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"MARKET LIBERALISATION, MONETARY STABILISATION AND FOREIGN DEBT: DID AUSTRALIA GET IT WRONG IN THE 1980s?"

by

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Market Liberalisation, Monetary Stabilisation and Foreign Debt: Did Australia Get it Wrong in the 1980s?

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June 1992

Abstract
This paper argues that the Australian government made three errors when implementing the liberalisation and stabilisation programmes of the 1980s. International capital movements were liberalised at too high an Australian inflation rate; this deepened the later monetary-induced recession. The monetary contraction itself was supposedly aimed at reducing growth in foreign debt: theory and evidence, however, suggest that counter-inflationary policies increase foreign debt if the contraction occurs under free international capital mobility. By liberalising international capital flows in advance of the major tariff cuts of the 1980s, finally, the negative effects of protectionism and the burden of adjustment to freer trade may have been increased. These policy errors led to an unnecessarily severe recession which may threaten further trade reform.

Keywords: Sequencing, Reforms, Monetary Contraction, Foreign Debt.

JEL Classification Numbers: E52, F32, F41, G18, L5.

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1. **Introduction**

The floating of the Australian dollar in 1983 gave the country a greater degree of control over its inflation rate. Since Australia throughout most of the previous decade had had an inflation rate substantially higher than that of its trading partners (Figure 1) it was clear that monetary contraction would be required at some point in the near future. Should international capital flows have been liberalised before the contraction that was guaranteed to come sooner or later? The government chose to do so beforehand, removing exchange controls on capital at the same time as the dollar was floated. It is argued in the next section of the paper that this was a mistake. The capital-account should not have been liberalised when the dollar was floated. The monetary contractions of the 1980s would have had less severe output effects if they had occurred while some form of capital controls were still in place.

**Figure 1**

When the contractions did come - in the mid and late 1980s (Figure 2) - part of the rationale offered by government was to reduce the dramatic growth in foreign debt that followed the liberalisation¹. (According to this logic the monetary contractions would not therefore have been required at all if the capital account had not been liberalised, which seems implausible.) Government thinking appears to have been based on a very simple view of how the current account is
determined; imports would fall if the economy were slowed down, and the current account would accordingly improve. Such a result is not very apparent from the monetary contractions, however, (see the appendix for an analysis of the recent current-account improvement), although strong effects on output and employment have been identified, by Pissarides (1991) for example. From the viewpoint of both theory and the evidence of Bewley and White (1990), indeed, the monetary contractions are likely to have worsened foreign debt. This is the subject of the third part of the present paper.

The term "worsening of foreign debt" is used consciously in the present context, the Pitchford (1990) view notwithstanding. Monetary contraction under liberalised international capital flows typically leads to a welfare-reducing "overshooting" of foreign debt.

Figure 2

A monetary contraction carried out under these circumstances has a further negative consequence in that it makes trade reform more difficult. Not only does the excessive severity of the monetary-induced recession strengthen the hand of those seeking to prevent tariff reductions, it also means that the country is forced to adjust to whatever trade reforms are instituted at an overvalued exchange rate; (the overvaluation occurring for reasons familiar from Dornbusch (1976)). When the capital-account is liberalised before protectionist
barriers have been removed, furthermore, as in the Australian case, the strong capital inflows induced both by liberalisation and by monetary contraction are misallocated across sectors because prices are distorted by trade restrictions. This is an adverse effect of capital inflows—foreign investment going into the wrong sectors—that Pitchford (1990, p45) dismisses, even though it is completely in line with Classical (flexible price/full employment) analyses along the lines of Neary and Ruane (1988). This issue of the timing of current-account liberalisation relative to capital-account liberalisation and monetary contraction is the subject of the fourth section of the paper.

2. Capital Flows and the Output Effects of Monetary Contraction

The natural starting point for an analysis of this issue is Dornbusch (1976). He explores the impact of monetary contraction under perfect capital mobility and rational expectations on the assumption that goods prices adjust only slowly. Nominal appreciation of the exchange rate therefore represents a real appreciation in the short run, meaning a loss in international competitiveness. The excess capacity to which this leads is one of the channels through which monetary contraction slows down the rate of domestic cost and price increase.

His model works as follows. Interest parity requires that the gap between domestic and foreign nominal rates reflect the
expected depreciation of the exchange rate:

\[ i = i^* + \Theta(e_L - e) \]

where the exchange rates are in logs, \( e_L \) represents the long-run equilibrium exchange rate, and the \( \Theta \) function represents the rationally-expected rate of depreciation. Money market equilibrium is given by

\[ M/P = f(Y, i) \]

A monetary contraction raises the interest rate in the short run. Since long-run money neutrality implies that the currency appreciates relative to its pre-contraction level, interest parity therefore requires that the exchange rate over-appreciate on impact, since its future movement must be consistent with an expected depreciation.

