

## *Discussion*

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### **1. Bob Gregory**

This excellent paper by Blundell-Wignall, Fahrer and Heath presents a simple and important Australian story of exchange rate determination. The basic stripped-down story, presented here without the qualifications that they might like to make, is:

- changes in the terms of trade determine the real exchange rate (see Figure 5 in the paper);
- variation in the nominal exchange rate - rather than changes in the internal price level - is the mechanism which delivers the change in the real exchange rate<sup>1</sup> (see Figure 1); and
- the lag between terms of trade changes and nominal exchange rate changes is short, and the effects of terms of trade changes are large and consistent through time.

The evidence seems convincing and completely consistent with our memories of the 1970-73 and 1987-89 periods, when commodity prices were particularly high, and the 1985-86 period when commodity prices collapsed.

I refer to the terms of trade - real exchange rate - nominal exchange rate story as an Australian one because it fits well into our intellectual history (Wilson 1931; Swan 1960; Salter 1959; Gregory 1976). More importantly, it does not seem to fit well into the way other countries, and most members of the economics profession, see the determination of their exchange rates. Indeed, it is when the implications of this particularly Australian story is applied to other countries that a whole raft of interesting questions arise. I pose four sets of questions that occurred to me.

Firstly, across flexible exchange rate countries I do not think that it is true that exchange rate volatility maps strongly and noticeably into terms of trade volatility. For example, you would not hear a German say that the deutschemark is always stable because the terms of trade rarely change for Germany, or that the US dollar is unstable because the terms of trade vary so much for the United States. Economists in these countries talk about the importance of other things, usually interest rates and monetary policy. The monetary theory of the balance of payments and exchange rate (Mussa 1979), or the portfolio theories (Kouri (1976) and Branson and Henderson (1985)), do not seem to accommodate easily the

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1. In addition there has been a minor trend shift of the relationship between the terms of trade and the real exchange rate, because foreign debt servicing has increased, and a minor displacement between the nominal and real exchange rate, as a result of faster inflation in Australia.

proposition that changes in the terms of trade are the major determinant of the exchange rate. What then is a proper theory of exchange rate movements? One which differs by country? This has not been the tradition in economics which seems to be searching for universal theories.

Therefore, the first important question can be posed as follows. If our terms of trade are so volatile and dominate real exchange rate movements, what has happened to the influence on the Australian exchange rate of the factors which determine real exchange rate volatility of other countries? Why have these factors not affected the Australian real exchange rate more and made less obvious the relationship between the terms of trade and the real exchange rate?<sup>2</sup>

Secondly, what is the role of monetary and fiscal policy in a Blundell-Wignall *et al.* world? Traditional theories of economies with flexible exchange rates have monetary and fiscal policy operating through exchange rate changes - monetary expansions leading to devaluations and fiscal expansions being ambiguous in effect. Given that the fit is so close between changes in the terms of trade and the real exchange rate (Figure 5), and between changes in the real and nominal exchange rate (Figure 1), does that mean there has been virtually no role for macroeconomic policy to stabilise economic activity in Australia? Again, if policy was important, surely the terms of trade changes would not fit exchange rate changes so closely unless the terms of trade were also determining policy!

Or should we argue that policy has been targeted to lead to a *de facto* fixed exchange rate *except* when it is changed by the terms of trade?

The puzzle of the missing influences on the exchange rate is addressed in a slightly different way by Krugman in his contribution to this Volume. He says:

The question is whether such real shocks can explain away the striking correlation between nominal and real exchange rates. The answer is almost surely no, for at least three reasons.

Firstly, while a reverse causation from real shocks to nominal exchange rates can explain a correlation between nominal and real rates, the actual correlation is not a modest one - it is virtually perfect, with a coefficient of almost unity. This is just too much to explain unless one is willing to suppose that there are virtually no exchange rate changes that are *not* the result of real shocks, *a view that is hard to defend* (my emphasis).

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2. One answer, which would probably surprise us all, is that the terms of trade also matter for other countries and perhaps to a similar extent! For large countries, however, the causation probably works the other way and the change in the exchange rate leads to a change in the terms of trade. This arises from the differential effect of devaluations on export and import prices for a large country. This difference between large and small countries was the centre piece of Wilson's (1931) development of the Australian analysis of devaluations.

The contrast with Blundell-Wignall *et al.* is stark. Their paper describes instances when exchange rate changes occurred in Australia without terms of trade changes but a consideration of Figure 5 and Figure 1 quite clearly shows that these changes are relatively unimportant. How should we respond? Reject Krugman, at least as an explanation of Australian exchange rates! I am inclined to say yes but the puzzle remains. Why are the other factors that are alleged to dominate exchange rate movements in other countries not more important in Australia?

