Interest and Non-Interest Terms in the Process of Mortgage Market Clearing: A Comment

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I n a recent contribution to this *Review* Browne (1988) considers the pro-
blem of estimating mortgage demand and supply functions in situations
where the speed of interest rate adjustment is insufficient to eliminate excess
demand/supply within a given quarter. Browne's model of the Irish mortgage
market is derived from the work of Ito and Ueda (1981) who distinguish
between excess demand and supply regimes according to the speed and direc-
tion of change in the observed interest rate on mortgages. An additional feature
of Browne's model is his use of non-interest terms to determine the short-run
flow demand for mortgage finance. Specifically, Browne specifies short-run
market demand as a function of the downpayment ratio required by institu-
tional lenders. This ratio is introduced as a shift variable in the flow demand
function with the consequence that short-run excess demand may be totally
or partially eliminated by a combination of changes in interest rates and the
downpayment ratio.

The point of this comment is to question the validity of using a non-price
term such as the downpayment ratio as a shift variable in the short-run market
demand function.[1] Figure 1 gives a simple illustration of Browne's view of
mortgage market adjustment. D_1 and S_1 represent the market flow demand
and supply curves, Q is the quantity of mortgages traded and r is the interest
rate on mortgages. Consider an initial situation where the opening mortgage
rate is r_1 implying an excess demand of AD. Lenders are assumed to react to
this situation by increasing both the mortgage rate and the required down-
payment ratio imposed on new borrowers. The former leads to a movement
along D_1 to F while the latter shifts the demand curve to D_2. Hence an
increase in the downpayment ratio required by lenders reduces market demand

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1. For a more detailed analysis see Nellis and Thom (1986).

at any given interest rate. Note that in the context of the Ito and Ueda speci-
fication, it is not necessary for excess demand to be totally eliminated as the
regime switching variable enables the model to identify demand and supply
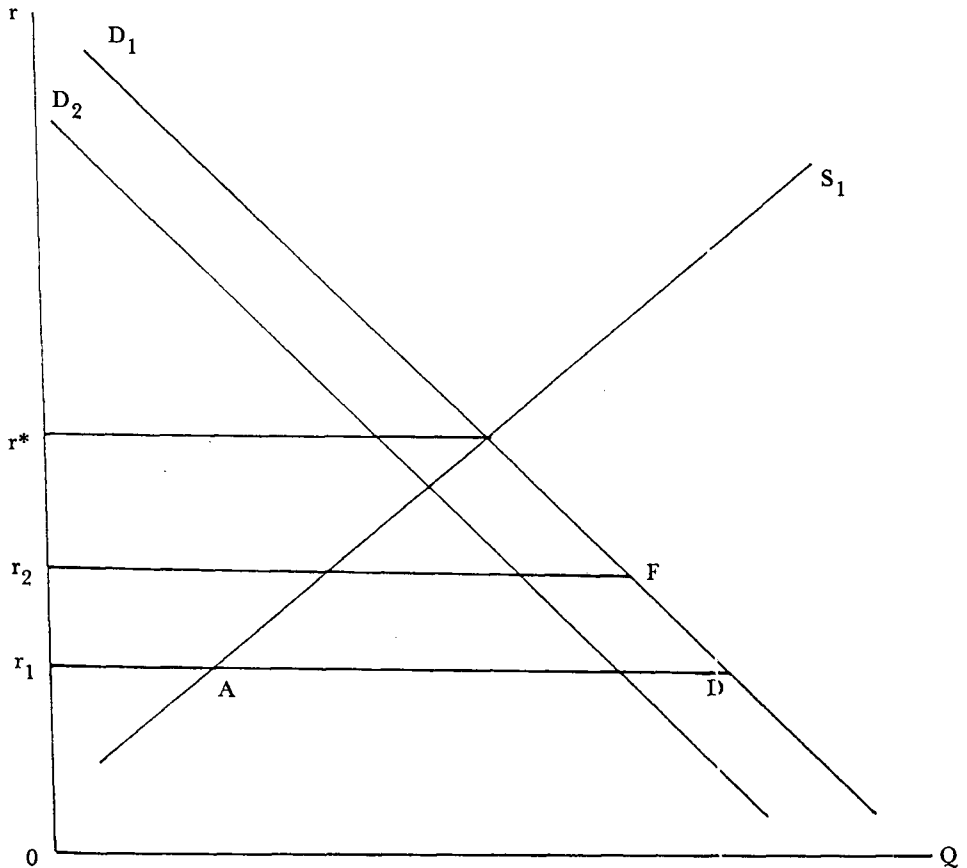functions in non-market clearing situations.

Figure 1.

In Browne's model "the role of DR (the downpayment ratio) is strictly
a short-run one" and "plays no part in long-run market equilibrium" (1988,
p. 87). Referring back to Figure 1 this implies that as the mortgage rate is sub-
sequently adjusted towards its long-run equilibrium level at r^* the downpay-
ment ratio must, at some point during the adjustment, be relaxed to ensure a
rightward shift in the market demand curve. As points D and F fall on the
same demand curve DR must be the same at interest rates r_1 and r^* which
implies that the long-run equilibrium value of this ratio is independent of the
mortgage interest rate. However DR is, by definition, equal to 1 minus the

loan to value ratio (LV) which, for an individual house purchaser, corresponds to real mortgage demand.[2] Hence Browne's model also implies that the equilibrium levels of LV and market demand, the summation of individual demands, are independent of the mortgage interest rate.

The mistake which Browne makes is to assume that when lenders require higher downpayment ratios some individuals will reduce their demand at the current rate of interest as this is the only way by which the market demand curve can shift. But this is equivalent to saying that borrowers will simply accept whatever loan is offered in which case the concepts of individual and market demand functions are meaningless. An alternative view of the role played by LV (or DR) is given by Nellis and Thom (1986). In periods of excess demand lenders discriminate between mortgage applicants on the basis of their desired loan to value ratios. Applicants with relatively low LV ratios (high DR ratios) have their demands satisfied while those with relatively high LV ratios are placed in a "mortgage queue". Hence successful applicants are on their desired demand curves but the aggregate demand curve does not shift and excess demand remains a feature of the market.

Further, if the mortgage rate rises as a consequence of excess demand then observed LV ratios will fall (DR rises) because individuals will be moving up their demand curves. That is, as the interest rate rises optimising individuals will wish to increase their equity in housing and reduce their mortgage liability. Hence we would reasonably expect the average DR to rise during periods of excess demand. But a rising DR simply implies a movement along individual demand curves and, by construction, the market demand curve. It does not, however, imply that individual demand curves are shifting which excludes any shift in the market demand curve.

REFERENCES

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2. That is, letting L = loan size and Ph = house price then LV = L/Ph and DR = (Ph − L)/Ph = 1 − LV.