of the trade balance in determining the current account balance; and the seemingly unprecedented increase in both the trade deficit and the current account deficit in the late 1980s — in 1989 they stood at £23.1 billion and £20.8 billion respectively. The apparently unprecedented size of these deficits is, however, partly illusory, being the result of high

Table 5.1 The balance of payments, 1988

	£billion	
Exports of goods	80.6	
Imports of goods	101.4	
Visible trade balance		-20.8
Exports of services	27.9	
Imports of services	23.8	
Invisible trade balance		4.1
Balance of trade		-16.7
Interest, dividends, profits and transfers	2.1	
Current account balance		-14.6
Capital account transactions		
UK Private sector	4.5	
Public corporations	-0.4	
Government (excluding official reserves)	0.9	
Total, capital account		5.0
Balancing item		12.3
Overall balance (increase in official reserves)		2.7

Source: United Kingdom Balance of Payments.

inflation since the mid-1970s, the last time when there was a substantial deficit. The scale of the balance of payments problem is better seen from figure 5.2, which gives these balances as a percentage of GNP. This shows a deficit comparable with that of the mid-1970s. There is an important difference between these two situations, however: that is that in the mid-1970s the deficit was caused by a sudden rise in the price of energy, of which the UK was a net importer, whereas the deficit of the late 1980s has arisen despite the UK being a net exporter of oil (see chapter 9). The non-oil, visible trade deficit is *far* larger than at any time during the 1970s.

Also shown in figure 5.2(b) are the two invisible items. Between them, invisible trade and transfer payments have been in surplus throughout this period.

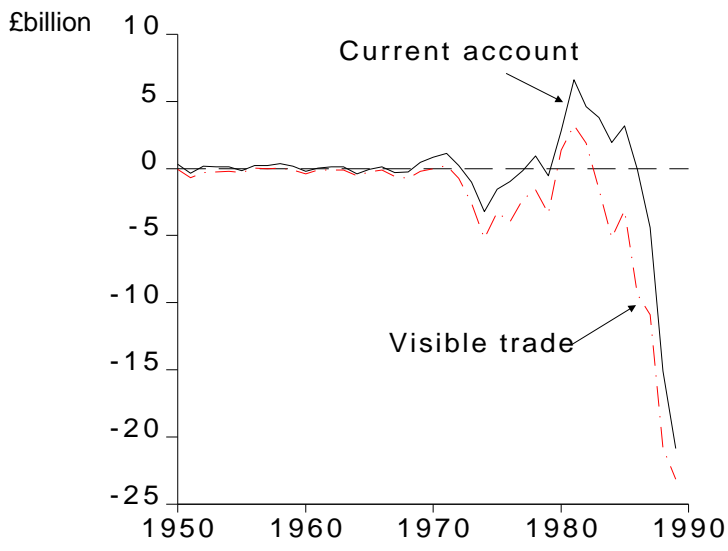


Figure 5.1 The balance of payments, 1950-89
 Source: *Economic Trends*.

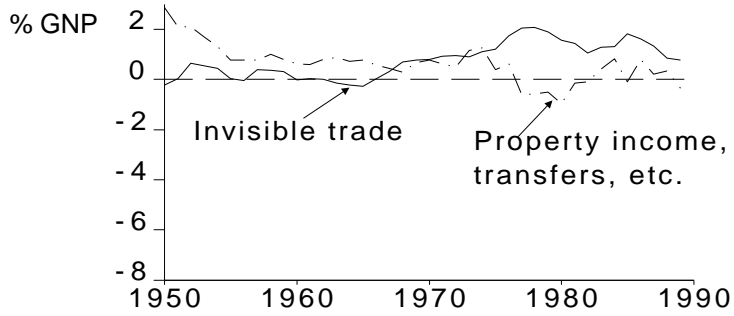
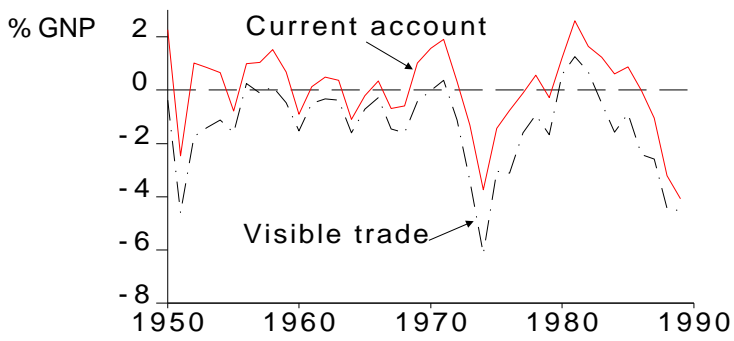