Domestic prices fall over time in response to the monetary contraction and the economy ends up at a new long-run equilibrium with \( e = e_L \) and \( i = i^* \). With sticky goods prices any change in the nominal exchange rate implies overshooting of the real exchange rate; the Dornbusch model illustrates the greater competitiveness loss that arises under perfect capital mobility.

In many countries undergoing monetary deflation this excessive real appreciation stemming from capital mobility has been a major cause for concern because of the impact on output of a loss in competitiveness. Several proposals have been made for "sanding the wheels" to reduce the incentive for short-term capital flows, thereby preventing the real appreciation that
monetary contraction would otherwise induce. Such intervention was proposed by Tobin (1982), and, during the debate over the British monetary contraction under Mrs. Thatcher, by Dornbusch (in his submission to the UK Treasury and Civil Service Committee, quoted in Buiter and Miller), Liviatan (1980) and Buiter and Miller (1981).

The intervention to be considered here is an international real-interest-rate equalisation tax, though many alternatives have been discussed in the literature; a tax of this type wipes out the incentive for incipient capital inflows when domestic real interest rates rise during the monetary deflation, so preventing the real exchange rate appreciation. Its impact can be seen in a diagram from Buiter and Miller (1981):

**Figure 3**

The nominal interest rate enters the LM curve and the real interest rate the IS curve. The two curves must therefore be vertically separated by the rate of inflation. This is achieved by vertically adding a short-run Phillips Curve to the IS curve, yielding the ISPC curve. [IS, is drawn for the (unchanging) long-run equilibrium level of competitiveness.]

The initial full employment equilibrium is at A. A reduction in the rate of monetary growth shifts the Phillips Curve, and therefore the ISPC curve, downwards. (The LM does not shift immediately, since P and M are given instantaneously; it
shifts over time as these adjust). The new long-run full employment equilibrium is at C. The short-run equilibrium cannot be at B, however, for the following reason: interest parity tells us that at B the (expected and actual future) depreciation of the currency is measured by the distance BE (which shows the difference between the domestic and the world interest rate), while (expected and actual future) inflation is measured by BD (which is the difference between the domestic nominal and real interest rates). DE therefore shows the future competitiveness gain, so competitiveness must have been lost in the short run. This competitiveness loss shifts the IS curve and thus the ISPC further to the left and so the short-run equilibrium of the economy would be at a point such as F.

The Liviatan (1980)-Buiter-Miller (1981) interest equalisation tax is designed to fill the gap between IS₁ (showing the domestic real interest rate at the equilibrium level of competitiveness) and the world real interest rate; its size is therefore DE. This tax prevents any loss in international competitiveness due to short-run capital inflows, yielding a short-run equilibrium at B rather than at F. It does not of course prevent output losses completely, since monetary contraction in an economy with sticky prices must entail some reduction in aggregate demand and output.

To summarise the result of this section then, we see that, in these arguably plausible models combining short-run price and
cost rigidities with long-run flexibility, controls on capital-account transactions can reduce the output costs of a monetary contraction.  

3. Monetary Contraction and Foreign Debt

As mentioned in the introduction, the Australian monetary contractions of the 1980s were allegedly targeted at what was felt to be excessive growth in foreign debt. The purpose of the present section is to review what economic theory has to say about the impact of monetary contraction on capital flows.

The procedure followed is to look first at the Mundell-Fleming model, the traditional "workhorse" of international macroeconomics. The model has numerous well-known deficiencies, however, - the fact that it is purely demand driven, that expectations and intertemporal considerations are not taken into account, that important distinctions between capital flows and stock adjustments are not made, and that debt-service is not taken into consideration. These will be discussed in turn to see whether they affect the results in which we are interested. Certain other extensions to the model that may be of relevance to Australia will also be considered - namely the fact that many investment goods must be imported, and that the Marshall-Lerner condition may be violated.
i) The Basic Model

The equations determining goods market (IS), money market (LM) and balance of payments (BB) equilibrium in the basic Mundell-Fleming model are:

\[(2.1)\quad Y = C(Y) + I(r) + G + NX(e,Y)\]

with \(C_r > 0,\ I_r < 0,\ NX_e > 0,\ NX_r < 0\)

\[(2.2)\quad M = L(Y, r)\]

with \(L_r > 0,\ L_r < 0\)

\[(2.3)\quad NX(e,Y) + K(r-r^*) = 0\]

with \(K_r > 0\)

The meaning of the terms will be obvious; NX is net exports, K is the capital inflow or capital-account surplus equation, \(r^*\) is the "world" interest rate, and so on. The signs of the partial derivatives are also given.

