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Comment on Debt Deflation: Theory and Evidence

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Comment on Debt Deflation: Theory and Evidence

by Allan H. Meltzer
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It is a pleasure to discuss Mervyn King's lucid paper. King is concerned with two important issues: the current or recent prolonged recession in leading market economies, particularly in Europe and Japan, and the comparatively large fall in consumer spending during the recession.

As most of you know, Irving Fisher emphasized the role of rising real debt values in the depression of the thirties. Fisher's hypothesis did not attract much support, particularly during the long postwar inflation. Recently, there has been a change. In the 1980s, Latin American debtors had to reduce spending, often including consumer spending, to service their international debts. In this case, however, the debts were denominated in foreign currencies. When the creditor countries reduced expected inflation and raised real interest rates, the burden on debtors was real; wealth and spending declined in many debtor countries.

King explores the debt-deflation hypothesis to see whether disinflation can have an effect in a closed economy where creditors and debtors decisions are summed to get the aggregate response. One problem with the debt-deflation hypothesis is that it has a twin -- the creditors' gains equal the debtors' losses. Economists do not usually find much that is compelling in stories about large aggregative effects of changes in the wealth or income distribution. To pull the rabbit of an aggregate loss out of a distributional hat requires some kind of hat trick.

King takes the reader in a series of precise steps through one set of logical foundations for the debt-deflation hypothesis in a closed economy. I have a few comments on his model. Then I offer an alternative hypothesis about the effects of assets and debt, discuss the evidence King presents and look at some other evidence.
Issues of Theory

The central proposition that puts the rabbit into the hat is Tobin's assumption that the marginal propensity to consume with respect to wealth is larger for debtors than for creditors. King does not make this assumption, but he does the closest thing. He makes three assumptions that produce the desired result. First, he fixes the shape of the utility functions so that debtors are averse to large changes. Second, he assumes that the distribution of shocks to consumption is skewed, and there is a non-vanishing probability of very large shocks. These assumptions are made very explicit. Together with the assumption that consumption depends on wealth, they imply that in the event of a large negative shock to the debtors' wealth, debtors' and creditors' changes in consumption are unequal. It does not follow that the redistribution of wealth reduces aggregate consumption. There could be few debtors and a large number of creditors. King assumes that the number of debtors and creditors is equal and that each debtor and creditor is a representative agent. This third assumption is sufficient for the desired result.

This strikes me as a long and odd way to the result, so I next ask why King chose this particular hypothesis. The apparent answer lies in his desire to use the real business cycle as the transmission mechanism for debt-deflation. A key assumption of the real business cycle model is that money is always neutral, and King, unlike Irving Fisher, wants to maintain that assumption in the short-run.

Fisher's debt-deflation occurs because the real value of existing debt -- surely a real variable -- changes with a nominal variable -- the price level or the rate of inflation. In standard real business cycle theories, price level changes don't matter for aggregate wealth; the losses to debtors balance the real effects of the gains to creditors. But with an aggregate effect resulting from redistribution, this is no longer so. Particularly for the U.K., debt-deflation and disinflation were consequences of monetary policy. Creditors and debtors did not wake up and decide to revalue debts; they responded to the policy of the Bank of England and the Treasury. These agencies
decided to achieve disinflation by pegging the nominal exchange rate to the DM.\(^1\) Hence King violates a main proposition of real business cycle theory; consumption falls because the change in a nominal variable has a real effect.

Let me offer an alternative hypothesis, based on Brunner and Meltzer (1976), in which debt matters but distribution effects within the private sector do not. Let the central bank decide to disinflate. This lowers money growth, raises nominal interest rates and reduces nominal asset prices. If output prices adjust more slowly than asset prices, the decline in nominal asset prices has a real effect. Let the reduction in nominal asset prices be a permanent change reflecting the growing expectation that future inflation will be lower than previously anticipated. Since capital must eventually sell at its replacement cost, output prices are now expected to rise less than anticipated before the policy change. With some price rigidity, output falls.

If the assets include buildings, building prices reflects the lower anticipated rate of inflation. Rental prices are typically fixed in long-term leases. Hence asset prices decline now and predict that rental prices will decline before the disinflation is complete. Asset prices also fall relative to the price of new production, so construction falls.

