Comment on the Bryant et al Model Simulation Volume

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Macroeconomic ideas ought eventually to reach a form that can be part of a policy model -- that is a form that is relevant to the decisions about managing fiscal and monetary policy that continually need to be made, month-to-month and year-to-year. Macroeconomic ideas ought eventually to be confronted with data, not just casually, but in the context of an interpretation, as complete as possible, of the full available multivariate history of macroeconomic variables. The work of getting ideas into a form relevant to real-time policy analysis and of seriously confronting them with data is difficult and, recently, only marginally rewarding professionally. Increasingly, the work is not being done, or not being done very well.

This volume is therefore a welcome step in what seems to me the right direction. It attempts to assemble, publicize and interpret results from a variety of models that aim to be truly predictive. It should help us understand how the models work and, thereby, understand better what we do and don't know about the way the world works.

But despite the virtues of the broad objectives of the project summarized in the volume, the specifics of its implementation seem to me badly flawed in several ways. Most of the reservations I had about the previous project summarized in *Empirical Macroeconomics for Interdependent Economies* are unresolved in this one, or even exacerbated. My objections fall under three main headings:

i) Puzzlement over how to interpret the project's specifications of policy. The explicit description of policies specifies monetary policy alone, without consideration of the essential interdependence of monetary and fiscal policy.

ii) Dissatisfaction with the ISLM framework underlying most of these models -- not because I think market-clearing equilibrium models should be used instead, but precisely because I think sticky-price modeling is important. ISLM is not a coherent starting point for such modeling.

iii) Dismay at the total lack of attention to inference about the match of models to data. That the proportion of attention given to models that are only casually matched to data has gone up since the previous volume is understandable, given the way the project is structured, and regrettable. Attending to such issues would have been difficult, but ignoring them may have ended up with a project that does more harm than good.

Heading (i) is the subject of my contribution to the previous volume. It has been elaborated in subsequent articles by Eric Leeper [1991] and me [1992]. Below I try to make it clear how much ambiguity it creates in interpretation of results reported in this volume by remaking the point in a deterministic continuous-time model that may be easier to grasp than the earlier stochastic frameworks. Point (ii) is really an extension of (i), and is pursued below in the context of the same model.

I. The Match to Data

Heading (iii) is perhaps an obvious point, and there is not a great deal to be said about it, short of developing a prospectus for a different project. Some of these models claim to be based on detailed examination of a large amount of data, but the nature of the statistical match between models and data is not discussed here. Others of the models have very slim statistical foundations, being essentially theoretical models with coefficients chosen to be in some sense realistic.

Economists (or other social scientists, for that matter) can damage their credibility by describing the range of conclusions across an array of diverse, ostensibly empirical models that are not assessed for conformity with data. An instructive example of such damage, and of a response to it based on an attempt to assess fit across an array of already existing models, appears in Heckman [199]. He showed that the apparent inability of econometric evaluations of a certain type of policy to deliver even a qualitative conclusion largely disappeared when attention was focused on the best-fitting models.

Macroeconometric model builders in practice already give less attention than they should to questions of statistical fit. Every time their models' conclusions are taken seriously without any examination of the models' statistical credentials, this tendency is reinforced.

II. The Need for Complete, Joint Specification of Policies

A monetary policy that fixes the stock of high-powered money or that raises interest rates in responses to deviations of a nominal target like the money stock, price level, or exchange rate from a target, is not feasible unless backed by a compatible fiscal policy. Compatible fiscal policies constitute a broad class, but they all include a positive response of taxation to either the level of the real value of public debt or the flow of real interest expenditures in the government budget. With neutral taxation (not a realistic assumption, but a useful benchmark), over a wide range of fiscal policies, the nature of equilibrium is unaffected by the particular form of the fiscal policy. On the face of it, this might justify the specification of policy in this volume, where fiscal policy is required not to respond to debt or interest expense for 10 years, but is allowed to respond thereafter.