The multipliers for monetary policy are:

\[\frac{dY}{dM} > 0;\ \frac{dr}{dM} < 0;\ \frac{de}{dM} > 0;\]

\[(2.4)\quad \text{and} \]

\[\frac{dNX}{dM} = -(1-C_r)K_r/[(1-C_r)L_r + (I_r-K_r)L_r] > 0\]

The latter result shows that a monetary contraction worsens the current account.\(^6\)

These results apply to an economy imperfectly linked with international capital markets, so that a differential between domestic and foreign interest rates can persist even in equilibrium.
For the "perfect capital mobility" case arbitrage equalises the domestic and foreign interest rates, \( r \) is determined by world interest rates \( r^* \), and the capital flow \( K \) replaces \( r \) as an endogenous variable in the above system.

The impact of monetary policy on the current account is now:

\[
(2.5) \quad \frac{dNX}{dM} = \frac{(1-C_y)}{L_y} > 0
\]

which is greater than in the previous case. Monetary contraction again worsens the current account.

ii) Stock Adjustment and the Debt-Service Account

The basic model ignores the debt-service account; i.e. it assumes that the economy initially has no foreign debt. Clearly for the Australian case that assumption is inappropriate. Rodriguez (1979) extends the Mundell-Fleming model to include debt service, and also corrects the flaw whereby a capital inflow is modelled as continuous rather than as a stock adjustment. For the perfect capital mobility case the equations become:

\[
(2.6) \quad Y = C(Y+eD-G) + G + NX(Y+eD-G, e)
\]

\[
(2.7) \quad M = L(Y+eD, (eD+B)/r^*)
\]

and

\[
(2.8) \quad e(dD/dt)/r^* = NX(Y+eD-G,e) + eD
\]

where \( D \) represents domestic residents' holdings of foreign bonds (each bond paying one unit of foreign currency per
period of time in perpetuity); eD is therefore the debt-service account surplus. B is the stock of domestic perpetuities, so (eD+B)/r* is wealth. Consumption depends on disposable income which is national income (Y+eD) plus interest payments on the stock of domestic perpetuities B less taxes; the government budget constraint allows us write the sum of these last two terms as G, since neither money nor bonds are currently issued to finance government expenditures. The left-hand side of equation (2.8) shows the capital outflow (where dD/dt is a time derivative)

The importance of debt service for the issue at hand is that if the economy is a net debtor (and debt is denominated in foreign currency) the exchange-rate appreciation induced by monetary contraction reduces the debt servicing requirement in terms of domestic goods; this along with the trade balance comprises the overall current account. Might it be possible then that the reduction in the debt-service deficit could dominate the increased trade deficit? This scenario is explored by Rodriguez (1979, footnote 2) and is shown to be ruled out by the stability condition for the system. The logic of appealing to the stability condition is of course firstly that the real economy seems to be reasonably stable and secondly that comparative static results are meaningless if the system is unstable.

iii) Sterilisation

We see then that monetary contraction in the IS/LM model
cannot improve the current account. This is in contrast to the results of the model for fixed exchange rates. This raises the question of whether the Australian authorities, during the process of monetary contraction, may have been intervening both to prevent the currency appreciating and to prevent the domestic money supply increasing endogenously through the induced increase in foreign exchange reserves.

If this were occurring then the monetary contraction would be associated with a large expansion in the economy's stock of foreign exchange reserves. The data in Figure 4 show no such large scale interventions since the floating of the dollar in December 1983.

Figure 4

iv) Imported Investment Goods

Kingston (1989) suggests that the type of results shown here might be overturned if another oversight in the open-economy macromodel were rectified. Noting that Australian imports include many durable and capital goods, he suggests that accelerator and cost of capital considerations must be taken account of in the import function. Since exchange rate adjustments in the Australian case do not seem to give rise to much expenditure switching, he argues that "because continued tight money would slow growth and raise real interest rates, one would expect the volume of imports to fall, even though tighter money would induce a high real exchange rate in the
short term...For this reason current-account deficits could be expected to fall"7.

Will adding these features to the model lead to the result he posits? The implications of low exchange rate elasticities will be considered in the next sub-section. For now let us amend the net export function in (2.3) to incorporate investment:

\[ NX = NX(e, Y, I) \text{ with } NX, < 0 \]

(2.6)

Inserting this into the imperfect capital mobility model (which is the case that Kingston has in mind8) yields the same multiplier as in equation (2.4). The impact of monetary contraction on the current account is unchanged.

Focussing on this result yields insights into how the external balances of the economy are determined and allows us see that taking an accelerator mechanism into account will not reverse the results either.

The issue is seen most clearly by inspecting equation (2.3), with or without investment as an argument in the net export function.

\[ NX + K(r-r^*) = 0 \]

If monetary contraction raises interest rates there must be a capital inflow, and the variables which determine net exports, whatever they are, must adjust to generate a deficit. As in the Pitchford analysis, which treats the current account
essentially as a residual outcome of the intertemporal decisions governing saving and investment, the current account here must adjust to reflect what happens in financial markets.