In Brunner and Meltzer, equilibrium on the output market occurs when output, \(y\), equals aggregate spending, \(d\),

\[
y = d(i - \pi, P, p, ..., e) + - + \]

where \(i, \pi, P, p\) and \(e\) are respectively the nominal rate of interest, the anticipated rate of inflation, the asset price level, the output price level, and the expected real return to real capital per unit of real capital. The presence of \(e\) distinguishes changes in asset prices that occur because \(e\) changes from other effects on the nominal asset price.

In the recent disinflation, \(P\) declined relative to \(p\) and \(i - \pi\) rose. This depressed output particularly in countries where disinflationary pressure was most severe. The fall in \(P\) also reduced the value of equity in buildings (and other durable assets)

\(^1\)For the U.S. and Japan, a principal shock was the change in the expected rate of inflation following central bank decisions to disinflate. In the principal countries of the European Union, as in the U.K., the principal shock was German disinflation with fixed exchange rates.
relative to the mortgages on these buildings leading to default, renegotiation, and transfers of title.

This hypothesis emphasizes the role of changes in asset prices relative to the prices of new production. There is considerable evidence from many countries and over many time periods that prices of assets traded on open markets move in advance of output prices. For buildings and land, whose prices are more difficult to measure accurately, the evidence is of necessity harder to assess. The recent experience of Japan, however, shows that during the inflation and disinflation from 1986 to 1992, land and building prices in Tokyo and other major cities moved up and down much more than output prices.

The implication of this discussion is that the wealth effect on consumption need not be large, and the distributional effects can be unimportant for aggregates, as they typically are. The relative price effect on spending and output of changes in the relation of asset to output prices requires, however, that output prices are not always equal to the asset's replacement cost. If King would take this step, he could dispense with the following six features of his hypothesis that have little empirical support:

1. a substantial aggregative effect of wealth redistribution;
2. debt deflation as a major cause of the recent recession;
3. the importance assigned to differences in marginal propensities to consume between creditors and debtors;
4. some assets, particularly real property, are not tradeable;
5. limitations on household diversification;
6. denial of the monetary causes of the recent recession.

**Empirical Issues**

Let me turn to some of the evidence on which King relies. Figures 1 and 7 in his paper are similar. Figure 7 replaces the deviation of output from trend with the deviation of consumption from trend.

Figures 1 and 7 depend very much on the position of Germany. Germany is the
Shortfall of consumption growth rate 1989-92

Change in household debt ratio 1984-88

Source: OECD (1992) and King's calculations.
Figure 7: Consumption and debt—the 1990s
Ten major countries

Change in household debt ratio 1984-88

Source: OECD (1992) and own calculations.
only country with a positive deviation of output or consumption from trend in 1989-92. (A positive deviation is recorded as a negative shortfall.) Without Germany there is very little relation, as shown by comparing the original to the revised Figure 7. The revised chart removes Germany, but all other points remain undisturbed. The positive relation is no longer apparent.

Germany means the former West Germany. Western German consumption spending is above trend from 1989 to 1992 principally because of monetary and real factors. The principal real factor is the end of East Germany as a separate state. This alone would not accelerate consumer spending in Western Germany. The monetary factor was critical. The former West German government agreed to a windfall for the former East Germans. The latter spent much of the windfall on goods produced in Western Germany. This is included in West German output along with part of the Eastern Germans' spending and secondary consumer spending by West German residents. The small decline in the household debt ratio played at most a minor role.

Figure 3 of King's paper compares consumption of U.K. homeowners with and without a mortgage. The two groups differ, and the difference of five percentage points for the change in average expenditure is impressive. I believe a relatively large fraction of U.K. mortgages are indexed. Rising interest rates would affect discretionary spending by tightening the budget constraint. King should separate the effect of rising interest rates from the effect of debt.

I don't understand the message in King's Figure 8. As it stands, it suggests that non-housing expenditure increased least where the debt-income ratio was highest. This pattern could occur if the heavier debtors spent proportionally more on housing or borrowed to buy equities or to invest.

King's Figure 8 reminds us that there are major differences between the north and south-east. Inspection suggests that the within group difference for the change in spending in the north is larger than the differences between the north and the south-east. The within group difference is unrelated to the debt position.
Final Remarks

Professor King has done a fine job of making a silk purse out of a sow's ear. Stripped of the metaphor, he has offered an explicit hypothesis about how wealth redistribution can affect aggregate spending in an equilibrium model.

