Recent developments in the terms of trade

This article, which has been prepared mainly by I. D. Bond and R. N. Brown of the Bank's Economics Division, describes recent movements in the prices of UK exports and imports and discusses their effect on the balance of payments.

Introduction

Two years ago, an article in the *Bulletin*[1] discussed various aspects of the United Kingdom's terms of trade (the ratio of export prices to import prices). Since then, there have been significant developments in this area. The price of oil, for example, has more than doubled and other primary product prices have also increased sharply. At the same time, the prices of domestically-produced manufactures have tended to rise more rapidly in the United Kingdom than overseas, yet sterling has appreciated significantly. This article attempts to trace the effects of these and other factors on the terms of trade and on the current account of the balance of payments, in particular over the past two years or so.

The article begins by separating changes in the trade balance (oil and non-oil) into price and volume components. It goes on to consider various measures of the terms of trade and the most important determinants of them, concentrating on the two noted above—the price of oil and other primary products relative to those of finished manufactured goods, and the price of goods manufactured in the United Kingdom compared with those manufactured elsewhere. One relevant factor here is the relative importance of domestic and foreign prices in the determination of UK prices of exports and imports of manufactures; hence this influence on the terms of trade is also discussed.

Analysis of recent current balance changes

Table A[2] shows annual changes in the current balance since 1975 and quarterly changes since the second quarter of 1978. These are broken down into the price and volume components of changes in the visible balance (separated into oil and non-oil) and the main elements of the invisibles account—services, interest, profits and dividends, and transfers. This separation of the price and volume components of visible balance changes is simply an accounting exercise and does not imply any causal relationship. It should be noted that the price component reflects changes both in the terms of trade and in the general level of trade prices, a distinction which is important when considering a category of trade which is not in balance. When trade is in balance, equal increases in both export and import prices will have no direct effect on that balance. If trade is not in balance, however, such a price rise will

increase the imbalance; this is quite distinct from the effects of any change in the price of exports relative to imports (that is, a change in the terms of trade), and is potentially important in a period of general inflation.

Table A highlights the substantial contribution to the current account over the last few years of the volume component of trade in oil. As is to be expected for a commodity the price of which has generally been rising and of which the United Kingdom has been a net importer over the period, movements in the price have usually served to worsen the current balance. The oil terms of trade effect, in contrast to the impact of a change in the price of both exports and imports of oil, has been fairly small.[3] Once the United Kingdom becomes a net exporter of oil, any price rise can be expected to work in favour of the current balance.

The position on non-oil trade is rather different; here, terms of trade changes have dominated the price component of changes in the balance, in part because non-oil trade has (with the exception of 1979) been close to balance over the period covered in Table A. The contribution of terms of trade changes has been large (particularly in the last two years), though that of the volume component has also been substantial, both in 1978 and—more markedly—in 1979, when it dominated the overall change in the current balance. (This was at least in part a result of disruptions to trade, caused by disputes early in the year and by problems in exporting to Iran and Nigeria.) Though there was some recovery in the second quarter, the fall in volume remained the dominant factor behind the changes in the visible balance in 1979. In contrast to the general experience of the rest of the 1970s, therefore, when—as pointed out in the earlier article—fluctuations in volume had been more moderate than in price, the end of the decade was characterised by sharp fluctuations in volume, although price changes were also significant.

Terms of trade within broad categories

The terms of trade are measured by the ratio of export prices to import prices, and are generally expressed in the form of an index. Because an index of price is not unambiguous when applied to anything other than a single good, several measures of the terms of trade for

(1) 'The terms of trade', by R.A.Allen and R.N.Brown, in the September 1978 *Bulletin*, page 365.
(2) Tables A–D follow the article.
(3) Using oil import prices as numeraire, the absolute value of the terms of trade component averaged £200 million per year between 1975 and 1979; that of the inflation component averaged £650 million.

internationally traded goods can be constructed. These were discussed at some length in the previous article.

Two measures of trade prices are used here, based on unit value indices (UVI) and average value indices (AVI). The choice between the two depends on the purpose for which it is being used. A UVI is constructed from value and quantity information obtained at a highly disaggregated level, weighted to form aggregate indices according to the importance of each trade heading in the year on which the index is based. A UVI is closest to a true price index, and reflects pure price movements except to the extent that there are compositional changes among the goods comprising each narrow trade heading making up the index. It is a 'Laspeyres' or 'base-weighted' index. An AVI, on the other hand, is an index of the ratio of the value of goods in current prices to the value of the goods in that trade category measured in the prices of the base year. Given a volume index, an AVI can be obtained directly for any level of aggregation; it is a 'Paasche' or 'current-weighted' index. In contrast to the UVI measure, then, an AVI will additionally be influenced by any changes in the composition of the trade categories considered.[1]

Table B shows changes from 1975 to the second quarter of 1980 in export and import prices and in the terms of trade on these two measures for selected trade categories; the data are based on the commodity composition of trade in 1975, the most recent index base. With one interesting exception—exports of food, drink and tobacco—the figures show the usual pattern of AVI rising less than UVI. This is because AVI reflect any changes in the commodity composition of broad categories towards goods whose prices have risen by less than average—for example, as a result of substitution towards cheaper products by consumers—whereas UVI reflect only compositional changes within narrow trade headings.