It should be clear that these results will not be reversed by replacing the capital flow equation by a correctly-specified stock adjustment model; the short-run multipliers for these systems are the same, as Rodriguez (1979) shows.

Taking expectations into account in the imperfect capital mobility model also appears to have no particular implications for these results.\textsuperscript{9,10}

v) Violation of the Marshall-Lerner Condition

It is frequently asserted that the sum of export and import price elasticities may be low, and the Marshall-Lerner (ML) condition violated, because of the characteristics of the goods in which Australia trades; see e.g. Halevi and Kriesler (1991, p.135). Since the condition is required for stability of the Mundell-Fleming model, we need to ask what results can be salvaged if it does not hold. Under imperfect capital mobility the impact of monetary contraction on foreign debt continues to be determined by the impact of monetary contraction on the interest rate differential, and the Marshall-Lerner condition does not affect this. Let us focus therefore on the perfect capital mobility case. At issue is the question of whether the exchange rate appreciation induced by a monetary contraction will still improve the current
account.

Assume in this case that import prices are set in foreign currency, as in the Mundell-Fleming model, while export-prices are also set in foreign currency; this appears the more appropriate assumption for commodity exports, which is what those who raise the Marshall-Lerner issue have in mind. In this case appreciation does not affect foreign-currency export revenues, but domestic-currency revenues are reduced. For imports, as Halevi and Kriesler (1991) note, the response to price movements is asymmetric when the Marshall-Lerner condition is violated. More foreign exchange is spent on imports, but more domestic currency is also likely to be. The current account therefore deteriorates whether measured in domestic or foreign currency\textsuperscript{11}.

vi) Exchange-Rate Expectations and Overshooting

Expectations have been ignored so far, in this section. For present purposes the problem with this is that the interest-rate parity condition reduces to \( r = r^* \), and the distinction between nominal and real interest rates is blurred.

We saw in Section 2 above that when expectations are included, as in the Dornbusch-Buiter-Miller model, monetary contraction raises the real interest rate even under perfect capital mobility. This adds an extra element exerting downward pressure on demand, which might possibly overturn our results.
Is this likely or not? Dornbusch (1983) clearly believes that it is not, writing (p.26): "Suppose a country reduces monetary growth and this leads (as it will) to an increase in the interest rate on financial assets. Incipient capital flows will lead to currency appreciation and a current account deterioration financed by borrowing abroad".

The interaction between high real interest rates, output contraction and competitiveness losses under monetary contraction has also been studied by Buitert and Miller (1981, 1982), Liviatan (1980) and Engel and Flood (1985). It is the case under perfect capital mobility that the current account effects are ambiguous on a theoretical level; plausibility in terms of interest-rate effects however makes current account deterioration the more likely outcome. In Buitert and Miller, for example, a strong real interest rate effect in the IS curve would lead to the unlikely situation of a monetary contraction reducing nominal interest rates more in the short term than in the long term. Engel and Flood exclude real interest rate effects from aggregate demand and derive unambiguous results for the current account.

Finally, and importantly, Liviatan (1980) shows that if the interest rate equalisation tax discussed in section 2 above were imposed, only then would the current account unambiguously improve in response to monetary contraction, because the real exchange rate appreciation would be prevented.
vii) Intertemporal Optimisation Models and Classical Unemployment

Some degree of ambiguity about the current-account effects of monetary contraction has arisen because in the models surveyed both the real interest-rate increase and the fall in output work to improve the current account, while the real exchange-rate appreciation operates in the opposite direction. An output contraction necessarily improves the current account however only if intertemporal considerations are ignored. The IS-LM tradition in which current consumption depends primarily on current income is followed in the models considered so far; the importance of capital markets however is precisely that they break this link.

As we will now see, an intertemporal perspective focuses on private agents use of international capital markets to smooth consumption streams, so that the temporarily lower income levels associated with monetary contraction lead to foreign borrowing and current account deterioration rather than improvement. Of the three factors affecting the current account - real interest rate movements, temporary output effects and overvaluation of the real exchange rate - the second as well as the third are now in competition with the first.

To see this, note that if a monetary contraction has short-run effects but is neutral in the longer term, its impact on investment (as a forward looking variable) will be small; the
current-account effect will therefore be determined by the response of saving\textsuperscript{13}. Since a monetary contraction generates only a temporary fall in income, the consumption-smoothing argument therefore predicts a reduction in saving and an increased deficit.

Simple intertemporal models which can be used to demonstrate this - whilst also incorporating unemployment - include Cuddington and Vinals (1986a,b) and Barry and Devereux (1992).