Figure 5.2 The balance of payments as a percentage of GNP, 1950-89
 Source: *Economic Trends*.

Exports, imports and the terms of trade

In figure 5.3 we show exports and imports at 1985 prices. Exports and imports are defined as in the national income accounts, including both visible and invisible items. The gap between these two, however, is not the same as the trade balance (except for 1985). The reason is that the trade balance is the difference between the *value* of exports and the *value* of imports:

$$P_X X - P_X M.$$

If we divide through by a price index such as the price of imports we obtain

$$P_M [(P_X/P_M)X - M].$$

The balance of trade depends not only on the physical quantities of exports and imports, X and Y (exports and imports measured in constant prices), but also on the price of exports divided by the price of imports. This ratio is known as the *terms of trade*. If the terms of trade fall, for example, exports become cheaper relative to imports and exports have to rise relative to imports to maintain a constant balance of trade. The terms of trade are shown in figure 5.4. The most dramatic change in the terms of trade during this period came in 1973-4, when commodity prices including the price of oil rose substantially with no corresponding rise in UK export prices. The resulting fall in the terms of trade explains why the balance of payments moved sharply into deficit in 1974, even though the volume of imports fell more sharply than the volume of exports. What happened was that the deterioration in the terms of trade produced a balance of payments deficit, which meant that imports had to be reduced relative to exports in order to restore balance of payments equilibrium.

The terms of trade are important not only because they affect the balance of payments, but also because they affect the real income of the country concerned. If the terms of trade deteriorate (fall) more goods and services have to be exported to pay for a given volume of imports: to prevent the balance of payments deteriorating either imports must fall or exports must rise. Whichever happens, the resources available for domestic use (the country's standard of living) are reduced. Similarly, if the terms of trade improve, the standard of living has risen.

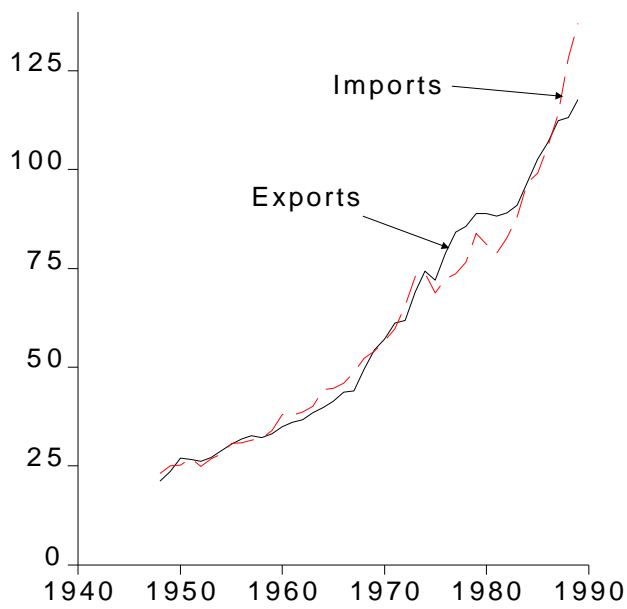


Figure 5.3 Exports and imports at constant (1985) prices, 1948-88

Source: *Economic Trends*.