The series for food, drink and tobacco—Standard International Trade Classification (SITC) sections 0 and 1—often do not conform to the expected pattern. The Common Agricultural Policy (CAP) of the European Community (EC) has encouraged Community production of certain foods—mainly cereals, dairy products, beef and pigmeat—by setting prices which have in general been above world levels, in many instances substantially so. UK exports of food have shifted towards the EC (the share has risen from 52% in 1975 to 63% in 1979) and towards foods protected by the CAP, this being precisely the sort of intra-category substitution which would tend to increase an AVI more than a UVI. The position on imports is somewhat different because the share of UK imports of food coming from other Community countries has been broadly unchanged since about 1975, when UK import patterns had adjusted to the effects of EC membership. One factor which might be responsible for the often unusual relative movements of AVI and UVI is the way in which import prices are recorded; for though CAP products are imported from the EC at the UK equivalent of EC prices, when

imported from elsewhere they are priced at world levels—that is, before the imposition of the agricultural levies which make up the difference between world prices and EC prices. The movement of import prices is therefore no guide to the movement of domestic prices faced by consumers; and this, rather than perverse substitution effects, could account for the import price data (although the change between 1975 and the second quarter of 1980 is in line with the usual pattern).

The terms of trade movements in the selected categories are shown in the lower portion of Table B, and in more detail in Table C and Chart A (UVI measures only). Two points are

Chart A
Terms of trade in selected categories

1975 = 100
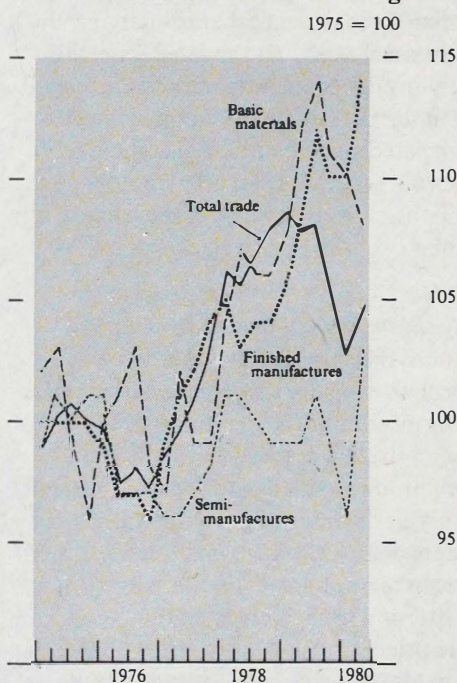
of interest. First, the terms of trade in each of the three main primary product categories have, in general, continued to improve; in other words, within these categories UK export prices have risen faster than import prices. As noted in the previous article, this improvement began in 1975 after a number of years when the terms of trade in these categories had been falling. Second, the terms of trade in finished manufactures, remarked upon as having been particularly stable over time, have been far from stable over the last few years; this is discussed in more detail in a later section. It was noted in the earlier article that the stability of the terms of trade in finished manufactures concealed sizable fluctuations in the individual ratios for SITC sections 7 and 8; these intra-category fluctuations have continued, though they have not, as previously, been offsetting.

The influence of primary product prices

These changes in the terms of trade for broad categories will affect the overall terms of trade in goods and hence the current balance. But movements in primary product prices

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(1)   This terminology is not universal: in the United States, for example, the definitions of UVI and AVI are the reverse of those in this article.

relative to those of manufactures—the 'inter-category' terms of trade rather than the 'intra-category' terms of trade discussed above—are also relevant. Because the United Kingdom is a net importer of raw materials and a net exporter of manufactures, a relative increase in primary product prices will tend to lower the overall terms of trade even if the terms of trade within broad categories are unaltered.

Table D and Chart B illustrate primary product prices relative to the UVI of imports of finished manufactures. Finished manufactures have been chosen because they are least influenced by primary product prices. In contrast to the early 1970s, the relative prices of imports of both food and drink (SITC sections 0 and 1) and basic materials (SITC sections 2 and 4) have fallen since 1975, though the latter have risen somewhat over the past year after a substantial fall between early 1977 and end-1978. Thus, in addition to the intra-category terms of trade effects, these relative price movements will also have tended to improve the overall terms of trade.

