

## Rational Expectations and Crowding-Out

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The notion of virtually perfect competition has gained renaissance by the market clearing assumption of rational expectations in macroeconomic theory. In all the literature on rational expectations, there appears to be one lacuna: the apparently simple task of hypothesizing rational expectations in an IS - LM model has not been cast. No doubt the task is less important than testing the hypothesis against the data, and no doubt the task is complicated by the static setting of IS - LM, but no doubt such an experiment could reveal some positive and negative aspects of both rational expectations and Keynesian orthodoxy.<sup>1</sup> It is our task here to attempt such exposition by translating one of the predictions inherent in the strong assumption of efficient use of sufficient information into IS - LM. That prediction is that monetary policy, properly cast, leads to a change in the composition of output, or crowding-out.

Utilizing the orthodox IS - LM framework, we must reorder the demand for money to conform to rational expectations. One way of doing this is to assume that as interest rates decline, the speculative demand for money declines. While Keynesians interpret a fall in interest to mean a higher probability that further interest declines become less likely so more real balances should be held quiescent, the rational expectations group interpret a fall in interest as monetary policy becoming more expansive, and there becomes an increasing probability that prices of commodities and interest rates will increase. On the basis that a fall in interest is the signal of (inflationary) money growth, agents would roll cash from idle to active balances for spending. They do this in anticipation of both inflation in commodity prices and an increase in the stock of money with which they may replace their depleted stock of speculative balances. Velocity increases. In this case we assume a consensus of informed opinion suddenly exists, and there is no lag distribution among agents to lower interest rates. Speculation shifts to the

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<sup>1</sup> For a survey of the burgeoning literature, see *Begg* [1982, pp. 266 - 284]. Although the equations are described in a modified manner, sundry authors do not depict the conditions in orthodox Keynesian geometry. See *Sargent and Wallace*, [1975, pp. 242 - 244].

positive probability of commodity prices rising rather than of bond prices rising. The slope of the speculative demand for money curve becomes positive, and the LM slope thus becomes negative.

In the purest case, the IS curve would be vertical, reflecting the near maximization of real output in equilibrium. However, as open market operations to buy bonds drive interest rates down, a transitory disequilibrium between IS and LM occurs, and the perverse effect of a fall in interest rates raises real spending and output temporarily by the expansionary gap “ab” in Figure I. This gap is strictly transitory.

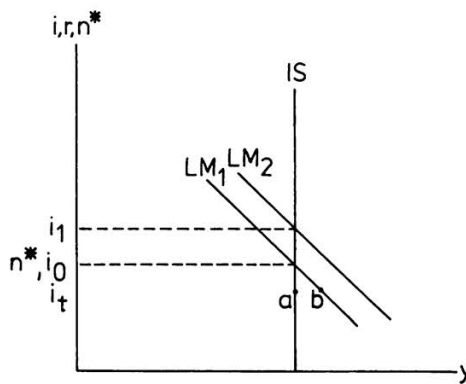


Figure 1

As agents act on the monetary information, they spend idle balances and real output rises, but the increased supply of money from both the increasing stock and a prior rise in velocity will shift the monetary aggregates from  $LM_1$  to  $LM_2$ . As soon as all desired speculative balances have been spent, there is no further movement along the  $LM_1$  curve, and the shift to  $LM_2$  reflects the rise in nominal money stock. Interest rates which fell from an initial  $i_0$  to  $i_t$  as open-market purchases initially raised bond prices, have now risen to  $i_1$  as money growth expectations are realized. In equilibrium, real growth is neutralized, but interest rates are higher, reflecting the decline in real balances via the rise in commodity prices and interest rates. The higher interest rates do not reflect a change either in the real (inflation-adjusted— $r$ ) or the natural (Wicksellian— $n^*$ ) rates of interest, but the decline in demand for real balances is analogous in effect to a change in the saving ratio. Real balances are part or parcel of savings, so the saving ratio declines, the consumption ratio rises and the investment ratio falls. In Fig-

ure 1 nominal interest rates ( $i$ ) are a proxy for prices. The fall in interest from  $i_0$  to  $i_t$  is a *Keynes* effect, and the rise in interest to  $i_1$  is a *Fisher* effect. The gap between the natural rate ( $n^*$ ) and the nominal rate ( $i_1$ ), which is higher, reflects crowding-out.

Rational expectations within IS - LM denies Keynesian orthodoxy of the power to forge a liquidity trap with a floor rate of interest which emasculates monetary policy. Ironically, the rational expectations assumption transmogrifies monetary policy from another vantage, which is that managers of managed money and portfolio holders both agree on the influence of the quantity of money as the sole instrument of monetary policy on output and prices. While the neutrality of money prevails in an aggregate sense, it does not prevail in a distributive sense.

## References

*Begg*, D. K. H., *The Rational Expectations Revolution in Macroeconomics* (Baltimore: Johns Hopkins University Press, 1982). – *Sargent*, T. J., and *Neil Wallace*, “Rational Expectations, the Optimal Monetary Instrument, and The Optimal Money Supply Rule.” *Journal of Political Economy*. 1975 - 83, 241 - 254.

## Zusammenfassung

### Rationale Erwartungen und Crowding-out

Dieser Aufsatz formuliert die Geometrie des IS-LM-Modells neu, indem rationale Erwartungen eingeführt werden. In einem solchen Modell bewirkt Geldpolitik Crowding-out, also eine Verdrängung des privaten Sektors. Damit führen die Annahmen von rationalen Erwartungen, expansiver Geldpolitik und verringerter Nachfrage nach Realkasse zu einer Abnahme der Spar- und der Investitionsquote und einer Zunahme der Konsumquote. Es zeigt sich also, daß es eine Nicht-Neutralität des Geldes in bezug auf die Verteilung und Zusammensetzung der Gesamtnachfrage gibt.

## Summary

### Rational Expectations and Crowding-Out

This paper reorders the IS - LM geometry to include rational expectations. When monetary policy is then applied, the effect is one of crowding-out. Hence, the assumptions of rational expectations, expansionary monetary policy, and reduced demand for real balances leads to reduced saving and investment ratios and an increased consumption ratio. It is thus the case that non-neutrality of money in a distributional or compositional sense exists.

**Résumé****Attentes rationnelles et crowding-out**

L'auteur de cet article inclut des attentes rationnelles dans la géométrie de IS-LM. L'effet d'une politique monétaire est celui d'un crowding-out. Les hypothèses d'attentes rationnelles, de politique monétaire expansionniste et de demande réduite de balances réelles conduisent à une réduction de l'épargne et des taux d'investissement ainsi qu'à une augmentation de la consommation. La monnaie n'est donc pas neutre dans un sens de distribution ou de composition.