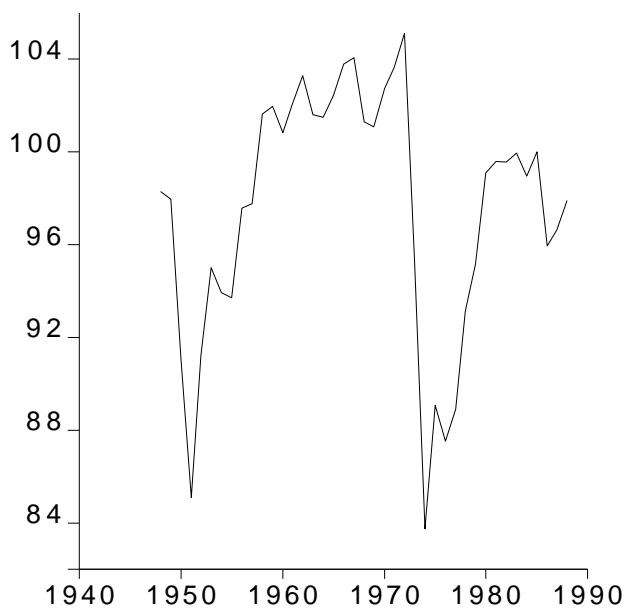


Figure 5.4 The terms of trade, 1948-88

Source: Export price divided by import price, calculated from national accounts data in *Economic Trends Annual Supplement*. Note that it refers to all trade, not just visible trade.

The effects of changes in the terms of trade are shown in figures 5.5 and 5.6. Figure 5.5 shows the terms of trade effect as a percentage of GNP. This shows clearly the exceptional nature of the 1973-4 oil crisis: the terms of trade effect was equivalent to a fall in GNP of 2.5 per cent in 1973 and 3 per cent in 1974. This effect was gradually reversed over the next few years. The loss of income in 1986 of about 1 per cent can also be attributed to a change in the price of oil, but this time a fall. By 1986 the UK had become a net exporter of oil (see chapter 9) which meant that changes in the oil price had the opposite effect from in 1973-4. In 1979, the time of the second OPEC price rise, the UK was approximately self-sufficient in oil, which meant that price changes had no effect on real income (though they did have other effects — see chapter 8). These terms of trade effects are taken into account in *real national disposable income*, shown in figure 5.6. This differs from real GNP in that transfer payments abroad and the terms of trade effect are deducted. 1974-5, the two years following the first OPEC price rise, saw a sharp fall in GNP, but, because of the terms of trade effect, an even larger fall in RNDI. After the 1979 oil price rise real GNP fell sharply, but because there was no significant terms of trade effect, RNDI fell only by a similar amount.

Measures of competitiveness

In addition to income the main factor determining the level of exports and imports is the competitiveness of UK producers compared with producers in other countries. It is because it affects competitiveness that the exchange rate affects trade. The question we need to consider now is how best to measure competitiveness.

We will define the exchange rate, e , as the price of foreign currency: e.g. \$1 = £0.50. This definition is used here because it is the conventional way to define the exchange rate in the economics literature (the economics literature has followed US practice rather than British), even though in the UK we often define it the other way round (e.g. £1 = \$2). Note that defining the exchange rate as the price of foreign currency means that a devaluation *raises* e and if sterling appreciates e falls.

Price competitiveness. The most straightforward measures of competitiveness are measures of price competitiveness. Suppose the world price of a good is P^* (in foreign currency) and the UK price is P (in sterling). An index of price competitiveness would then be

$$P/eP^*$$

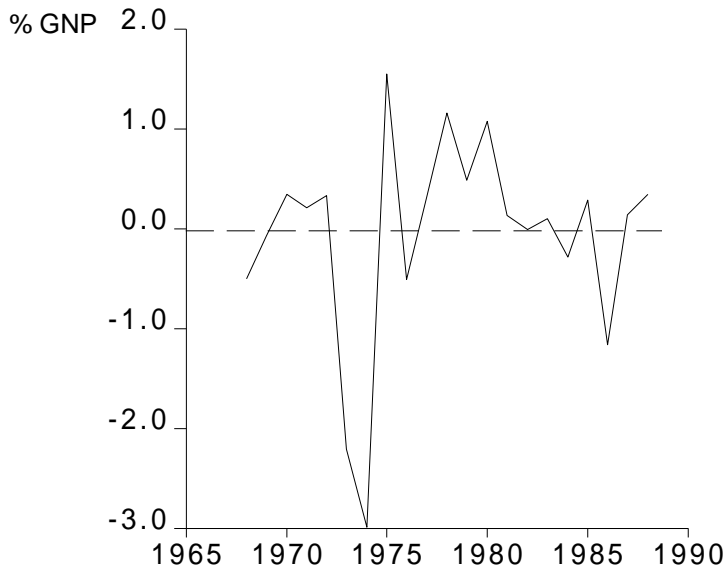


Figure 5.5 The terms of trade and real income, 1967-88
Source: Economic Trends Annual Supplement.