The relative prices of semi-manufactures were also falling for much of the recent period, but have risen sharply since the middle of 1978. This may, in part, reflect the higher oil content of semi-manufactures (particularly of chemicals) than of finished manufactures, because the price of fuels relative to finished manufactures rose by over 65% in the six quarters up to the second quarter of 1980. This has tended to benefit the overall UVI terms of trade, because trade in semi-manufactures was in small surplus in 1975, the base year. The rapid rise in the relative price of fuels, however, had an adverse effect on the overall terms of trade on the UVI measure, because of the large deficit in fuels in the base year. This helps to account for the experience of 1979 when, despite increases in the terms of trade in all sections (except for a small fall in semi-manufactures), the overall terms of trade were unchanged: the rapid rise in relative fuel prices worsened the inter-category terms of trade sufficiently to offset the benefits of the general improvement in the intra-category terms of trade. It also explains why the overall AVI terms of trade improved in 1979, because the trade deficit in fuels was by then relatively small.

The terms of trade in manufactures and relative inflation rates

The relation between the terms of trade and inflation rates in the United Kingdom relative to those abroad (expressed in the same currency) is of interest for several reasons. First, there are the direct balance of payments implications: if a relatively high inflation rate in the United Kingdom raises the terms of trade, then this may at least partially offset the adverse effects of the associated loss of competitiveness on trade volumes.[1] But trade price developments are also relevant in assessing the importance of international influences in the transmission of inflation. Those theories

Chart B
Relative primary product prices

1975 = 100
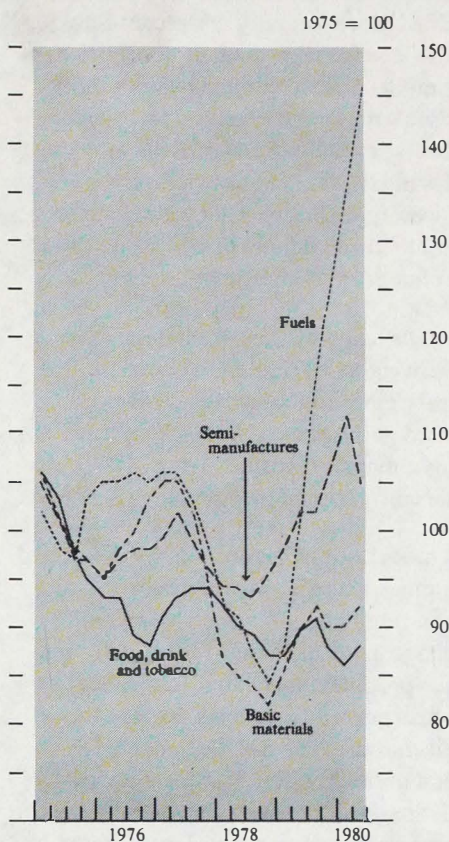
which stress these influences—for example, the Scandinavian theory of inflation[2]—suggest that both import and export prices should rise in line with world prices and that the terms of trade should thus be relatively stable over time, irrespective of developments in domestic costs and prices.[3]

The terms of trade in finished manufactures are particularly relevant here, because exports and imports of finished manufactures encompass rather similar, though obviously not identical, products. Compositional differences between exports and imports—which are among the factors which influence the terms of trade in, for example, food and basic materials—are thought to be less important. As a consequence, the influence of relative inflation rates, to the extent that they are important, should be more clearly observed here. As was noted in the September 1978 article, the terms of trade in finished manufactures were quite stable for a long time. Over 1963–77 they moved within a range of 96–103 on an annual basis (1975 = 100) and only between 93–106 on a quarterly basis. In 1979, however, they averaged 109 (Table C), having risen fairly steadily from 96 in the fourth quarter of 1976, and reached 114 in the second quarter of 1980. This raises three questions. Why were these terms of trade relatively stable over such a long period? Why have they risen sharply in the past few years? Will they return to their historical level?

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(1) These latter effects are discussed in the article 'Measures of competitiveness in international trade' by C. A. Enoch in the June 1978 *Bulletin*, page 181.

(2) See, for example, 'Wages, growth and the distribution of income', by G. Edgren, K. O. Faxen and C. E. Odhner, *Swedish Journal of Economics*, vol. 71, no. 3, page 133.

(3) This would be true at least in those trade categories where exports and imports comprise broadly similar goods, and hence where compositional changes might be expected to have little effect on the terms of trade.

