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THE J-CURVE
H.W. Arndt and G. Dorrance
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ABSTRACT

If a country with a balance of payments problem, i.e. insufficient foreign exchange receipts to meet foreign exchange requirements, seeks to remedy the situation by currency devaluation, things may get worse before they get better. This so-called J-curve effect occurs if the domestic-currency prices of exports are sticky, whether because they are cost-based or subject to longer-term contracts, so that export prices in foreign currency fall. Until favourable volume effects outweigh the unfavourable price effect, the balance of payments deteriorates. Such a J-curve effect should be distinguished both from the longer-term erosion of the beneficial effects of devaluation as domestic costs and the prices of non-tradables rise and from the apparent J-curve due to the “valuation effect”. If the current account is in deficit before devaluation, as will usually be the case, devaluation will widen the deficit in domestic currency because domestic-currency imports rise by a larger amount than exports. This is a pure valuation effect, of no significance for external balance. But it is liable to lead to unduly pessimistic judgements about the effectiveness of devaluation. In Australia during 1985/86, the current account deficit increased by $23.5 billion, despite substantial depreciation of the $A. The main reason was a sharp deterioration in the terms of trade which is estimated to have worsened the current account by $4.25 billion. Most of this was exogenous, though J-curve effects may have made a contribution. In addition, the valuation effect contributed a further, illusory, widening of the deficit, valued in domestic currency, by over $31 billion. To avoid misleading inferences from the valuation effect, it is suggested that the balance of payments should, if possible, be presented in foreign currency.
The J-Curve

An article by an American economist examining the short-run effects of exchange rate changes on the balance of trade and payments following the 1971-72 depreciation of the US dollar justified the exercise by the comment that on these topics "the press has made confusing and misleading statements which need clarification" (Magee 1973, p. 306). The same has recently happened in Australia, following the depreciation of $A since March 1984.

When, instead of the hoped-for improvement in the balance of payments, the current account deficit continued to widen, someone remembered the "J-curve" effect - that in relation to the intended favourable effects of currency depreciation on the balance of payments, things may get worse before they get better, so that the time path of the balance of payments would trace the letter J. The result has been an extremely confused public discussion in which the whole point of the idea, the initial downward stroke of the J, has tended to be forgotten and attention focused on the slope of the upward stroke - on how effectively or quickly the "belated J-curve starts to emerge" (Australian Financial Review 1986a) - and in which the downward stroke, when considered at all, has been treated as depending on the "currency denomination" of trade (e.g. Treasury 1986). Once again, we need clarification.

*Thanks for helpful suggestions and comments are due to S.A. Greenville, L.C. Helville, R.H. Sundrum, H.L. Treadgold and N.C. Wall. The usual caveat applies.*
We shall suggest in this article that the attribution to the J-curve of the continuing deterioration in the Australian balance of payments, despite depreciation of $A, has probably been largely misconceived. In a sense, the J-curve has been a red herring in the discussion of the widening current account deficit. The possibility that a J-curve effect has played some part cannot be ruled out. But before this question can be sensibly addressed, it is necessary to clear up some of the confusion by explaining precisely what the J-curve effect is and in what circumstances it can occur.

External Balance

An initial source of confusion is the fact that a country's exports and imports of goods and services, and its balance of trade and payments, can be valued in terms of domestic or foreign currency. When we are concerned with a balance of payments problem it is obviously valuation in foreign currency that is relevant. "The usual balance-of-payments problem is the task of eliminating a deficit of gold or dollars. Hence what matters is the value of exports and imports in terms of the foreign money" (Haberler 1949).

It is important to keep this point firmly in mind in the following discussion because, for a number of reasons, trade and payments statistics are often presented, and the analysis at least partly conducted, in domestic currency. One of these reasons is that the statistical accounts of a country's balance of payments are naturally in domestic currency when they form part of an integrated set of national accounts. Another, not unrelated, reason is that it is the value of exports and imports
In domestic currency that is relevant to domestic income and employment effects of changes in the balance of payments (Robinson 1937). A third is that, in the conventional elasticities analysis of the effects of exchange rate changes, it is changes in domestic currency prices that are relevant to the home elasticities of supply and demand. Nonetheless, the main issues in any analysis of the exchange rate as an instrument for external balance relate to prices and values in foreign currency.