The problem with this setup is that, if fiscal policy reactions to debt levels are postponed, the size of the eventual fiscal adjustment grows exponentially with the postponement. This makes analysis of policies with postponed fiscal adjustment problematic for two reasons -- credibility problems and fiscal-neutrality problems. A policy that generates an unexpected rise or fall in public debt, but then reacts to that change with a large, long-delayed, fiscal adjustment, cannot realistically be treated as credible. As recent political history in the U.S. makes clear, large, long-postponed fiscal adjustments are politically difficult and disruptive if they involve fiscal stringency. This creates difficulty for interpreting the policy, because the fiscal adjustment is not inevitable. The alternative is to have a large, long-postponed adjustment in monetary policy -- that is, abandonment of the nominal target that generated the need for fiscal adjustment in the first place. As imbalance between a government's fiscal system and its debt burden grows, sensible people will take into account the possibility that the government's monetary commitment may crack before its fiscal commitment does. Thus even if the fiscal policy adjustment does in fact occur after the ten year delay, the effects of the policy in the meantime are likely to have been strongly affected by public uncertainty about whether the monetary policy being followed was sustainable. When the fiscal adjustment required is easing, it is even less realistic to imagine a long delay. That real governments will wait for ten years, allowing successor administrations to introduce large, long-delayed tax breaks or new spending, is unlikely.

Even aside from credibility problems, the fact that delayed fiscal adjustments will have to be large raises problems. The result that the exact nature of fiscal policy does not affect equilibrium depends on assuming taxes are neutral. This is a bad enough assumption when we are considering small changes in taxation rates. Larger changes are likely to be more strongly non-neutral. Thus sensitivity of policy conclusions to the nature of fiscal policy is likely to be stronger the more delayed are the fiscal responses to debt.

It is possible for monetary policy to forgo any attempt to hit a nominal target, e.g. by simply commiting to a nominal interest rate target. Contrary to what might be concluded from many simple macro models, this does not generally leave the price level indeterminate -- it simply shifts its determination from monetary to fiscal policy. If fiscal policy makes real taxation respond positively to real debt, it leaves the price level indeterminate. Then and only then can monetary policy succeed in setting the price level. But if fiscal policy does not make real taxation respond to the level of real debt, the price level must adjust to keep revenue yields in line with the real debt burden. In this case fiscal policy provides the "nominal anchor" and monetary policy is not needed -- indeed cannot be used -- to set the price level.

In this latter type of policy regime, where the price level takes on the role of adjusting real debt to the flow of real revenues, the effects of monetary policy actions depend very strongly on the nature of fiscal policy. Specifying such a regime with the requirement that tax rates and expenditures be fixed forever would be consistent. Allowing arbitrary adjustments in fiscal policies after 10 years leaves the effects of any given monetary policy ambiguous.

These points have been made with formal models before in the papers cited above by Leeper and myself. Those papers use stochastic, market-clearing, representative agent rational expectations models. The stochastic difference-equation models may appear inelegant and technically demanding. The assumptions of market-clearing and rational expectations in all markets are inessential to the main results. So here we reproduce them in a model with sticky prices and sticky wages -- Barro-Grossman wage and price dynamics in the terminology of Chapter 2 -- a simple Phillips curve without expectational effects, and cost-based price adjustment. Also, the model is non-stochastic and has continuous time, making the solutions particularly simple in form and easy to understand.

III. A Model

We consider an economy in which a representative consumer faces the constraint

$$C_t + \frac{\dot{M}_t+\dot{B}_t}{P_t} = r_t \frac{B_t}{P_t} + (1-\tau) \frac{\frac{W_t L_t}{P_t} + \pi_t}{1+\gamma V_t} . \tag{1}$$

The representative firm faces the constraint

$$\pi_t = \Theta L_t^{\alpha} - \frac{W_t L_t}{P_t} . \tag{2}$$

The government faces the constraint

$$\frac{\xi Y_t}{1+\gamma V_t} + r_t \frac{B_t}{P_t} = \frac{\tau Y_t}{1+\gamma V_t} + \frac{\dot{M}_t+\dot{B}_t}{P_t} . \tag{3}$$

Here C is consumption, M is money stock, B is government interest-bearing debt, P is the price level, r is the interest rate, τ is the tax rate, W is the wage, L is the level of employment, π is profits, γ is a transactions costs parameter,

$$V_t = \frac{P_t Y_t (1-\tau)}{M_t} \tag{4}$$

is velocity,

$$Y_t = \theta L_t^{\alpha} \qquad (5)$$

is output, and ξY_t is government purchases, including their transactions cost component, assumed proportional to output.