The answers require a general model of trade price determination. Such a model was set out in the earlier article and was specified more formally in a recent Bank Discussion Paper.[1] In essence, export and import prices of manufactures in the model are determined by both foreign and domestic prices of similar goods (foreign prices being converted into sterling). Foreign prices are assumed to be unaffected by changes in UK demand or prices; UK wholesale prices, however, are influenced by domestic labour costs and manufactured import prices, while earnings respond to changes in domestic prices.[2]

The values believed to be taken by the parameters, in particular the relative weights attributed to domestic and foreign influences in the determination of traded and domestic manufactured goods prices, are the key issues. Two schools of thought may be identified—the Scandinavian and the conventional models.

In the Scandinavian model, which was originally developed for small, open economies, there is a world price for tradeable goods which cannot be influenced by a small economy. Thus a change in the exchange rate or in foreign prices leads to an equi-proportional change in the local currency price of both exports and imports, leaving the terms of trade at their initial level.[3] Of the major UK economic models, that of the London Business School is closest to this model, domestic prices having no influence on manufactured import prices, and domestic labour costs (rather than prices) influencing UK export prices, but only in the short term.

The Bank, Treasury and National Institute models, among others, adopt a more conventional approach. Manufactured import prices in the National Institute model are wholly determined by the sterling equivalent of foreign prices. In the other models domestic prices play a significant role.[4] The major difference from the Scandinavian approach on traded goods prices comes on the export side, where the weights of domestic and foreign prices are approximately equal. This means that, ignoring the rest of the model for the moment, depreciation will lower the terms of trade, because manufactured import prices will rise by about three quarters of the change in the exchange rate (and in the National Institute model by the whole of the change) whereas export prices will rise by only half as much.

But, as the earlier article emphasised, there are further implications. Domestic wholesale prices will also tend to rise, reflecting the increase in the costs of imported raw materials and the opportunity afforded to producers competing with imported goods to raise their prices. The rise in wholesale prices (and in the prices of imported finished goods) will feed through into consumer prices, which, in turn, may influence earnings and hence the domestic component of wholesale prices; the speed of transmission will in part depend on expectations. The final result depends on how strong these reactions are; but, in the extreme, if earnings respond fully to any change in consumer prices, then export prices may finally increase by as much as import prices—that is, the terms of trade may eventually return to their original level. Though this is the same result as the Scandinavian model predicts, it is achieved by a different mechanism and the lags involved before the long-run equilibrium is reached may be significantly greater in the conventional approach. Moreover, there is no guarantee that this must be the long-term result: earnings, for example, may not respond fully to the lower price level associated with appreciation.

The stability of the terms of trade up to 1977

The Scandinavian model adequately explains the stability of the terms of trade in finished manufactures up to 1977; such stability is entirely consistent with the belief that both export and import prices of manufactures are wholly determined by foreign prices. (Fluctuations from the equilibrium level reflect either very short lags of adjustment or a transitory influence of domestic prices.[5]) The conventional approach can also explain this. The tendency for prices to increase faster in the United Kingdom than in other countries over most of this period worked to raise the terms of trade; depreciation, which counteracted the effects of this on competitiveness, worked to lower them. Thus, this stability in the terms of trade was the product of offsetting forces: upward deviations from the average level, as in the second half of 1971 and the first half of 1972, reflecting a combination of relative exchange rate stability and excess UK price inflation—that is, real appreciation—and downward fluctuations reflecting real depreciation (as in 1973 and 1976).

The recent rise in the terms of trade

Thus both theories are able to explain the behaviour of these terms of trade over the period up to 1978. Since then, however, it is possible to distinguish between them in analysing why the terms of trade in finished manufactures have risen sharply. These developments seem at variance with the predictions of the Scandinavian model. The increase in sterling export prices of finished manufactures has been considerably more than the increase in corresponding world prices (in sterling terms). Furthermore, the rise in sterling import prices of finished manufactures has also been greater than that of world

(1) *The interrelationships between costs and prices in the United Kingdom*, by R. N. Brown, C. A. Enoch and P. D. Mortimer-Lee, Bank of England Discussion Paper, No. 8.

(2) This is a very simple model which concentrates on price/wage/exchange rate linkages without specifying, for example, the influence of pressure of demand effects in the various equations. In particular, the exchange rate is regarded as being determined outside the model.

(3) This model does not admit to domestic factors affecting prices or costs other than through the exchange rate. Thus, the price of tradeable goods determines wages in the traded goods sector, which, given the size and importance of the sector, strongly influence wages in the non-traded sector.

(4) In the National Institute model, the foreign price weight is unity. The Bank and Treasury models distinguish between semi and finished imported manufactures. Domestic prices have weights of 25% and 40%, respectively, in the Bank and Treasury equations for the prices of imported finished manufactures, and 0% and 20% in the corresponding equations for the prices of imported semi-manufactures.