In a world of flexible exchange rates, this prescription is of course not unambiguous. Which foreign currency? There is a choice between presenting the balance of international payments in US dollars or in SDR or conceivably in some unit derived from the trade-weighted index of the exchange rate. In practice, either US$ or SDR will do in Australia's case and will certainly be less misleading, for reasons which will become clear later, than presentation in the domestic currency.

A J-curve effect, whereby a devaluation initially worsens the balance of payments before it improves it, can occur only if the devaluation initially worsens the devaluing country's terms of trade. It is therefore helpful to start the analysis with the "small country" case where this is ruled out by assumption. We shall then turn to the two main ways in which a J-curve effect can come about.

The Small-Country Case

The simplest case is that of a country so small that it is a price-taker in international trade. Since by assumption nothing it does affects the foreign-currency prices of its exports or
imports, the ratio of export to import prices is also unaffected. In other words, "the terms of trade facing the country are assumed to be unaffected by its various policies. This is the 'small-country assumption'." (Corden 1977, p. 8; cf. also Goldstein & Young 1979, p. 9.)

The small-country case brings out most clearly the role of the exchange rate as an instrument for restoration of external balance. Devaluation of the domestic currency raises the prices of tradables (imports, import-competing domestic products and exportables) relative to those of non-tradables. It makes domestic production of tradables more profitable, thus attracting resources into tradable (export and import-competing) goods industries and, provided domestic spending is sufficiently restrained, improves the balance of payments through expansion of the volume of exports and contraction in the volume of imports. Since the foreign-currency prices of tradables remain unaffected, there are no adverse price effects to offset the favourable volume effects of the devaluation. In other words, there can be no J-curve effect.

The Large-Country Case I: Cost-Based Export Prices

The small-country case is a relatively recent innovation in the theory of foreign exchanges (Arndt 1976). Until the 1960s, foreign exchange theory had been developed, chiefly by British economists, on the implicit assumption that the country concerned, like the United Kingdom, is large and exports manufactures. It was therefore taken for granted that a devaluation would worsen the devaluing country's terms of trade. Indeed, it was assumed that "the whole modus operandi of exchange
depreciation as a means of improving the balance of trade is by
cheaperising exports in terms of imports" (Swan 1960, cited ibid.,
p. 105).

One reason for this assumption was that British economists in
the classical tradition from Hume to Keynes did not
distinguish between tradables and non-tradables. Implicitly,
they assumed only two goods, home-produced and foreign-produced.
It was only with the introduction of a three-goods model,
including non-tradables, that the operation of exchange rate
adjustment could be clarified (Arndt 1979).

But there was also a more down-to-earth reason for the
assumption that a devaluation of sterling would improve the
balance of payments through a worsening in the country's terms of
trade. This was the fact that Britain's exports consisted
predominantly of manufactures. It was reasonable to assume that
these exports were, for the most part, produced under conditions
of elastic domestic supply and elastic foreign demand. Moreover,
it is common practice among manufacturers to price their
products, in the short run, on a cost-plus (e.g. "normal cost")
basis. This implies that, in the short run, the sterling prices
at which British manufacturers offered their products abroad
would generally remain unaffected by a devaluation, so that their
foreign-currency prices would fall (Corden 1960). Given the
assumption of elastic foreign demand (and elastic domestic
supply), devaluation could be expected to improve the balance of
payments because British manufacturers could hope, by offering
their products more cheaply abroad, to increase their market
share. Provided foreign demand was sufficiently elastic, the increase in the volume of British exports would more than offset the decline in their prices in foreign currency. (This view of the *modus operandi* of the exchange rate also underlies the Marshall-Lerner rule that, given perfect supply elasticities, devaluation improves the balance of payments if the sum of the elasticities of demand for exports and imports is greater than unity (cf. e.g., Metzler 1950).)