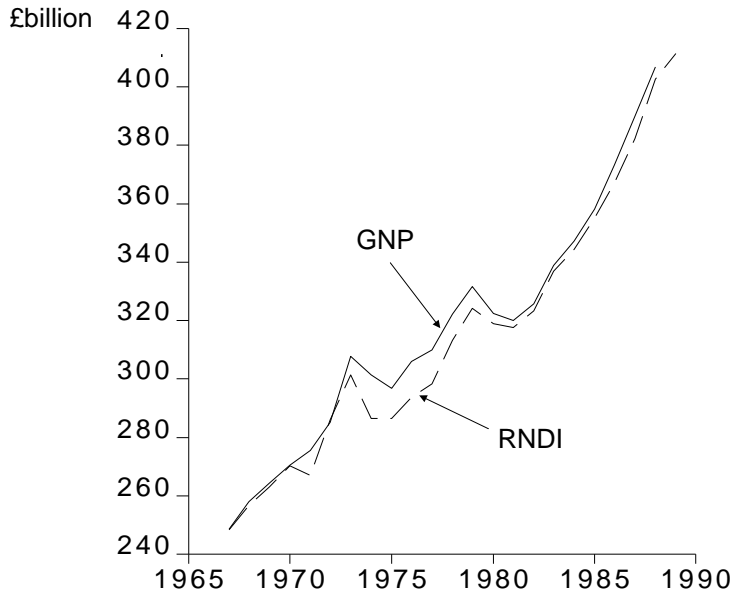


Figure 5.6 GNP and real national disposable income, 1967-89
Source: as figure 5.5.

Two such measures of competitiveness are *relative producer prices* (RPP — the ratio of foreign to UK wholesale prices) and *relative export prices* — REP the ratio of foreign to UK export prices). If these indices *rise* this indicates that UK producers are becoming *less* competitive relative to foreign producers. Such a fall in competitiveness can arise either because UK prices are rising faster than foreign prices, or because sterling is appreciating (i.e. because e , the price of foreign currency, is falling).

The problem with such measures, whether we use export prices or domestic prices, is that they give no indication of what is happening to profitability. If UK firms are forced by foreign competition to accept lower profit margins this will not show up in measures of price competitiveness. Suppose, for example, that we have a British industry which faces rising costs not faced by its overseas competitors, and that the market for its product is so competitive that there is a single world price. As long as the industry exports, it will charge the world price for its product and when costs have risen sufficiently high it will stop producing. At no time in this process will measures of price competitiveness change: whilst goods are being produced prices are unchanged, and when they stop being produced they are no longer considered. Measures of price competitiveness give no indication of the situation facing potential producers or potential exporters.

Profitability. An alternative approach is the index of the *relative profitability of exporting* (RPE). This is the ratio of export prices to domestic prices. The index of domestic prices that is commonly used is the wholesale price index. If the index rises we can deduce that exporting is becoming more profitable compared with producing for the home market, which means that firms should have a greater incentive to export. Note that changes in the exchange rate should affect this measure of competitiveness: if the foreign currency price of exports is determined by overseas demand conditions a change in the exchange rate will change the sterling export price and hence the ratio of export prices to domestic wholesale prices.

The relative profitability of exporting has two major weaknesses. The first is that, like measures of price-competitiveness, it gives no indication of the situation facing potential exporters. The second is that it takes no account of the level of profitability in exporting firms. High profits, whether earned through exports or through domestic sales, may be important in determining exporters' competitiveness: profits at home may enable exporters to subsidize exports, or they may cover the investment needed to sustain exports. A rise in domestic prices and profits will in practice improve export competitiveness, but the relative

profitability of exporting will be reduced, suggesting a reduced incentive to export.