(5) It should be noted that this would be a feature of any model which gives equal weight to foreign prices in the determination of export and import prices.

prices. This is consistent with the hypothesis that domestic prices do indeed also have some influence on the import side, at least in the short term.

These developments are better explained by the conventional approach. This may be shown by using equations estimated in the Bank for UK export and import prices of manufactures. Coverage is extended to include semi-finished as well as finished goods because the corresponding price data for other countries are not available on a quarterly basis in disaggregated form and (in part because of this) most of the work on export prices has been on manufactured goods.[1] The performance of the equations in explaining movements in trade prices and hence the terms of trade in 1978 and 1979 can be judged by examining the equation residuals—the differences between actual trade prices and the values predicted by the equations—over this period.

The preferred conventional equation for prices of UK manufactured imports incorporates a foreign price weight of some 85% in the long run, and gives domestic prices a weight of 15%; this reflects the results of recent work in the Bank, which established a domestic price weight of about 30% in the determination of finished manufactures import prices but no weight in a semi-manufactures equation.[2] For comparison, a Scandinavian-type equation has been estimated which excludes any long-run domestic price influence. The performance of these two equations, estimated up to the end of 1978, in predicting the price of imports of manufactured goods over the last ten quarters is as follows:

Manufactured import UVI

1975 = 100

		Actual(a)	Conventional equation		Scandinavian equation	
			Predicted(b)	Percentage error	Predicted(b)	Percentage error
1978	Q1	145.3	145.3	—	145.5	− 0.2
	Q2	151.3	152.0	−0.5	152.1	− 0.5
	Q3	154.5	153.8	+0.5	153.8	+ 0.4
	Q4	159.8	156.5	+2.1	156.5	+ 2.1
1979	Q1	162.6	158.6	+2.4	158.3	+ 2.6
	Q2	161.8	157.5	+2.6	156.7	+ 3.2
	Q3	160.7	156.6	+2.5	154.9	+ 3.6
	Q4	170.8	163.2	+4.4	160.6	+ 6.0
1980	Q1	179.9(c)	163.5	+9.1	159.9	+11.1
	Q2	175.2	167.8	+4.2	163.4	+ 6.7

(a) Source: *Monthly Review of External Trade Statistics.*

(b) Using predicted (rather than actual) values of the lagged dependent variable. The equations are described in the appendix.

(c) This figure is particularly distorted by the effects of the sharp rise in prices of precious metals.

There is clear evidence that the equation reflecting the Scandinavian approach has predicted recent periods less well than the conventional equation, and that the divergence between the two equations has been widening.

The conventional equation has predicted a fair proportion of the rise in manufactured import prices over this period, though by no means all. Specifically, there is evidence of growing underprediction since the end of 1978, which may reflect a combination of factors. The share of semi-finished goods in total manufactures in 1975 (the base year for the indices) was higher for UK imports than the average for the exports of the countries comprising the world price index. Towards the end of 1978, the prices of semi-manufactures rose relative to those of finished goods, reflecting the influence of the increases in oil and other primary product prices. Thus UK manufactured import prices may be expected to have risen in relation to world manufactured export prices. Within semi-manufactures, compositional differences may also have been important; for example, the price of silver, which probably has a greater weight in UK imports than in the exports of the countries entering the world price index, rose sharply towards the end of 1979.

In addition to these factors, it is possible that overseas suppliers paid greater attention to UK price developments in 1979 than historical experience would have indicated. It has been suggested[3] that this reflects a combination of boom conditions in the world economy and the recent significant erosion of UK price and cost competitiveness; under these conditions, foreign suppliers with no strong incentive to expand UK sales raised their prices to UK buyers, knowing that domestic producers were unlikely to undercut them. On this argument, UK manufactured import prices should fall back into line with world prices if the world recession and competition for markets intensify. While this argument probably accounts for some of the underprediction of UK manufactured import prices in 1979, it is unlikely to be the sole explanation (for the reasons noted in the preceding paragraph). But it seems difficult to maintain that there is no longer-term domestic price influence on UK manufactured import prices.

As for export prices of manufactures, the preferred conventional equation gives equal weight in the long run to foreign and domestic prices.[4] For comparison, a Scandinavian-type equation has been estimated, as for imports, by excluding any long-run domestic price influence. The tracking record of these equations since 1977 is shown below.

Once again, the conventional equation has predicted recent periods better than the equation reflecting the Scandinavian approach; the margin between the two export price equations is probably greater than that between the import price equations.

(1) The disadvantage of this is that the terms of trade in semi-manufactures have almost certainly been influenced by changes in primary product prices, particularly oil prices.

(2) These and other import price equations are discussed in some detail in a forthcoming Bank Discussion Paper by I. D. Bond.