Here we have the usual explanation of the J-curve in the British literature. It is the explanation that appears at its birth, in an article in the *National Institute Economic Review* of May 1968 which examined the consequences of the 1967 sterling devaluation. The inventors of the J-curve, economists at the National Institute of Economic and Social Research in London, explained it as follows: “To begin with, the balance of payments would worsen because import prices (in sterling) would rise more quickly than export prices, while it would take time before the rise in the volume of exports would come in to offset and then to overtake the adverse price effects... Ultimately, however, the balance would reach a much more favourable position than that from which it started... Our present forecast postulates that we are now at the trough of the 'J' and that henceforth the balance should begin the long climb out of deficit and into substantial surplus in 1969” (National Institute 1968, p. 11).

So completely was it taken for granted that the sterling prices of British exports would initially remain unchanged that it was thought necessary to explain exceptional cases. For instance, “a number of firms may prefer to raise profit margins
rather than cut prices. Indeed, quite a number may take the view that price reductions, in foreign currency terms, would not increase demand, and it would be rational for them to raise their prices in sterling by the full amount of the devaluation (National Institute 1967, p. 6). But as a general rule, British exporters were expected to bank on the "substantial competitive advantage" (ibid.) which devaluation would give them over their competitors in overseas markets. If so, until the volume of sales abroad responded, the offer of exports at cut prices in foreign currency implied a deterioration in the British terms of trade and therefore a temporary worsening of the balance of payments, a J-curve effect.

In the very first exposition of the J-curve idea, the authors pointed out that, even in the British case, export prices in domestic currency were liable to rise after a while because of "the direct rise in costs resulting from the increase in import prices" and because "there is bound to be some rise in wage costs over and above the increases which would otherwise have taken place" (ibid., p. 3). But these two eventualities have nothing to do with the initial J-curve effect. They relate to the subsequent process whereby the favourable effects on the balance of payments of a change in the nominal exchange rate are liable to be eroded by rising domestic costs or, as we would say nowadays, by appreciation of the real exchange rate. It is for this reason that even the longer-term favourable effects of devaluation on the balance of payments are liable to be temporary. But whereas the short-term adverse J-curve effect
runs in terms of months, the longer-term adverse effects of appreciation of the real exchange rate will normally extend over some years.

The Large-Country Case II: Forward Contracts

The first American contributor to the academic literature on the J-curve gave an explanation quite different from that put forward by British economists (Magee 1971). A major part of his explanation of a J-curve effect was what he called "currency contract analysis" which, he explained, "deals with that brief period immediately following a devaluation...in which contracts negotiated prior to the change fall due" (ibid., p. 305; cf also Krueger 1983, p. 39).¹

When export prices are sticky because they are written into contracts which may take some time to renegotiate, "the important question is whether the contract is denominated in the foreign currency or in dollars" (ibid., p. 309). The balance of payments worsens if export contract prices are denominated in the domestic currency (while foreign-currency import prices remain unaffected, whether under contracts or because imports are bought at world market prices). For in this situation, until contracts are renegotiated, the foreign-currency prices of exports fall while those of imports remain unchanged. The devaluing country's terms of trade decline and, unless and until the volume of exports expands sufficiently, the balance of payments worsens.

The difference between the traditional British explanation of the J-curve in terms of cost-based pricing of exports and the American explanation in terms of currency contracts may be accounted for partly by the traditional role of sterling as the
international transaction currency. At any rate until the 1930s, prices in a large proportion of world trade, and a fortiori for virtually all British exports, were quoted in sterling. But the difference may also reflect differences in the predominant kinds and marketing methods of exports of manufacturers by the two countries. British exporters have traditionally offered their relatively standardized textiles, engineering and other products at advertised sterling prices. American manufactured exports consist to a larger extent of complex pieces of equipment produced by multinational companies according to specifications and sold under contract.