It is worthwhile considering in some detail the following hybrid of these models\textsuperscript{14}, because unlike the papers considered up till now they allow for a cost-constrained (classical) rather than a demand-constrained (Keynesian) traded-goods sector. This is embodied in the assumption that the economy operates as a perfect competitor on world markets, able to sell abroad as much as it desires to produce.

With respect to cost constraints we can rule out as uninteresting any assumption of real wage rigidity, because a monetary contraction would not generate a recession under these circumstances\textsuperscript{15}.

Let us assume then a nominal wage rigidity, with or without sticky non-tradeable prices, in a two-period two-sector framework. In the first period (the short run) cost or demand constraints can arise, while the economy can be assumed to be in full equilibrium in the second period. (Since it takes one

17
period for investment goods to be installed, investment will not fluctuate since monetary contractions have only temporary effects; investment can therefore be ignored in the present analysis. Time periods are subscripted 1 and 2. The sectors are tradeables, t, and non-tradeables, n, and the price of tradeables is determined on world markets by goods arbitrage. The relative price of non-tradeables, \( p_n \), is determined on domestic markets, and this sector can be either demand- or cost-constrained in the short run, (the former only if \( p_n \) is sticky).

Very simple demand functions arise if consumers are assumed to have log-linear utility

\[
\begin{align*}
   p_{n1} c_{n1} &= \left[ \alpha (1+\beta)/(2+\beta) \right] w_0 \\
   p_{n2} c_{n2} &= \left[ \alpha (1+i)/(2+\beta) \right] w_0 \\
   p_{t1} c_{t1} &= \left[ (1-\alpha)(1+\beta)/(2+\beta) \right] w_0 \\
   p_{t2} c_{t2} &= \left[ (1-\alpha)(1+i)/(2+\beta) \right] w_0 
\end{align*}
\]

where \( \alpha \) is a parameter in the utility function, \( i \) is the domestic nominal interest rate, \( \beta \) is the (constant) time-preference rate, and \( w_0 \) measures lifetime disposable income:

\[
\begin{align*}
   p_{n1} y_{n1} + p_{t1} y_{t1} + \left[ 1/(1+i) \right] \left[ p_{n2} y_{n2} + p_{t2} y_{t2} \right] &= w_0
\end{align*}
\]

The trade balance in each period can be written in the form:

\[
\begin{align*}
   p_{t1} b_{t1} &= p_{t1} y_{t1} - \left[ (1-\alpha)(1+\beta)/(2+\beta) \right] w_0 \\
   p_{t2} b_{t2} &= p_{t2} y_{t2} - \left[ (1-\alpha)(1+i)/(2+\beta) \right] w_0 
\end{align*}
\]

The intertemporal budget constraint for the economy implies that the discounted value of the trade balances in the two
periods must sum to zero:

\[ P_{t_1}BT_1 + \left[ P_{t_2}/(1+i) \right] BT_2 = 0 \]

This equation allows us write \( W_0 \) in terms of tradeables only:

\[ W_0 = \left[ 1/(1-\alpha) \right] \left[ P_{t_1}Y_{t_1} + \left( 1/(1+i) \right) P_{t_2}Y_{t_2} \right] \]

which implies

\[ P_{t_1}BT_1 = \left[ 1/(2+\beta) \right] \left[ P_{t_1}Y_{t_1} - \left( (1+\beta)/(1+i) \right) P_{t_2}Y_{t_2} \right] \]

The final step is to substitute in the interest-parity condition

\[ P_{t_1}(1+i) = P_{t_2}(1+i') \]

where \( i' \) is the fixed foreign interest rate. This yields:

\[ P_{t_1}BT_1 = \left[ 1/(2+\beta) \right] P_{t_1} \left( Y_{t_1} - \left( (1+\beta)/(1+i') \right) Y_{t_2} \right) \]

A monetary contraction causes an immediate currency appreciation and associated reduction in the price of tradeables. With wages fixed in the short term this raises the real product wage in the tradeable sector and tradeable production declines\(^\text{16}\). The second-period real equilibrium is unaffected. Equation (3.6) therefore shows that a monetary contraction even in the absence of external demand constraints reduces output of tradeables more than it reduces demand.

This same temporary fall in output would occur in a New Classical "misperceptions model" if the monetary shock were unanticipated, so neo-Keynesian and New Classical intertemporal models, we can conclude, both predict a worsening of the current account under monetary contraction.

To summarise the results of this section then: monetary
contraction in all of the theoretical models surveyed is likely to lead to a short-run deterioration in the current account and a worsening of the economy’s foreign debt, in contrast to the views stated on several occasions by senior government ministers and the Reserve Bank.