In (1)-(5) we are assuming that transactions costs are incurred for real expenditures, but not for asset purchases or interest payments. Different assumptions here might be more realistic, but would leave us with a model with similar behavior and less clean mathematical structure. We also are assuming that taxes fall on labor income and profits, but not on interest income. As the model stands, taxes are almost neutral[1], because desired labor supply is wage-inelastic and short-run employment is not a choice variable. An income tax on interest earnings is in effect a change in the nominal interest rate on government debt. While the effect of taxes on equilibrium nominal interest rates, thereby on velocity, and thereby on real resource availability, probably exists in reality, the effect is small and complicated. A more ambitious version of the model would include realistic tax non-neutralities, among which this interest-tax effect is probably not of leading importance.

The economy specified here has no capital, even in the form of inventories, and it has no foreign sector. These are important omissions and would probably affect conclusions if added to the model. But the objective here is not to duplicate Chapter 2, only to show that the conclusions from Chapter 2 or any other model about the effects of policy regimes rest heavily on careful joint specification of monetary and fiscal policy regimes.

We could at this point proceed in the standard direction, giving firms and consumers dynamic utility functions, letting them optimize taking prices as given, and assuming prices adjust to clear markets. Instead, we begin by looking at a more interesting and probably more realistic model in which asset markets clear continuously, but labor and product markets do not. More concretely, we assume that wage and price dynamics are generated by workers adjusting wages in a direction that reflects their

[1]As we will see below, the tax rate has a small effect on equilibrium velocity because transactions costs are assumed proportional to after-tax income.

preference for L=1, while producers adjust prices in a direction that reflects their desire to have the real wage match the marginal product of labor. That is, we assume

$$\dot{w} = \nu l \tag{6}$$

$$\dot{p} = \mu \left(w - p - (\alpha-1)l - \log(\alpha) - \theta \right) . \tag{7}$$

Lower-case letters indicate natural logs (including $\theta=\log(\Theta)$). Correspondingly, we assume that neither firms nor workers treat L as a choice variable.

Equation (6) is an old-fashioned Phillips curve, with no expectational terms, and (7) can be thought of as reflecting cost-based pricing behavior. Assuming (6) and (7) held true in an equilibrium with steady inflation would not make sense, as they would imply that firms and consumers could not measure and discount the steady inflation. But assuming that (6) and (7) hold across equilibria with varying, but non-explosive, inflation is a reasonable hypothesis to explore, despite its implication of "irrationality". In a non-explosive equilibrium, the costs to agents of this irrationality may be small, comparable to the information-processing costs of implementing more subtle behavioral rules.

Though consumers assume they have no control over L, they do see in (1) an opportunity to shift consumption across time by buying and selling assets. Equations (1) and (3) together imply that for the economy as a whole there is no such opportunity, but individual consumers still behave as if there is a choice. They maximize

$$\int_0^\infty e^{-\beta t} \log(C_t) \, dt \tag{8}$$

subject to (1) (and (4) and (5)), taking C, B and M as choice variables.

Firms have no choice variables at all, once constraints are taken into account, though of course the aggregate price behavior specified in (7) is motivated by the notion that firms move prices in a direction that will tend to raise profits.

First-order conditions for the consumer’s optimization problem are

$$\dot{p} + \dot{c} = r - \beta \tag{9}$$

$$r = \frac{\gamma V^2}{(1+\gamma V)^2} \quad . \tag{10}$$

In (9) and (10) we begin a convention that all non-greek letters implicitly carry t-subscripts.

We have already specified fiscal policy, in making taxes and government purchases proportional to Y. To complete the model, we need to specify monetary policy. We consider three possibilities, as close as we can come to matching the policies considered in Chapter 2:

$$m = 1 \tag{11a}$$

$$p_t + y_t = p_0 + y_0, \text{ all } t \tag{11b}$$

$$r = \beta \ . \tag{11c}$$

We could also consider the policy that keeps $\dot{p}+y$ (rather than p+y as in (11b)) constant, as in chapter 2, but the algebra is messy without contributing to the point of these comments. Constant-r policies with r fixed at values other than β also would yield well-behaved solutions, but they would involve steady-state inflation. This makes them harder to compare to (11a) and (11b) and also would require modification of the wage and price dyanmics in (6) and (7) to keep the model reasonable.