If American exporters more or less automatically fix contract prices in US dollars, the effect should be much the same as in the British case of cost-based pricing. Statistical evidence suggests that, following the 1971-72 depreciation of SUs, "U.S. exporters failed to raise their dollar prices as a result of the devaluation; foreign currency prices of U.S. exports declined in proportion to the dollar devaluation... The U.S. terms of trade deteriorated" (Kreinin 1977, p. 319). But there were two significant differences between the two methods of marketing exports. One was that contracts imposed constraints on both prices and quantities which did not operate in the British case. British manufacturers were in principle free to offer their products at cost-based sterling prices if they expected to be able to benefit from larger sales at lower foreign-currency prices or to raise their sterling prices if foreign demand seemed likely to be inelastic. Under the American export contracts,
both prices and quantities were fixed (subject perhaps to limited built-in flexibility) until the contracts could be renegotiated. The second difference was that the fixing of prices under export contracts, in conditions of uncertainty about exchange rates, was likely to involve an element of currency speculation or hedging. "A seller in world markets prefers payment in currencies expected to strengthen... The preference of the buyer is just the reverse; the importer wishes to pay in currencies that are expected to weaken... The currency in which contracts are denominated is likely to be determined by the relative market power of traders. Price makers would tend to denominate contracts so that they would get the capital gain (or minimize the capital loss) on anticipated devaluations... The multinational corporations presumably possess market power and speculate through currency contracts" (Magee 1973, p. 313).

The explanation of a J-curve effect in terms of forward contracts extends beyond the rather special case of U.S. exports of manufactures. It also applies to long-term contracts under which many primary products, agricultural and mineral, are sold internationally. Here, too, if the export contract is denominated in the exporting country's currency, a devaluation will worsen its terms and balance of trade, unless and until the price can be renegotiated; and if volumes are specified in the contracts, the elasticity of foreign demand may be quite limited in the short run. And here, too, the currency in which the contract price is denominated will depend on the relative bargaining power and exchange rate expectations of buyers and sellers. The small-country case of the country which is a pur
price-taker in international trade assumes perfectly competitive world markets. While some primary products are still sold under such conditions, the larger part even of trade in primary commodities is nowadays conducted under imperfectly competitive conditions where prices are more or less sticky. In such conditions, the currency in which export prices are denominated influences the balance of payments effects of a devaluation.

Both the factors which we have suggested, accounted for the difference between British and American explanations of a J-curve effect have probably lost much of their significance in the past decade or two. Sterling has largely lost its role as international transaction currency, and a significant part of British exports no longer consists of manufactures. For both reasons, currency contracts have become more characteristic also of British exports. The currency contract explanation of a J-curve effect may have become more relevant even in the British case than the traditional explanation in terms of cost-based pricing (Wood and Carse, 1979).

The Import Side

The preceding discussion of the J-curve effect has focused entirely on export prices. The reason is that, subject only to insignificant exceptions, a J-curve effect can occur only because of what happens to export prices. There may, of course, be departures from the small-country case also on the import side. But if a country is not a pure price-taker on the import side because it is a sufficiently important market for the products of particular supplying countries, the consequent price
effects are favourable, not adverse, to the balance of payments. If foreign suppliers offer their products more cheaply in foreign currency rather than suffer a loss of sales in the devaluing country's market, the latter's terms of trade improve (Treasury 1986, p. 69). There is no J-curve effect, and it makes no sense to speak, as some have done (e.g. Jonson & Kierszowski 1975, p. 108), of an "inverse J-curve".

It has been suggested that a devaluation may have a temporary adverse effect if the devaluing country relies heavily on imports of capital equipment and if "demand for investment goods increases as... companies move to equip themselves to take advantage of their new found competitiveness in import competing and export markets. Obviously, the initial impact of such a surge in the import of investment goods is to worsen the current account" (Keating 1986, p. 2). Whether this is properly regarded as part of a J-curve effect depends on the time lag involved. Whereas the unfavourable price effects come into operation immediately and may last for some months, the rise in imports of capital equipment is more likely to be spread over a longer period and thus more appropriately considered, together with rising domestic costs and prices of non-tradables, as among the factors which are liable to erode the beneficial effects of devaluation on the balance of payments.