(3) By Alan Budd in 'Has international monetarism failed?', *The Times*, 25 June 1980, page 21.

(4) See *Bank of England model of the UK economy*, Bank of England Discussion Paper, No. 5, pages 50-51. The equation used here excludes SITC section 9 but is otherwise very similar to that reported in the Discussion Paper.

Manufactured export UVI

1975 = 100

|		Actual(a)	Conventional equation		Scandinavian equation	
			Predicted(b)	Percentage error	Predicted(b)	Percentage error
1978	Q1	151.2	150.4	+0.5	150.7	+0.3
	Q2	155.2	154.4	+0.5	154.9	+0.1
	Q3	159.5	157.4	+1.3	157.8	+1.0
	Q4	164.4	160.2	+2.5	160.7	+2.2
1979	Q1	167.8	163.3	+2.7	163.8	+2.4
	Q2	169.2	165.7	+2.0	165.9	+2.0
	Q3	172.6	168.2	+2.5	167.3	+3.0
	Q4	178.6	172.7	+3.3	170.3	+4.6
1980	Q1	185.7	177.3	+4.5	172.8	+6.9
	Q2	190.6	182.4	+4.3	175.5	+7.9

(a) Source: *Monthly Review of External Trade Statistics.*
(b) Using predicted (rather than actual) values of the lagged dependent variable. The equations are described in the appendix.

The performance of the conventional equation over the period illustrated is rather similar to that of the manufactured import price equation, with some of the rise in export prices not being predicted. One reason for the underprediction may be that the erosion of UK profitability has been so severe that exporters have been forced to raise prices by more than would be warranted by the weight normally placed on domestic prices; on this theory, an improvement in profitability should restore export prices to a more normal level. But the most important conclusion is that developments since 1978 are entirely consistent with a significant domestic price weight in the UK manufactured export price equation.

Finally, the performance of the Bank equations in explaining the terms of trade in manufactures is shown in Chart C.

Chart C
Terms of trade in manufactures
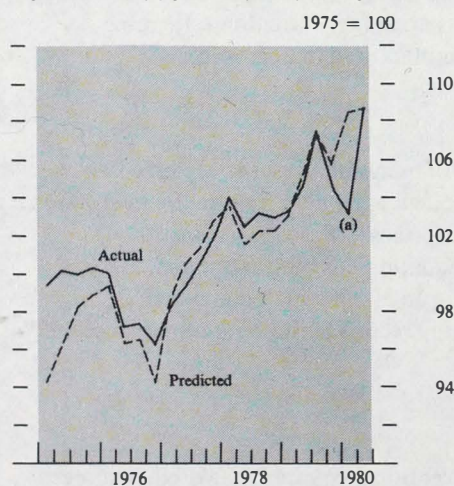
(a) Distorted by erratically high import prices.

The recent record is quite good; the small overprediction in 1979 reflects the tendency for manufactured export prices to be underpredicted to a lesser degree than manufactured import prices.

Prospects for the terms of trade in manufactures

The third question posed above concerned the likelihood of these terms of trade returning to the typical level associated with the period up to 1978. Again, the two approaches differ. The Scandinavian model would predict a fairly quick return to historical levels, especially as world recession intensifies the forces of competition. Thus, according to this approach, UK manufactured import prices should decline somewhat in relation to corresponding world prices while relative export prices should fall by a greater amount.

With the conventional approach, the effects of the earlier appreciation of sterling in moderating wage settlements and hence in moderating the rate of increase of wholesale selling prices would be a factor working to lower the terms of trade. To the extent that this happened, manufactured export prices would tend to decline in relation to manufactured import prices; as noted earlier, however, the mechanism bringing about this fall in the terms of trade is different from that suggested by the Scandinavian theory. On the other hand, if wages and prices continue to rise more rapidly in the United Kingdom than overseas, then, in the absence of depreciation, these terms of trade could rise further.

Conclusion

The terms of trade increased significantly through 1977 and 1978. This was the result of a combination of factors. First, domestic manufactures prices rose more rapidly in the United Kingdom than overseas, while sterling appreciated. This boosted the terms of trade in manufactures because, over this period at least, domestic prices had a greater influence on export prices than on import prices. Second, primary product prices fell in relation to finished goods prices. This also led to a higher overall terms of trade because the United Kingdom is a net importer of primary products. In addition, the terms of trade within the various trade categories increased.

In 1979 the United Kingdom continued to experience inflation higher than that overseas, and the intra-category terms of trade rose further. Primary product prices, however, increased relative to finished goods prices; this was particularly marked in fuels. Thus on the UVI measure, where the relative price of fuels is particularly important, the overall terms of trade first stabilised and then fell. On the AVI measure, however, where relative fuels prices are now of less significance, the overall terms of trade continued to rise until the end of the year.