4. The Timing of Current-Account Liberalisation

The general conclusion from the literature on the sequencing of monetary contraction and capital-market liberalisation policies is that inflation reduction should take place first. We have seen above that this argument stems from the likelihood that monetary contraction leads to greater real exchange rate appreciation and foreign-debt accumulation under liberalised capital markets than under capital-flow restrictions. A further problem arises if the contraction occurs before trade liberalisation has made much headway, since the distribution of the monetary-induced capital inflow across productive sectors takes place at distorted prices\(^{17}\), as Krueger (1986) emphasises\(^{18}\).

Let us now consider the sequencing of monetary contraction and trade liberalisation. A "competition of instruments" arises here; contraction leads to real exchange rate appreciation while trade liberalisation is facilitated by real depreciation\(^{19}\). A concurrent monetary contraction and trade liberalisation hits the non-tradeable and import-competing
sectors with two simultaneous shocks, deepening the recession (and lengthening it, if hysteresis effects are important) and reducing the credibility of further trade reforms announced\textsuperscript{20}. This lack of credibility in turn inhibits the factor reallocation that trade liberalisation is designed to stimulate, and may indeed lead to increased borrowing abroad; Calvo (1987). The general conclusion from the Latin American Southern Cone experiments of the early 1980s is that the massive capital flows induced by macro stabilisation policies undermined the trade reforms\textsuperscript{21}. Most observers, as reported in the survey on sequencing issues by Edwards (1989) have drawn the conclusion from this experience and the theoretical and empirical work that it stimulated, that monetary stabilisation should precede trade liberalisation.

Adding our two conclusions on sequencing together we see that the argument implies that stabilisation should precede both capital-market and trade liberalisation.

The literature concludes also that trade reform should precede capital-market liberalisation, an issue to which we now turn our attention. We must first ask, though, why sequencing is important: if all distortions and market frictions could be removed simultaneously then simultaneous liberalisation (and stabilisation) would be optimal. It is of more practical relevance, however, to assume that some frictions - such as price stickiness or labour-market rigidities - cannot be removed within the time horizon under discussion. The
analytical problem is then of the "second-best" type. This means that the removal of an existing distortion may reduce rather than increase welfare, so the important question concerns the order in which distortions should be removed to prevent welfare losses. Sharp reductions in welfare are not only undesirable in and of themselves; they also strengthen those pressure groups attempting to block change. "Gradualism" emerges as desirable therefore, as in the models of Edwards and Van Wijnbergen (1987) and Rodrik (1987). Since successive reforms generate fewer and fewer indirect welfare effects (whether inter- or intra-temporal) as more and more markets are freed, this, furthermore, "provides an argument for placing up front in the reform sequence the liberalisation of those markets with substantial positive indirect effects" [Edwards (1989)].

Consider the indirect effects associated with a "capital-account first" strategy (on the assumption throughout, relevant to the Australian case, that capital-market liberalisation entails a capital inflow). The capital inflow is allocated across sectors at distorted prices, thereby magnifying the effects of the price distortion. Edwards and Van Wijnbergen (1986) demonstrate that a transfer in the form of a capital inflow will be welfare-reducing in a distorted economy if the increased domestic production is less than the tariff revenue lost through the expansion of the import-competing sector; (the latter occurs through the Rybczynski effect if imports are capital intensive). Since they assume
full employment, the increase in production is measured by the marginal product of capital, so if the foreign capital receives a rate of return equal to its domestic marginal product the transfer must be welfare reducing. Neary and Ruane (1988) derive a similar result.

The capital inflow however would have a positive employment effect in an underemployed economy. This point has not received sufficient attention in the literature; it implies that the net welfare effect could go in either direction.

There is another negative welfare effect that arises if tariff reforms are delayed until after capital market liberalisation. Delaying trade liberalisation may postpone consumption (since future prices are lower than current prices), thus reducing demand, output and employment if the economy is Keynesian; Rodrik (1987).

Does this imply that the reforms should be carried out simultaneously? This would overcome the "allocation of capital-inflow at distorted prices" effect, and the "delayed consumption" effect. The capital inflow would be likely to have a positive employment effect in the Keynesian case, though the one-shot trade liberalisation in this very case could have a dramatic impact on unemployment. For this reason Rodrik concludes that while trade liberalisation should begin no later than the capital account liberalisation, it should not be done all at once (because tariffs can enhance welfare.
when aggregate demand is deficient); trade liberalisation should be sufficiently gradual in fact that it does not produce an incentive for consumption to be delayed\textsuperscript{22}.

Finally it should be noted that the caveat that trade liberalisation should begin no later than capital account liberalisation translates into a "current-account first" strategy along the lines of Edwards and Van Wijnbergen (1986), when account is taken of an argument by Frenkel (1983). Since goods prices adjust more slowly than asset prices, a synchronisation of the effects of a reform programme would entail the current account being liberalised before free international capital flows are permitted.

5. Conclusions

The general conclusion in the literature on the sequencing of reforms, as we have seen, is that it is most prudent (to use Edwards' term) to stabilise first - i.e. to bring inflation down to the level of one's trading partners - to liberalise trade second, and to keep liberalisation of international capital flows until last.