Cross Rates

So far we have, in effect, assumed only two countries (the devaluing country and the rest of the world) and two currencies (domestic and foreign). How far must the account be modified if
there are more than two countries and currencies, with changing cross rates?

Here again, for the reasons given above, a J-curve effect cannot occur on the side of imports (with the minor exceptions noted in footnote 2). What about the export side? Assume that SA depreciates relative to the Yen but appreciates relative to SUS. If the prices of Australian exports to both markets are determined in the foreign currencies, as in the small country case, then there can be no J-curve effect, whatever happens to cross rates. If the prices of Australian exports are denominated in SA, whether because of cost-based pricing or under currency contracts, foreign exchange earnings from Japan will fall, unless and until the lower Yen prices induce an increase in the volume of exports sufficient to offset the adverse price effect. Foreign exchange earnings from exports to the USA would rise unless their volume falls in response to their higher SUS prices. It is possible that foreign exchange earnings from exports to both markets will fall in the short run because exports to Japan are under long-term contracts denominated mainly in SA, while exports to the USA are priced out of the market by rising SUS prices. A J-curve effect is possible for either reason. But while the former is quite likely, the latter should not be significant since Australian exporters can prevent it by appropriate cuts in SA prices.

The Australian Case

Until recently, Australia would generally have been regarded as typical primary exporting "small country" which, with minor exceptions such as its important role as a supplier of wool to
world markets and perhaps as a market for British (and latterly Japanese) motor cars, can be assumed to be a price taker in international trade, so that devaluation of SA would leave the Australian terms of trade unaffected and there could be no J-curve effect. In the aftermath of the depreciation of SA from 1984, the J-curve has, on the contrary, figured prominently in public discussion.

The Treasury, in a recent paper on "Australia's Terms of Trade", has given the following explanation: "Exchange rate movements can have effects on the terms of trade, both in the short run and over the longer term. Short run effects depend, inter alia, on the currency of denomination of imports and exports. Around half of Australia's exports of goods and services are thought to have their prices denominated in foreign currencies, whereas a much larger proportion of imports is probably so denominated. Accordingly, a depreciation of SA can be expected, in the first instance, to increase the Australian price of exports by less than it increases the Australian price of imports, thereby giving rise to an initial adverse terms of trade effect" (Treasury 1986, p. 68). 3 The Treasury account adds that "the bulk of this currency denomination effect is likely to be transitory. Where world market conditions permit, Australian exporters with contracts denominated in SA will seek to negotiate up the Australian price of exports... Over time, therefore, any initial currency-denomination effect will tend to disappear" (ibid.).

The identification of the J-curve as a "currency
denomination effect" which has been quite prominent in recent public discussion (e.g., Australian Financial Review 1986a, 1986b) would have mystified anyone brought up in traditional foreign exchange theory, including probably the first British exponents of the J-curve idea. In so far as their argument rested on the assumption of cost-based pricing of British exports, it had nothing to do with the currencies in which prices were denominated in contracts. The importance now attached to currency-denomination clearly derives from the American "contract analysis" and the relevance of the latter to a substantial part of Australian exports of primary products. This, of course, does not preclude the possibility that a J-curve effect may, even in Australia's case, arise also from cost-based pricing of exports of manufactures, as in the British case. Perhaps this is to be understood as one of the items in the Treasury's "inter alia".

The J-Curve and the Australian Current Account Deficit

What then is the relevance of the J-curve effect which has been dissected in the preceding pages to the Australian balance of payments problem?

The first important point to note is that the customary presentation of the balance of payments in domestic currency has an incidental consequence which can lead to seriously misleading inferences from the statistics. If, as will normally be the case, a country devalues when its current account is in deficit, the devaluation will automatically increase the size of the deficit valued in domestic currency (since imports are initially larger than exports) even if the domestic-currency prices of exports and imports rise proportionately, and a fortiori if the
domestic-currency prices of exports rise less. A devaluation will therefore automatically have an apparent J-curve effect, in that the balance of payments will seem to worsen, both absolutely and (particularly with sticky export prices) as a proportion of GDP (Massey 1971, p. 310; Brunner 1986).