Table A
Price and volume components of current balance changes[a]

£ millions; *seasonally adjusted*
Balance of payments basis

	Change in current balance over previous period	Contribution of:						
		Visible trade changes				Invisible trade changes		
		Oil		Non-oil		Services	Interest, profits and dividends	Transfers
		Price	Volume	Price	Volume			
1975	+ 1,705	− 558	+ 858	+ 1,234	+ 483	+ 405	− 657	− 60
1976	+ 574	− 1,079	+ 189	− 183	+ 495	+ 899	+ 534	− 281
1977	+ 856	− 461	+ 1,637	+ 330	+ 166	+ 797	− 1,259	− 354
1978	+ 917	+ 100	+ 672	+ 1,314	− 1,340	+ 425	+ 474	− 728
1979	− 2,444	− 337	+ 1,556	+ 1,392	− 4,430	+ 93	− 231	− 487
1978 Q2	+ 623	− 19	+ 225	+ 37	+ 204	− 84	+ 147	+ 113
Q3	− 211	− 4	− 74	+ 103	− 307	+ 187	− 37	− 79
Q4	+ 262	+ 10	+ 29	+ 78	+ 145	− 8	− 87	+ 95
1979 Q1	− 1,366	+ 44	+ 179	− 38	− 1,567	− 70	+ 205	− 119
Q2	+ 726	− 75	+ 81	+ 138	+ 958	− 30	− 326	− 20
Q3	+ 229	+ 26	+ 45	+ 331	− 409	+ 81	+ 251	− 96
Q4	− 603	− 72	+ 72	− 83	− 169	+ 35	− 387	+ 1
1980 Q1	+ 346	− 75	+ 107	− 349	+ 339	+ 92	+ 140	+ 92
Q2	+ 187	+ 50	+ 95	+ 366	− 87	− 58	− 75	− 104

Sources: visible trade data—*Monthly Review of External Trade Statistics*, July 1980; invisible trade data—CSO press release, *United Kingdom balance of payments in the second quarter of 1980*.

(a) In any period, the trade balance may be represented as follows:
$$TB \equiv px - p'm$$
where *TB* is the trade balance, *p* and *p*′are the prices of exports (*x*) and imports (*m*), respectively. The change in the trade balance ($\triangle TB$) may be broken down into price ($\triangle pc$) and volume ($\triangle vc$) components:
$$\triangle pc = x_0 \triangle p - m_0 \triangle p', \text{ and } \triangle vc = p_1 \triangle x - p_1' \triangle m.$$

Of course, the change in volumes could be valued at base as opposed to current period prices in which case the price effect would be calculated using current period volumes. The figures calculated on this basis are not dissimilar to those shown in this table.

Table B
UVI and AVI measures and the terms of trade[a]

Percentage increases, 1975 average to 1980 second quarter

	Food, drink and tobacco	Basic materials	Fuels	Semi-manufactures	Finished manufactures	Total trade
Standard International Trade Classification	0 + 1	2 + 4	3	5 + 6	7 + 8	0 to 9
Exports:						
UVI	70	73	173	87	93	93
AVI	74	62	170	84	85	91
Imports:						
UVI	52	59	152	82	69	84
AVI	50	55	144	76	60	71
Terms of trade:						
UVI	12	8	8	3	14	5
AVI	16	5	11	5	16	11

Source: *Monthly Review of External Trade Statistics.*

(a) Overseas trade statistics basis.

Table C
Terms of trade in selected categories[a]

1975 = 100

		Food, drink and tobacco	Basic materials	Fuels	Semi-manufactures	Finished manufactures	Total trade
1970		125	108	119	98	100	116
1971		124	112	111	103	102	117
1972		124	117	111	104	103	119
1973		105	109	121	94	96	105
1974		96	96	100	90	97	93
1975		100	100	100	100	100	100
1976		102	100	96	98	97	98
1977		104	99	101	97	102	100
1978		107	106	101	100	104	107
1979		110	111	121	99	109	107
1978	Q1	104	104	103	101	105	106
	Q2	107	107	100	101	103	106
	Q3	109	106	100	100	104	107
	Q4	108	106	101	99	104	108
1979	Q1	109	108	120	99	106	108
	Q2	110	112	125	99	109	108
	Q3	111	114	122	101	112	108
	Q4	111	111	119	99	110	105
1980	Q1	112	110	112	96	110	103
	Q2	112	108	108	103	114	105

Source: *Monthly Review of External Trade Statistics.*

(a) Ratio of export to import UVI expressed in index form; overseas trade statistics basis.