Cost competitiveness. The final measure to consider is *relative unit labour costs* (RULC). Unit labour costs (i.e. labour costs per unit of output) in the UK are given by

$$\text{ULC} = WL/Y = W/y,$$

where W is the wage rate (in sterling), L is labour employed, Y is output and y is output per unit of labour input (Y/L). Similarly, overseas unit labour costs are

$$\text{ULC}^* = eW^*L^*/Y^* = eW^*/y^*$$

where the asterisks indicate the rest of the world. The rest of the world's wage rate, W^* , is of course in foreign currency, which means we have to multiply by the exchange rate to convert to sterling. If we take the ratio of UK to foreign unit labour costs we obtain relative unit labour costs (RULC):

$$\text{RULC} = \text{ULC}/\text{ULC}^* = (1/e)(W/W^*)(y/y^*).$$

RULC thus depends on three things: the exchange rate, relative wage rates and relative productivity levels.

Two measures of RULC are usually calculated. The first is calculated exactly as described so far. The second, referred to as *normalized* RULC — RULC(N), takes account of cyclical variations in productivity. The reason for this is that output per head varies over the business cycle, not because of any fundamental change in productivity, but simply because the degree of capacity utilization changes as output changes (see chapter 6). The argument for taking account of this in measuring RULC is that international competitiveness depends on the underlying productivity trend, not on short-term productivity levels.

RULC has the important advantage over other measures of competitiveness that it measures what is happening to costs, something that the other measures of competitiveness discussed above do not do. Its major disadvantage is that it ignores non-labour costs. A change in the price of imported raw materials, for example, could affect competitiveness without having any effect on RULC.

The main measures of UK international competitiveness are shown in figure 5.7. Several conclusions can be drawn from this figure.

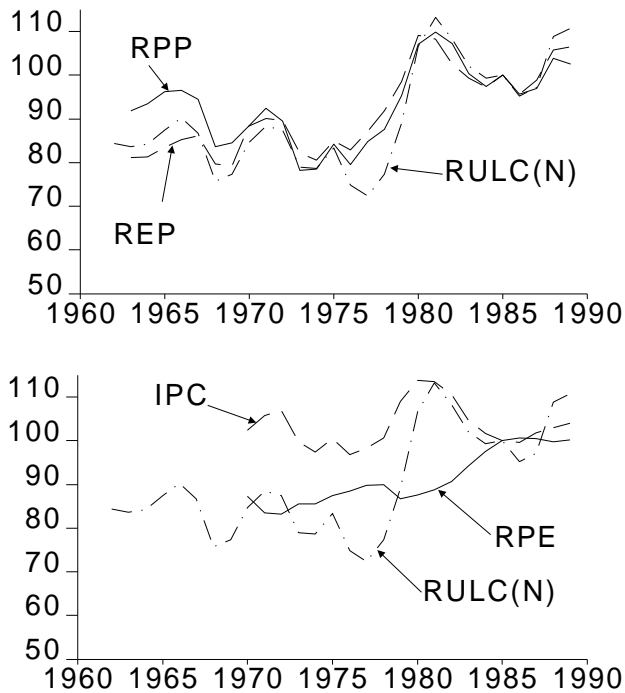


Figure 5.7 Measures of international competitiveness, 1963-89

Source: *Economic Trends*.

- From 1963 to 1967, competitiveness, whichever measure we take, was falling (relative costs and prices rising): inflation was higher in the UK than elsewhere. The government was attempting to prevent this decline in competitiveness by using incomes policy to reduce the rates of wage and price inflation. Devaluation, in November 1967, when sterling fell from \$2.80 to \$2.40, produced a sudden improvement in competitiveness, which was then gradually eroded over the next few years.
- From 1972 to 1977, the fall in the value of sterling improved competitiveness, except in 1975 when UK inflation was very high relative to world inflation.
- We then have the main feature of the graph: the *enormous* rise in all three indices, especially RULC, between 1977 and 1981, the rise being particularly steep in 1979-80. In the space of 2 years RULC

rose by 50 per cent. This loss of competitiveness was the result of sterling appreciating very fast at a time when wages were rising much faster in the UK than in the rest of the world.