With reference to the magnitude of Australia's balance of payments problem, this is a pure valuation effect, indeed a statistical illusion. It does not indicate any change in the amount of foreign exchange we have to earn to meet our foreign exchange requirements nor therefore in the additional real resources we have to allocate to the production of tradables in order to close the gap in our external accounts. That is not to say that it is of no economic significance, and a brief digression is warranted to explain just what this significance is.

The need to withdraw resources from other uses in order to close the external gap does impose a real economic burden on the community: the country has been living beyond its means and must cut its coat to the cloth (a cloth further shrunken because of deteriorating terms of trade). This economic burden is imposed on the community through the reduction in real domestic spending ("absorption") that is a necessary part of the process of adjustment, not by the change in relative prices through devaluation the purpose of which is to direct the cut in real spending towards tradables. (In terms of the Swan diagram, the burden is imposed by the expenditure cutting, not the expenditure switching, measures.) To bring about the necessary cuts in real
spending is the task of macroeconomic policy, chiefly fiscal-monetary measures. But some contribution is made by the effect of higher prices of tradables on the cost of living which, other things being equal, reduces real wages and real spending.

A similar effect arises in relation to the substantial part of Australia's current account deficit that consists, not of the balance on goods and services, but of net transfers (dividends, interest and other factor income and unrequited transfers) abroad. The valuation effect here applies only to that part of net transfers which represents foreign-currency liabilities, about one-third of the total for Australia in 1985/6; for this part the higher $A cost of external debt service imposes a burden on the Australian debtors similar to the effect of higher prices of tradables on real wages. It may contribute marginally to closing the gap by reducing domestic spending by the debtors.

If this is what the economic significance of the valuation effect amounts to, it clearly measures neither the total economic burden of balance of payments adjustment nor the contribution of devaluation to the reduction in real spending. Unlike the decline in the terms of trade, it neither reduces Australia's national income nor increases the magnitude of the balance of payments problem. The increase in the current account deficit in domestic currency merely reflects the fact that, after devaluation, the factors of production employed in tradable goods industries and their products are more expensive - domestic producers in these industries are now relatively better off and domestic consumers of their products relatively worse off.
To conclude the digression, it is not overstating it to say that, in relation to the problem of external balance, the valuation effect is a statistical illusion. But this does not mean that it is unimportant. For it contributes to the appearance of a J-curve and thus reinforces often prevailing elasticity pessimism. The deficit appears to widen, both in $A and as a proportion of GNP.5

Here, then, is a major reason why the balance of payments situation appears to have deteriorated following depreciation of $A. In addition, the balance of payments situation did deteriorate because of the decline in Australia’s terms of trade which occurred during 1985/6 with falling world market prices for many of Australia’s major export commodities. The Treasury has estimated that during 1985/6 the decline in the terms of trade worsened Australia’s current account by some $A4,250 million (Treasury 1986), while the current account deficit increased by only $A3,369 million. This alone would suggest that, after allowing for the terms of trade effect, the current account actually improved somewhat. An even more striking conclusion emerges if allowance is also made for the valuation effect which can be estimated by comparing the relevant parts of the current account deficit (the balance on goods and services and the foreign-currency component of net transfers) in $A with their value in $US. This yields a valuation effect for 1985/6 of $A1,071 million (Table 1).6 After both adjustments, the current account (in volume terms) appears to have improved by as much as $A1,752 million during the financial year. So substantial an improvement in the current account in volume terms during 1985/6
### TABLE 1 The Valuation Effect of Devaluation, Australia 1985/6

**A.**

<table>
<thead>
<tr>
<th></th>
<th>$A million</th>
<th></th>
<th>Balance on Current Account</th>
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<tr>
<td><strong>Balance of Goods and Services</strong></td>
<td></td>
<td><strong>Net Transfers</strong></td>
<td></td>
</tr>
<tr>
<td>1984/5</td>
<td>- 4,857</td>
<td>- 5,909</td>
<td>- 10,766</td>
</tr>
<tr>
<td>1985/6</td>
<td>- 7,537</td>
<td>- 6,798</td>
<td>- 14,335</td>
</tr>
<tr>
<td></td>
<td>- 2,680</td>
<td>- 889</td>
<td>- 3,569</td>
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</table>