Table D
Relative primary product prices[a]

1975 = 100

		Food, drink and tobacco	Basic materials	Fuels	Semi-manufactures
1970		86	90	37	102
1971		87	87	43	94
1972		87	84	40	90
1973		97	95	45	96
1974		106	117	106	114
1975		100	100	100	100
1976		91	99	105	97
1977		93	102	104	99
1978		89	85	89	94
1979		89	89	107	102
1978	Q1	92	87	92	94
	Q2	90	85	91	94
	Q3	89	84	87	93
	Q4	87	82	84	95
1979	Q1	87	85	88	98
	Q2	90	90	102	102
	Q3	91	92	116	102
	Q4	88	90	124	107
1980	Q1	86	90	136	112
	Q2	88	92	146	105

Source: *Monthly Review of External Trade Statistics.*

(a) Ratio of import UVI of section to UVI of imports of SITC 7 + 8 + 9 expressed in index number form; overseas trade statistics basis.

Appendix

This appendix provides details of the various export and import price equations referred to in the tables in the text. All variables are in logarithms. The equations were estimated using ordinary least squares and actual values of all explanatory variables.

Conventional equations

The two equations used to illustrate the performance of the conventional approach to trade price determination are derived directly from earlier work in the Bank. The import price equation reflects the results in a forthcoming Bank Discussion Paper, and the export price equation follows closely the form currently used in the Bank's short-term model, but excludes SITC section 9.

Manufactured import prices (in dollars)

$$\triangle UM58 = 0.008$$
$$(1.5)$$
$$+ 0.75 \triangle PFA + 0.24 \triangle PF4\pounds - 0.39 \triangle ER$$
$$(8.6) \qquad (2.0) \qquad (6.5)$$
$$- 0.26 \, UM58_{-1} + 0.26 \, (0.85 \, PFA + 0.15 \, PD4\$)_{-1}$$
$$(3.1) \qquad (3.1)$$

$\overline{R}^2 = 0.839$ Estimation period: 1963 Q3 – 1978 Q4.
SE $= 0.012$ Long-run domestic price weight: 15%.
DW $= 1.64$

t statistics are given in parentheses beneath the coefficient estimates.

Where $UM58 =$ unit value index for imports of manufactures, 1975 = 1;
$PFA =$ world manufactured export prices, UK import weighted, 1975 = 1;
$PD4 =$ UK domestic wholesale selling prices, 1975 = 1 (adjusted for import tariffs);
$ER = \pounds/\$$ exchange rate index, 1975 = 1.

Manufactured export prices (in sterling)

$$\triangle UX58 = 0.015$$
$$(2.9)$$
$$+ 0.21 \triangle (PCOM.ER) + 0.40 \triangle PIMO$$
$$(5.0) \qquad (2.9)$$
$$- 0.39 \, UX58_{-1} + 0.21 \, (PCOM.ER)_{-1} + 0.21 \, PIMO_{-1}$$
$$(4.3) \qquad (4.8) \qquad (2.9)$$

$\overline{R}^2 = 0.818$ Estimation period: 1963 Q3 – 1978 Q2.
SE $= 0.009$ Long-run domestic price weight: 53%.
DW $= 1.83$

t statistics are in parentheses.

Where $UX58 =$ unit value index for exports of manufactures, 1975 = 1;
$PCOM =$ world manufactured export prices, UK export weighted, 1975 = 1;
$PIMO =$ UK domestic wholesale selling prices, 1975 = 1.

'Scandinavian' type equations

These equations have been estimated by excluding from the above equations the lagged domestic price term, thus allowing domestic prices only a short-run influence.

Manufactured import prices (in dollars)

$$\triangle UM58 = 0.009$$
$$(1.7)$$
$$+ 0.76 \triangle PFA + 0.16 \triangle PD4\pounds - 0.38 \triangle ER$$
$$(8.8) \qquad (1.3) \qquad (6.4)$$
$$- 0.25 \, UM58_{-1} + 0.25 \, PFA$$
$$(3.3) \qquad (3.3)$$

$\overline{R}^2 = 0.841$ Estimation period: 1963 Q3 – 1978 Q4.
SE $= 0.012$
DW $= 1.69$

t statistics are in parentheses.

Manufactured export prices (in sterling)

$$\triangle UX58 = 0.019$$
$$(3.5)$$
$$+ 0.21 \triangle (PCOM.ER) + 0.34 \triangle PIMO$$
$$(4.8) \qquad (2.3)$$
$$- 0.16 \, UX58_{-1} + 0.16 \, (PCOM.ER)_{-1}$$
$$(3.7) \qquad (3.8)$$

$\overline{R}^2 = 0.793$ Estimation period: 1963 Q3 – 1978 Q2.
SE $= 0.009$
DW $= 2.00$

t statistics are in parentheses.