From (1) and (3) we can derive the social resource constraint

$$C = \frac{1-\xi}{1+\gamma V} Y \tag{12}$$

and then, using (4),

$$PC = \frac{1-\xi}{1-\tau}\frac{VM}{1+\gamma V} \quad . \tag{13}$$

Now (9) and (10) can be combined with (13) to give us

$$\frac{d}{dt}\log\left(\frac{V}{1+\gamma V}\right) - \dot{m} = \frac{\gamma V^2}{(1+\gamma V)^2} - \beta \quad . \tag{14}$$

Under the policy (11a), m≡1, the $\dot{m}$ term in (14) vanishes and it becomes an unstable difference equation in $V/(1+\gamma V)$. Since $V/(1+\gamma V)$ is bounded for positive V, exponential upward explosion in it is impossible. Exponential downward explosion would violate consumers' transversality conditions -- they would be maintaining bounded consumption while becoming unboundedly wealthy. (See my paper [1992] for a more detailed argument.) Thus with M fixed (14) implies that V is also constant. Constancy of V implies, with (14) and (10), that r is constant also, and $r=\beta$.

With policy (11b), from the definition of V in (4) $\dot{m}=-\dot{v}$. This leaves (14) still an unstable difference equation in V and thus again implies that V is constant and $r\equiv\beta$.

With policy (11c), constancy of V follows immediately from (10), and then constancy of M follows from (14).

It may seem that we have now demonstrated that all the policies considered are equivalent. But while it is true that, from given initial conditions for its roman-character variables, the economy evolves the same way under all three policies, the response of the economy's initial values to a one-time, unanticipated change in τ, ξ, θ, or γ is different under the different policy specifications. Also, as we will see below, policies that switch back and forth between those in (11a-c) generate more complicated behavior.

Responses of a deterministic model to one-time, unanticipated disturbances are not as irrelevant to actual behavior of a stochastic world as it might seem. For a linear-quadratic model, the dynamics of a stochastic system in which disturbances recur continually can be thought of as simply a linear combination of responses to one-time shocks, with the shape of the responses unaffected by whether the model is stochastic or not. In a nonlinear model, the same interpretation holds approximately, for relatively small disturbances. Thus the fact that the shocks we examine below are formally one-time deterministic disturbances does not impede their interpretation as approximately responses to small, recurring but unpredictable shocks.

Because with these policies V and M are constant, it is useful to note that

$$l = \frac{v + m - p - \log(1-\tau) - \theta}{\alpha} \quad . \tag{15}$$

With p and l inversely linearly related in this way, we can reduce (6) and (7) to a two-equation system in the two variables p and w. This system contains all the model's dynamics, with other variables determined as functions of p and w. If we assume $\mu=\nu=.3$, $\alpha=.7$, $\gamma=.002$, $\beta=.05$, $\xi=.3$, and $\tau=.35$, the system has complex roots with period 6.75 years and an exponential decay rate of .21. The system's impulse responses are displayed in Charts 1 and 2.

Now we consider the effects on the system of disturbances to parameter values. We begin with ξ, the fraction of output absorbed by government expenditure. Under policies (11b) or (11a) V and M are both fixed, and the sticky-price assumption means that initial P is fixed in the face of the ξ increase. Thus by (4) Y is initially unchanged, and therefore L is also initially unchanged. C simply adjusts immediately to its new, constant equilibrium level.

Note, however, that these conclusions are reached without any attention to the government budget constraint. If the economy was in equilibrium to start with, with the surplus of taxes over expenditures matching interest payments, the rise in ξ generates a deficit, and from (3) it can be seen that in the new equilibrium real debt will explode, tending growth at the exponential rate $r=\beta$. This path is not sustainable. If the initial increase in ξ was from .3 to .31 and other parameters are maintained at the values specified above for 10 years, the debt grows by the factor $(.01e^{.5}+.04)/.5 = 1.13$. The surplus of taxes over purchases, which was (.35–.3)Y, has to grow by the same factor. The government expenditures will have to be reduced by more than the initial increase, ending up at .2935. Thus the eventual permanent reduction in expenditure is 65% of the increase that was sustained over the 10 years. A tax adjustment would have to be of similar magnitude.