Thirdly, what is achieved in Australia by such large exchange rate swings in response to terms of trade changes which have always been temporary? What should be the role of policy? It has become commonplace in Australia to talk of real exchange rates as a mechanism to bring about resource flows across sectors. Currently, for example, most economic analysts are pleased that the real exchange rate is low because they believe that it is contributing to the diversification of Australia's export base and that more manufactured exports to Asia is a good thing. Very few people, for example, would believe that a sudden and large appreciation today, of say 30 per cent that will last three years, in response to a terms of trade boom would be a good thing. They would see the large change in the exchange rate as being disruptive in our move towards a new industry structure. Why then does not the financial market believe the same thing and produce nominal exchange rate changes that do not mirror changes in the terms of trade? Why does the nominal exchange rate respond so much? Should we have expected, on *a priori* grounds, a much smoother path for the nominal exchange rate? These issues invariably lead to the question as to whether or not the authorities should attempt to smooth exchange rate changes to reduce fluctuations in the manufacturing sector which is not as able to bear large fluctuations in prices as the mining and agricultural sectors are with their large sunk costs.

Fourthly, the discussion as to an appropriate role for policy is made more complex in the light of the recent argument that Reserve Bank policy should only target inflation. The Blundell-Wignall *et al.* analysis seems to suggest that the role of the nominal exchange rate is to bring about real exchange rate changes quickly and hence effect resource swings by signalling relative price changes generated by terms of trade swings. But if inflation control is the target, and there are non-symmetries in the response of the rate of change of prices to exchange rate changes, do we want the exchange rate to be so volatile? How should the concern for inflation and the need to shift resources be reflected in policy? Again I refer to the Krugman contribution. He says nominal exchange rate changes have real effects, he quotes the United States' trade outcomes in response to devaluations in the US dollar as a good thing, and seems to suggest using exchange rate policy for objectives other than price stability. But, once again, can we relate this to the view expressed in the Blundell-Wignall *et al.* paper that the nominal exchange rate is the creature of terms of trade shocks?

Finally, the Blundell-Wignall *et al.* paper is extremely rich in ideas and detail and the clear presentation of the story is a very stimulating one in helping us think further as to the appropriate role of the exchange rate in a small open economy subject to large shocks in the terms of trade. The paper is made all the more stimulating when it is placed alongside the other excellent contributions to this Volume.

## References

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## 2. General Discussion

The discussion of the paper by Blundell-Wignall, Fahrer and Heath primarily focused on the following issues:

- the endogeneity of the terms of trade;
- the nature of variables that had been excluded from the long-run model estimated in the paper; and
- the reasons for, and the implications of, the positive short-term autocorrelations in the deviations of the actual exchange rate from its long-run equilibrium level.

On the first point, a number of discussants made the observation that when the pass-through of exchange rate changes to domestic prices was not instantaneous

and complete, the terms of trade were endogenous with respect to exchange rate changes. While this pass-through issue was generally not seen to be a problem for homogeneous goods (predominantly agricultural and raw materials based goods), it was thought that it could be a problem for heterogeneous differentiated products where producers have some degree of market power.

Subsequent discussion tended to discount the problem of endogeneity of Australia's terms of trade, suggesting that it was more of an issue for the United States and Japan. However, the point was made that even though changes in the value of the yen may influence the Japanese terms of trade, there were also large exogenous changes caused by movements in the world price of oil. These terms of trade changes did have pronounced effects on the real value of the yen. It was suggested that one way of minimising the endogeneity problem would be to use a proxy terms of trade measure, calculated from prices in world markets. It was noted that when this was done for Australia, the terms of trade still exerted a powerful force on Australia's real exchange rate.

There was general, though not universal, agreement that the real exchange rate should vary over time. In addition to the terms of trade, net foreign debt and real long-term interest differentials, a number of other determinants of real exchange rates were put forward by discussants. It was suggested that in the long run, productivity differentials between countries were important determinants of changes in real exchange rates, and that it might be possible to include such factors in the model other than through their implicit presence in real interest rate differentials. Alternatively, it was suggested that productivity could be captured by including a time trend in the regression. Inclusion of variables to capture differences in fiscal and monetary policies between countries was also suggested, as were variables to capture resources booms, changes in export structure and differences in capacity utilisation between countries.

While there was general agreement with the conclusion that the autocorrelation patterns of deviations from the long-run equilibrium suggested some departure from the textbook efficient markets model, a number of other possibilities were also advanced. It was argued that the positive autocorrelations might reflect the gradual learning by the participants in the market about the nature of shocks. Such learning should not be interpreted as a failure of market efficiency. Another explanation was that the authorities themselves may take time to learn about the nature of the shocks, and any attempt to stabilise the nominal exchange rate by intervention or monetary policy changes may induce positive autocorrelations at short-term horizons.