Missing from his story are the Bank of England, the Bundesbank, and their colleagues in other European countries. Following the real shock to Germany in 1989, under the policies of the German government, German expansion and borrowing required an appreciation of the German mark. Under the fixed exchange rate system, all members appreciated against the U.S., Japan and other non-EMS countries. Appreciation was both nominal and real and imposed disinflation on all Germany's partners in the EMS.

In the U.K., the monetary disinflation was severe. Growth of the monetary base fell each year from more than 10% in 1988 to 3% in 1991. For the three quarters of 1992 before devaluation and floating, the monetary base fell by more than 2% at annual rates.\(^2\)

Table 1 suggests how much the appreciation of real exchange rates contributed to the European recession. Real exchange rates are measured as real, purchasing power parities relative to Germany. Output growth is real output at 1985 prices and exchange rates. All data are from the OECD.

(Table 1 here)

Nominal exchange rates remained fixed until September 1992. Prices in the EMS had to fall relative to German prices to adjust real exchange rates within the EMS. Germany chose to disinflate, so all the fixed exchange rate countries had to disinflate relative to Germany to adjust real exchange rates. Since some prices and costs are not fully flexible, output or its growth rate fell during the adjustment.

As expected, column (1) of the table shows that in most countries real (PPP) exchange rates appreciated relative to Germany before the realignments of 1992 and 1993. Most depreciated subsequently. The size of the depreciation is a measure of

\(^2\)Growth rates are the annual average of quarterly rates of change. For 1989 and 1990, the growth rates are 9.4 and 4.6%.
<table>
<thead>
<tr>
<th>Country</th>
<th>Change in PPP relative to Germany in %</th>
<th>Growth of real output (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6/90 to 7/92</td>
<td>6/90 to 11/93</td>
</tr>
<tr>
<td>Austria</td>
<td>-2.0</td>
<td>-5.0</td>
</tr>
<tr>
<td>Belgium</td>
<td>+3.3</td>
<td>-3.3</td>
</tr>
<tr>
<td>Denmark</td>
<td>-2.4</td>
<td>-7.3</td>
</tr>
<tr>
<td>Finland</td>
<td>-11.0</td>
<td>-28.7</td>
</tr>
<tr>
<td>France</td>
<td>+1.1</td>
<td>-4.3</td>
</tr>
<tr>
<td>Italy</td>
<td>+5.8</td>
<td>-16.1</td>
</tr>
<tr>
<td>Netherlands</td>
<td>+9.4</td>
<td>+7.1</td>
</tr>
<tr>
<td>Portugal</td>
<td>+25.4</td>
<td>+10.9</td>
</tr>
<tr>
<td>Spain</td>
<td>+20.0</td>
<td>-4.0</td>
</tr>
<tr>
<td>Sweden</td>
<td>+9.2</td>
<td>-13.3</td>
</tr>
<tr>
<td>U.K.</td>
<td>+2.4</td>
<td>-10.8</td>
</tr>
</tbody>
</table>
the overvaluation of the real (PPP) exchange rates in these countries.

Chart 1 suggests that the larger the real overvaluation, the slower was growth (or the larger the decline) of real output from 1989-92. Note that the exchange rate data extend beyond the period 1989--92 for which growth of real output is shown. Most of the devaluations of nominal and real exchange rates occurred in late 1992 or early 1993. That is why I interpret the chart as showing the effect of overvaluation on output and growth. I recognize that an alternative interpretation is that countries with the highest growth had the largest appreciation and conversely. The timing of the devaluations, and their magnitude, casts doubt on this interpretation. Also, two countries that devalued real and nominal exchange rates most, Sweden and U.K., have now increased growth.

I ran two regressions of the change in the real exchange rate on the growth of real output using the data underlying Chart 1. The first includes 11 countries. The second excludes Finland. The Finnish devaluation and decline in real output reflect in part the loss of markets in the former Soviet Union. The results are shown in Table 2.

<table>
<thead>
<tr>
<th></th>
<th>Slope</th>
<th>Constant</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 countries</td>
<td>0.46</td>
<td>6.38</td>
<td>.69</td>
</tr>
<tr>
<td>(4.52)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 countries</td>
<td>0.30</td>
<td>6.08</td>
<td>.44</td>
</tr>
<tr>
<td>(excl. Finland)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2.51)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The data support the hypothesis that real appreciation depressed output. Omitting Finland rotates the line in Chart 1 and lowers the slope. The principal finding remains.
Chart 1

% Growth of Real Output 1989-1992

% Change in Real Exchange Rate Relative to Germany 6/90 -- 11/93
References