The Australian sequencing has been the exact opposite. Capital flows were liberalised first, at the same time as the currency was floated. The monetary contractions that followed led to real exchange rate overappreciation and deeper recessions than would have been experienced under restricted capital mobility; it seems likely that this also caused foreign debt to
overshoot.

It has begun to be apparent of late that the harshness of the current recession, due in part to the inappropriate sequencing of reforms, has caused some reversal of thinking on the issue of further trade liberalisation.
Appendix: The Recent Improvement in the Current Account

Table 1 below shows that the current account deficit as a proportion of GDP has fallen substantially in recent years. Can this be taken as proof that the monetary contraction had an effect opposite to that predicted by theory, and more in line with that predicted by government?

Table 1

Let us consider the hypothesis that the demand-effects of the contraction dominated, as suggested by the government.

If this were correct we should observe the deficit falling because of a reduction in imports rather than an increase in exports. The table shows that while imports did fall slightly from their 1989/90 level (which was abnormally high), the main reason for the improvement was nevertheless export growth. In fact, even if imports had remained at their high 1989/90 level the trade balance would still be in surplus from 1991 because of the extensive growth in exports. This suggests that factors stimulating export growth were the prime reason for the improvement in the current account.

It might be responded that the export boom was caused by goods being diverted away from the home market due to the recession. This suggests that the output of the tradeable sector is constrained not by foreign demand (as in the Keynesian models of the main text) but by domestic cost constraints. We have seen however, in Section 3 (vii), that a monetary contraction even in the absence of external demand constraints reduces output of tradeables more than it reduces demand, so that the hypothesis of goods being diverted away from domestic markets onto export markets does not seem justified.

Australian evidence supporting the contention of the present paper that monetary contraction worsens rather than improves the current account has been presented recently by Bewley and White (1990). Figures 5 and 6 below present a graphical representation of the argument, showing that the peaks of the three cycles in the Australian-US interest differential coincide with the turning points of the three cycles in the current account deficit over the 1980s; (movements in the Australian rate alone present a similar picture). Interest rates reached their recent peak in September-October 1989; only when they started to come down did the deficit also begin to fall.

Figures 5 and 6

On top of this, there has been a continuing improvement in export performance exogenous to the issue of monetary policy.
this is presumably ascribable to the microeconomic reform programme. (The present paper has of course been questioning its sequencing, not the existence of benefits from reform).

This suggestion of a continuing exogenous improvement in export performance is supported by a glance at the commodity-breakdown of Australian exports over recent years. Since the early 1980s, and continuing through recent times, quite apart from the growth in the export-GDP ratio in manufacturing exports as a share of total exports there are other indications of successful performance. These include growth in processed primary product exports as a proportion of total primary exports, and a similar trend for elaborately-transformed manufactured products as a proportion of manufacturing exports; c.f. Department of Foreign Affairs and Trade (1991). This success has nothing to do with monetary contraction.
References


Engel, C., and R. Flood (1985) "Exchange Rate Dynamics, Sticky Prices and the Current Account", Journal of Money, Credit and Banking, 17,3, 312-327.


Footnotes


2. The advantages and disadvantages of the various forms of intervention are discussed by Dornbusch (1986); see also the literature he cites in footnote 12. Adams and Greenwood (1985) draw an analogy with the tariff-quota equivalence issue in showing that two of the alternative proposals - capital controls and dual exchange rates - are equivalent.

3. The diagram implies that nominal interest rates fall when the monetary contraction takes place. Amendments to exclude this implausible feature are discussed in Buitert and Miller (1982, p.90).

4. The tax prevents the overvaluation at the expense of higher real interest rates. Will Buitert and Miller's result that output falls less under the tax hold in more general models? It will be shown later that these models yield plausible interest-rate outcomes only if the interest-rate effects on aggregate demand are "not too great", so that the output result may be deemed likely. In Liviitan's (1980) model, however, the cumulative output gap must be identical whether the tax is imposed or not. If the economic planner has a positive time preference, however, it will be considered an advantage to have the smaller output gap in the early stages. Minimising the initial gap will be extremely important, furthermore, if labour markets exhibit hysteresis; see e.g. Blanchard and Summers (1987).

5. The fact that expectations are ignored means that the model does not distinguish between nominal and real interest rates. When the impact of monetary policy on interest rates is discussed in this section, they should be interpreted as real interest rates.

6. The basic Mundell-Fleming model ignores the debt-service account so that no distinction is drawn between the trade and current accounts. This point is taken up shortly.

7. When the government budget is balanced the current-account deficit must equal investment minus saving. The Kingston argument implies then that monetary contraction reduces investment more than it does saving. He fails to note that if investment goods are imported currency appreciation reduces their price, which offsets to some extent the impact on investment of high interest rates.