The response we have calculated to the initial expenditure increase rests on the assumption that consumers know that the unsustainable path of government debt will be cut short by fiscal policy. It could also be cut short by a period of monetary expansion and inflation. If consumers believed that to be even possible, the conclusion that V, r, P and Y are constant during the 10 years of high ξ would no longer hold, so that the effects of the fiscal expansion would be quite different.

Indeed suppose that M is kept constant for 10 years, but then in the 10th year there is a switch to the $r\equiv.05$ policy, which is thereafter sustained forever with no fiscal adjustment. Then the paths of C and P are as displayed in Chart 3. For the first 10 years C remains 5-10% above its initial level, there is steady inflation of over 2% per year, and velocity, and thus nominal interest rates, rise above their steady-state values. Consumption finally falls back to its equilibrium only after the constant-r policy is implemented, falling steadily for over 5 years thereafter.

We conclude that increased government spending, which has no effect on interest rates or employment under a constant-M policy backed by a credible pledge to eventually restore fiscal balance, instead generates a strong inflationary expansion when it is expected that the commitment to fixed M will be abandoned in 10 years.

Under the constant-interest-rate policy (11c), an increase in ξ generates an immediate response in M. The government budget constraint (3) implies that, since M, r and V are constant along the new equilibrium path, B is constant also at the value

$$B' = \frac{M'V(\tau-\xi')}{\beta(1+\gamma V)} \ . \tag{16}$$

Here "$'$" indicates the value of a variable after the change in ξ. But at the instant of the change in ξ, consumers can only exchange M for B, they cannot change the total volume of their asset holdings. (This can occur only over time as a flow of savings goes into increased asset holdings.) Thus

$$B' + M' = B + M = A \ . \qquad (17)$$

Equations (16) and (17) can be solved for B' and M' as functions of A. If we assume that the economy was initially in equiibrium with M=1, then with our assumed parameter values it had B=5 initially. The increase in ξ from .3 to .31 without any corresponding change in τ requires a drop to B'=4.8, with a corresponding rise to M'=1.2. Since these changes occur with V fixed and P initially "stuck", Y initially rises in proportion to the increase in M. This sets off inflation in w and p. Output returns to its initial level after about one year, then falls further to a trough about two years after the intial disturbance. Output then returns montonically over the next two years to approximately its equilibrium level and remains nearly constant thereafter. Note that this response, while initially stronger than what we found for fixed-M-for-10-years-only, is considerably less persistent.

This calculated response is as dependent as the one for the fixed-M case on assumptions about what consumers believe about future fiscal policy. The difference is that here they are required to believe that the current policy of no fiscal response to the size of the debt or deficit will persist forever, instead of being required to believe in a drastic change in policy, of a politically difficult type, far in the future.

Note that in this model the rough order of magnitude of the effect of a fiscal expansion on "demand" is found not by a standard Keynesian multiplier calculation, but instead by observing the size of the proportional change in the net government surplus -- revenues minus non-interest expenditures. The change from government being 30% of output to its being 31% of output decreased the net surplus from .05 to .04, producing a 20% instantaneous increase in output. Of course in reality the effects are not this large, because it is not believed that government pays no attention to debt or deficits in setting fiscal policies. But the strong contrasts among the three policies -- fixed-M backed by future fiscal stringency, fixed-M for 10 years only, and fixed-r -- show how sensitive both the level of output and the fiscal "multiplier" can be to beliefs about fiscal and monetary policy commitments.

Indeed the effects of a government expenditure increase are more similar across similar long-run fiscal policies than across similar 10-year monetary policies.

The contrast here between fixed-r and fixed-M-backed-by-fiscal-stringency policies does fit the standard conclusions, as reproduced in Chapter 2: a fixed-M policy makes the effect of fiscal expansion or contraction on output negligible (here, precisely zero), while a fixed-r policy makes the effects very strong. But we see that the standard conclusion rests on implicit assumptions about future fiscal policy.