- Since 1981 there has been an improvement in competitiveness, again because of a falling exchange rate (wage inflation has remained higher than in most industrial economies).

In this section we have focused on exchange rates and relative inflation rates, because these have fluctuated far more than have productivity growth rates. Productivity growth rates are discussed in chapter 6.

5.2 EXPORT AND IMPORT FUNCTIONS

Exports

The theory underlying both export and import functions is very simple: it is that demand should depend on the purchasing country's income and on the exporting country's competitiveness. Exports are purchased by the rest of the world, so we need a variable to measure world demand. Rather than use world GDP, however, it is common to use world trade: total world exports. There are two main reasons for this. The first is that data on world trade are easier to obtain. The second is that world trade is likely to be more closely linked to world demand than a variable such as world GDP. Because data were easily accessible, the equation below uses total OECD exports. Competitiveness could be measured by any of the measures discussed above. The one used here is RULC (normalized to eliminate fluctuations due solely to changes in capacity utilization — see section 5.1 above). If we estimate a simple export equation we obtain the following,

$$X_t = 0.05WX_{t-1} - 0.29RULC_{t-1} + 40.2$$

where X and WX are exports and world exports (world exports are measured at 1980 prices as data in 1985 prices were not available). As expected, exports increase with world trade and they decline when relative unit labour costs rise (when competitiveness declines).

This is a very simple equation. Not only is it mathematically simple, but it is also simple in the sense that we have a single equation to determine exports as a whole, rather than separate equations for goods and services. In most econometric models exports are disaggregated into manufactures, oil, services, etc. In addition, much more

complicated lags are used in order to find an equation that fits the data even better. The income and price elasticities in this equation are, however, consistent with those in more complicated models.

- It implies that the 'world trade' elasticity of demand for exports is 0.84: that a 1 per cent increase in world trade is associated with a rise of less than 1 per cent in UK exports. This is consistent with the UK's share of world exports having fallen progressively over time as world trade has expanded.
- It suggests a low 'price' elasticity of demand, of around 0.35. This is probably the result of our having lumped all exports together. The National Institute model, for example, has a much higher elasticity of demand for manufactures, and a zero elasticity of demand for non-manufactured goods (excluding oil).

Imports

The main variable we will use to determine imports is total final expenditure (*TFE*):

$$TFE = C + I + G + X,$$

where *C*, *I*, *G* and *X* are consumption, investment, government expenditure and exports respectively — total spending on goods and services before deducting imports. If we deduct imports we have GDP. As a cost variable, normalized relative unit labour costs will be used. In addition we use a measure of excess capacity. The justification for this is that when the economy is being run at a relatively high level of demand businesses will turn to imports because the goods they want are unavailable at home. For example, at the moment many construction firms are importing bricks and cement even though they would not normally do so: the reason is that demand is so high that domestic producers are quoting delivery dates of several months.

If we estimate a simple import function we obtain the following.

$$M_t = 0.34TFE_{t-1} + 0.39RULC_{t-2} - 0.55XSC_t - 78.7$$

Here *M* is imports and *XSC* is the measure of excess capacity shown in figure 1.5. It is zero in 1973 and 1979. It has been modified to give full capacity in about 1989, on the grounds that, despite high unemploy-

ment, the UK is exhibiting many of the symptoms associated with full capacity, notably rising imports and rising inflation.

The coefficients in this equation are much what we would expect. The marginal propensity to import is about 1/3, implying an income elasticity of demand of about 1.5. Imports appear to be less responsive to relative unit labour costs than are exports. The elasticity of demand is slightly higher (0.48 compared with 0.35). On the other hand, a change in RULC takes 2 years to affect imports, but only one year to affect exports. This conclusion that imports respond more slowly to relative costs than do exports is supported by more complicated models: the National Institute model, for example, has a similar difference. Finally, we get the result that if excess capacity falls by £1 billion, imports rise by £0.55 billion. This means that if output rises without any rise in capacity the effective marginal propensity to import is much higher than 0.34.