8. This is clear from the following passage: "there is a contagion risk of debt default or repudiation...In the event of prospective or actual default by a major Australian offshore borrower there can be little doubt that some other Australian offshore borrowers would face increased interest rates in consequence."
9. Turnovsky and Kingston (1977) analyse a dynamic version of the Mundell-Fleming model that focuses on wealth accumulation as well as taking secular foreign inflation into account. They generate perverse effects of monetary contraction – in their case a reduction in the growth rate of money – on the trade balance and the rate of exchange rate depreciation. Turnovsky (1981) however showed that these perverse results stemmed from restricting the exchange rate to evolve over time rather than treating it as a jump variable, as rational expectations models do.

10. Dornbusch (1980, Chpt. 12) incorporates exchange-rate expectations into the imperfect-capital-mobility version of the Mundell-Fleming model.

11. What if a terms-of-trade shock generates a depreciation? For a debtor country this worsens the service account, and if the Marshall-Lerner conditions are violated it also worsens the trade balance, when the accounts are measured in domestic currency. Can a monetary contraction, by preventing the depreciation, prevent this deterioration in the current account? Let us focus on the current account deficit measured in foreign currency, since this is equivalent to a real rather than a nominal magnitude. It is the postulated fall in the demand for Australian exports (or equivalently in the world price of those exports) that worsens this deficit; the depreciation itself, by the assumption that the ML conditions are violated, does not affect foreign currency quantities of imports or exports. A monetary contraction then can prevent the exchange rate change, but not the decline in the foreign currency trade balance.

12. This happens because the slope of the ISPC curve in Figure 3 above is reversed. A rise in income raises inflation through the short-run Phillips curve. For a given nominal rate this reduces the real interest rate. If the interest elasticity of expenditure is large then income raises expenditure more than one-for-one and goods market equilibrium requires that high income be associated with high nominal rates, yielding an upward sloping ISPC curve.

13. One could of course construct models in which a monetary contraction reduces investment temporarily; Risager (1988), for example, can be interpreted in this light. It would seem an unusual way for the government to defend a policy of monetary contraction however!

14. The three papers cited consider only fiscal policy. The notation used in the hybrid presented here follows Cuddington and Vinals (1986a).

15. It is well known that a nominal shock will have no real effects under real wage rigidity; see e.g. Helpman (1977) or Sachs (1980). A contraction appreciates the exchange rate and brings down the prices of tradeables and non-tradeables and
the nominal wage, all in the same proportion, leaving the real economy unaffected.

16. Output and employment in both sectors fall, therefore, since this income effect works alongside the substitution effect stemming from a higher relative price of non-tradeables to cause a contraction in that sector.

17. Thus much of the recent capital inflow into Australia is said to have been invested in the non-traded sector.

18. The same argument would apply if "labour-market liberalisation" replaced "trade liberalisation" in the above sentence. I choose not to focus on labour-market deregulation in this paper because genuine deregulation appears very difficult to effect.

19. Even if the Marshall-Lerner condition is violated, real depreciation is required on the supply side to shift resources from non-tradeable to tradeable sectors and thus orient the economy towards world markets.

20. At the time of writing (mid 1992) the Australian government appears to be backpedalling on its commitment to full trade liberalisation because of the depth of the recession.

21. See Corbo and de Melo (1987) for a detailed analysis of these experiments.

22. For the non-Keynesian economy analysed by Edwards and Van Wijnbergen (1986) gradualism and a "current-account first" strategy is also found to be best, though for different reasons. They show that a gradual trade liberalisation under a distorted capital market leads to welfare gains if the foreign borrowing constraint falls disproportionately on investment, which they argue is usually the case. Maintaining tariffs temporarily at a non-zero level leads to higher private savings (because it delays consumption) thereby expanding investment, which is constrained by a shortage of funds. There is the traditional static welfare loss from tariffs but if the tariff is small enough the positive indirect welfare effect dominates. For the Keynesian case analysed by Rodrik (1987, p.126), the contractionary increase in real interest rates that the deferral of consumption entails can be counteracted by capital-flow restrictions.
FIGURE 1
Note: Carmichael (1990) shows that Australian inflation did not fall below the OECD average in 1984 when account is taken of the distortions to inflation created by the introduction of, and changes to, the national health scheme Medicare and its predecessor, Medibank.

Money Base (Growth in 12 months ended)

Figure 2
FIGURE 3

quarter-on-quarter change in forex and gold held by RBA

FIGURE 4
Quarterly Current Account Balance

FIGURE 5

Aus minus US 90-day bill rate

FIGURE 6
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<td>Mar</td>
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<tr>
<td>and Services ($m.)</td>
<td></td>
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**Table 1:** Components of the Current Account