**B.**

<table>
<thead>
<tr>
<th></th>
<th>$A million</th>
<th>Exchange rate average 1985/6</th>
<th>$US million</th>
<th>$A million</th>
<th>Difference</th>
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<tr>
<td><strong>Balance of goods and services</strong></td>
<td></td>
<td>(av. 1984/5 = 100)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1985/6</td>
<td>- 7,537</td>
<td>89.07</td>
<td>- 6,713</td>
<td>- 824</td>
<td></td>
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<tr>
<td><strong>Net transfers</strong></td>
<td>x 0.33</td>
<td>89.07</td>
<td>- 2,017</td>
<td>- 247</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 2,264</td>
<td></td>
<td></td>
<td></td>
<td>- 1,071</td>
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**C.**

<table>
<thead>
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<th>$A million</th>
</tr>
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<td><strong>1985/6</strong></td>
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<tr>
<td><strong>Terms of trade effect</strong></td>
<td>- 4,250</td>
</tr>
<tr>
<td><strong>Valuation effect</strong></td>
<td>- 1,071</td>
</tr>
<tr>
<td><strong>Volume effect</strong></td>
<td>+ 1,752</td>
</tr>
<tr>
<td><strong>Change in current a/c balance</strong></td>
<td>- 3,569</td>
</tr>
</tbody>
</table>


Will cause surprise. But it is not inconsistent with the picture presented by the national accounts data for exports and imports of goods and services in constant prices. These show that exports rose between the March quarters of 1985 and 1986 by 15 per cent while imports rose by only 1 per cent. The June 1985 quarter figures (not yet available at the time of writing) may
give a different impression. Perhaps the Treasury has overestimated the terms of trade effect. Perhaps our estimate overstates the valuation effect for some reason. At any rate, there would seem to be no need to look for J-curve effects to account for the widening current account deficit in domestic currency.

The figures in Table I, however, need to be interpreted with care. The Treasury estimate of the decline in the terms of trade does not distinguish between exogenous changes due to declining world market prices of Australian export commodities and whatever endogenous (J-curve) changes in the terms of trade may have resulted from the depreciation of $A (because of export prices sticky in domestic currency). Similarly, not the whole of the improvement in the balance of payments in volume terms can be attributed to favourable effects of $A depreciation; some of it may have resulted from independent changes in supply or demand for exports or imports.

In order to ascertain the magnitude of J-curve effects (if any), it would be necessary to measure for each of Australia's major export commodities the shortfall (if any) in the foreign currency prices actually obtained by Australian exporters during the financial year 1985/6 relative to their ruling world market prices. This would clearly be a laborious task. Alternatively, a rough estimate could be obtained by comparing changes over the period in Australia's export price index with an index of world market prices for Australia's export commodities (if possible, with Australian export weights).
Conclusions

The argument of this article can be summed up in six propositions.

1. A J-curve effect, that is, an initial adverse effect of a devaluation on the balance of payments, is likely if exports are sold not at world market prices but in less than perfectly competitive conditions where their domestic-currency prices are relatively sticky. There can be no J-curve effect in the "small-country" case of a pure price taker.

2. The two most important cases of relatively inflexible domestic-currency prices of exports are those of cost-based pricing, as traditionally for British exports of manufactures, and export sales under forward contracts, as for many American manufactures and for primary commodities sold under long-term contracts. As Corden has put it, perhaps too succinctly, "because of contracts or administered prices" (Corden 1977, p. 17).

3. In the case of sales under forward contracts, a J-curve effect is most likely if a devaluation has been expected and if the devaluing country’s exporters face a buyer’s market.