An alternative way of specifying this equation is to have the marginal propensity to import depending on competitiveness. If we estimate such an equation we obtain:

$$M_t = \alpha TFE_{t-1} - 0.57XSC_t - 43.9$$

where

$$\alpha = 0.25 + 0.0010RULC_{t-2}$$

This is the type of import function used in some macroeconomic models (e.g. the National Institute model). It is easy to check that it gives income and price elasticities that are very similar to those given by the simpler import function described above.

5.3 CONCLUSIONS

The evidence from these equations concerning income elasticities can be summed up in terms of a number of 'stylized facts' about UK trade.

- UK imports have grown more quickly than UK demand (the high income elasticity).
- UK exports have grown more slowly than world trade (the low income elasticity).

These two stylized facts, which we can describe in terms of income elasticities, have been used to provide a very pessimistic diagnosis of Britain's perennial balance of payments problems. One of the main problems confronting the UK economy since the war has been the high level of imports: booms have frequently ended because of a balance of payments crisis caused by high imports. It has been suggested that the reason for this can be found in the income elasticities contained in the export and import functions we have just considered. The argument is that if the income elasticity of demand for imports is high and the income elasticity of demand for exports is low, then if the UK grows at the same rate as the rest of the world imports will grow faster than exports. This argument has very pessimistic implications for it suggests that if the UK is to avoid balance of payments problems it must grow more slowly than the rest of the world in order to prevent imports from rising faster than exports.

There is also, however, a third stylized fact about UK trade:

- UK exports have grown more quickly than UK output (the same is true of world trade and world output).

It is possible that exports rise more quickly than output simply because of increasing specialization. If the trade balance is to remain constant on average a high growth of exports must lead to a high growth of imports. In this case a high level of import penetration (a high ratio of imports to GDP) may be nothing to be concerned about. This argument may not be enough to explain the UK's apparently poor export performance but it should serve as a warning against seemingly persuasive, over-simple explanations such as the one discussed above.

The evidence also suggests that competitiveness has a significant effect on both exports and imports, with exports responding more quickly and more strongly. Given the importance of exports and imports in the UK economy (in 1988 exports were 28 per cent and imports 32 per cent of GDP) together with significant price elasticities of demand it can be argued that the exchange rate, which affects competitiveness, is a key variable in regulating the level of aggregate demand. This effect may be more important than the effect, stressed in elementary macroeconomics textbooks, of interest rates on investment.

FURTHER READING

One of the best discussions of international competitiveness is contained in the House of Commons Select Committee *Monetary Policy, Volume I: Report* (HC163-I, 1980-1), chapter 7; or the memorandum 'Competitiveness', by W. Buiters in Volume II (HC163-II, 1980-1), pp. 102-20. The issue is also discussed in 'Measures of competitiveness', *Bank of England Quarterly Bulletin* 22, 1982, pp. 369-75. The links between exchange rates, productivity and competitiveness are explored in V. Rossi *et al* 'Exchange rates, productivity and international competitiveness,' *Oxford Review of Economic Policy* 1(3), 1986, pp. 56-73. To see an example of the trade equations that appear in large forecasting models, see S. Brooks 'Exports and imports,' in A. Britton (ed.) *Employment, Output and Inflation: the National Institute Model of the British Economy* (London: Heinemann, 1983).

The focus of this chapter has been fairly narrow. Readers wanting a wider discussion of trade policy and protection could consult: V. Rossi and M. Clements 'The world economy: analysis and prospects,' *Oxford Review of Economic Policy* 1(1), 1985; A. Boltho and C. Allsopp 'The assessment: trade and trade policy,' *Oxford Review of Economic Policy* 3(1), 1987; S. Page 'The rise of protection since 1974,' *Oxford Review of Economic Policy* 3(1), 1987; F. Cripps and W. Godley 'Control of imports as a means to full employment and expansion of world trade,' *Cambridge Journal of Economics* 1978, pp. 327-34; Anthony Venables and Alasdair Smith 'Trade and industrial policy under imperfect competition,' *Economic Policy* 3, 1986, pp. 621-72.