4. If the devaluing country starts from an initial position of current account deficit, a devaluation has an apparent J-curve effect on the size of the deficit valued in domestic currency. This is a statistical illusion of no significance for external balance. To avoid misleading inferences from this valuation effect, it is desirable to present the balance of payments accounts in foreign currency. If, for purposes of international
comparison, the deficit is expressed as a proportion of GNP (and therefore necessarily in domestic currency), there should be an explicit warning against such inferences.

5. There is no need to postulate J-curve effects to account for the widening in Australia's current account deficit during the period of depreciation of $A. Allowing for the decline in Australia's terms of trade and the valuation effect of depreciation on the deficit in domestic currency, there was a substantial improvement in volume terms. Not all of this improvement can necessarily be attributed to $A depreciation, nor was the whole of the decline in the terms of trade necessarily exogenous. But given the marked fall in world prices of many of Australia's major export commodities, it seems intuitively unlikely that J-curve effects made a substantial contribution.

6. The J-curve has nothing to do with the effectiveness of devaluation in bringing about the intended improvement in the balance of payments beyond the initial phase. This depends on the longer-term elasticities of supply and demand for exports and imports and on the rate at which the improvement in international competitiveness of the country's tradable goods industries is eroded by rising domestic costs and prices of non-tradables (and perhaps a devaluation-induced rise in imports of capital goods). On this, the subject of a vast literature to which the J-curve is but a small footnote, there may be widely divergent views between elasticity (and real exchange rate) optimists and pessimists. Exchange depreciation alone may not be enough to correct the deficit. Exogenous decline in the terms of trade may add to the
problem. Domestic spending and costs may prove difficult to restrain. The hoped-for improvement in the balance of payments may come sooner or later or, conceivably but improbably, not at all. But it is clearly nonsensical to argue about all this in terms of a J-curve being existent or non-existant, working "effectively" or "belatedly". The notion of a J-curve (the whole point of which is the downward stroke) makes sense only in relation to an initial deterioration, not to the speed or extent of the subsequent improvement.

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Footnotes

1Magee refers to a second short-term effect which he calls "pass-through", i.e. the devaluation-induced transmission of price changes to the purchasers of imports and exports. Insofar as this can cause a J-curve effect, it is equivalent to the British argument.

2Such as backward-sloping demand curves for imports, e.g. because consumers judge quality by price. Another, probably more important case, is that of elastic expectations in Hicks's sense (Hicks 1939), where a devaluation is expected to lead to further devaluation and in consequence to a speculative increase in imports. The effect is similar to speculative shortening of import credit, a form of speculative capital outflow in the guise of leads and lags.

3By contrast, a statement of the Secretary to the Treasury, Mr. Bernie Fraser, to the effect that as many of 45 per cent of Australian exports are denominated in foreign currencies has been interpreted as implying that the J-curve argument does not apply in Australia (Australian Financial Review 1966b).

4Assume exports initially $A50 million, imports $A100 million. A $0 per cent devaluation will raise the value of exports in $A by $A50 million, the value of imports by $A100 million, i.e. the current account deficit in $A increases by $50 million. But there is no change in the percentage increase in exports in $US or decrease in imports in $US needed to close the external gap.

5The deficit increases as a proportion of GNP even if domestic-currency prices of exports and imports rise proportionately since these prices rise more than the GNP deflator which includes non-tradables prices, and fortiori if export prices lag.

6This statement needs to be qualified to the extent that a J-curve effect is possible if a country has no influence over the foreign-currency export prices it receives, and in that sense is a pure price taker, but these prices are subject to monopoly power wielded by foreign buyers.

7For a careful examination of these issues in the Australian context, see Brunner 1986.
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3By contrast, a statement of the Secretary to the Treasury, Mr. Bernie Fraser, to the effect that as many of 65 per cent of Australian exports are denominated in foreign currencies has been interpreted as implying that the J-curve argument does not apply in Australia (Australian Financial Review 1966).

4Assume exports initially $350 million, imports $4100 million. A 50 per cent devaluation will raise the value of exports to $A by $350 million, the value of imports by $A100 million, i.e., the current account deficit in $A increases by $250 million. But there is no change in the percentage increase in exports in $US or decrease in imports in $US needed to close the external gap.

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References