Now consider the effects of a money-demand shock, here modeled as a rise in γ. Since r will have to remain at β=.05 after the change in γ, V will have to decline. With M fixed and P stuck, this requires an initial drop in Y proportional to the intial drop in V. A 5% increase in γ, from .002 to .0021, would produce a 2.4% drop in Y, followed by deflation and a return of Y to equilibrium on a path the same shape (though upside down) as that produced by a government expenditure expansion. If instead of keeping M fixed, the (11b) policy of keeping nominal output constant is followed, The adjustment occurs instantly and entirely in M, with Y constant. There is no subsequent output or price fluctuation.

The fixed-M policy, because it produces a temporary drop in nominal income, causes a drop in tax revenue and an increase in government debt. As before, this will require that "10 years later" taxes be raised or expenditures be cut to finance the larger debt. The fixed-PY policy, because it jumps M upward to a new equilibrium level, jumps B downward by the same amount. Since government revenues and expenditures are unaffected, debt will start shrinking. The conclusions we reached about the effects of policy depend on fiscal authorities eventually undoing the debt decline with tax cuts or expenditure increases. If instead consumers thought the debt might be adjusted with tight money and high interest rates, the effects of the policy and the shock would be quite different. Note that in effect the fixed-M policy generates expected future fiscal stringency, corresponding to the contractionary effect on output, while the fixed-PY policy generates expected future fiscal easing, corrres-ponding to its elimination of the negative effect on output of the increased demand for money.

With r fixed, an increase in γ from .002 to .0021 produces a 2.05% increase in M, while V decreases by 2.4% as with the other policies. Thus there is a slight initial decrease in output, about .35%, that dissipates through subsequent deflation. The fixed-r policy does not completely isolate the economy from the effects of the money demand shift, because the required change in M implies a future excess of revenues over expenses and debt service at the equilibrium level of output, which is contractionary.

The standard sort of supply shock is a change in Θ, which simultaneously increases the level of output and the marginal product of labor. With M fixed, since V is constant, an increase in Θ must decrease L in order to keep Y constant. Since it simultaneously lowers marginal costs, both prices and wages start to move downward in response to the favorable productivity shock. The dynamics of the response is not quite the same as for a ξ shock, since the equilibrium p is lowered by more than the equilibrium w, but it again results in a rapidly damped oscillatory return to equilibrium in about four years. A fixed-PY policy produces the same result, as does the fixed-r policy.

It may be surprising by this point that the policies are all equivalent for a supply shock. With the other two shocks, γ and ξ, there is under a fixed-r policy a direct impact on the long-run budget constraint, requiring an adjustment in the allocation of the public's portfolio between M and B. The same is true for a PY-constant policy under a γ shock. With a supply shock, the allocation of private sector wealth between M and B does not shift under any of the three policies.

The model we have been discussing here can easily be converted into a market-clearing version. One simply drops the price and wage adjustment equations (6) and (7) and replaces them with $L\equiv1$ (inelastic labor supply) and a $W/P=\Theta\alpha L^{\alpha-1}$ (real wage equals marginal product of labor). Obviously in this case L is not affected by any shock. Y is affected only by the Θ shock. C is affected by the Θ and ξ shocks. But in all these cases the effects of shocks on these real variables are the same under all three policies (11a-c). With market clearing, the differences in monetary and fiscal policy affect only wage and price responses to shocks.

IV. The Limits of ISLM

The model presented here has a standard "LM" curve, derived in the standard way. It is equation (10). There is, however, no standard "IS" curve. Equation (9) relates the real interest rate to the rate of growth of consumption, not to "aggregate demand". Furthermore, as we have verified at some length, the actual connection of what might be thought of as demand disturbances to output and interest rates depends strongly on mathematical boundary conditions determined by beliefs about future monetary and fiscal policy.

This ought to be a central characteristic of Keynesian macro-modeling. In market-clearing macro models, the payoff from getting the dynamic interaction of monetary and fiscal policy right is only in better modeling of prices. The real equilibrium is insensitive to these issues. But in Keynesian modeling, price effects become real effects, and indeed are central to modeling the business cycle.

Yet when we look at most models that attempt to incorporate the insights of rational expectations theory into a Keynesian viewpoint, we see, paradoxically, detailed treatment of the expectational elements of wage and price adjustment -- the analogues of (6) and (7). The analogue of (9) and its interaction with boundary conditions is stuffed into "IS": $I(r,Y)=Y-G-C(r,Y)$. This seems to me to have it backwards. Asset markets, particularly markets for paper assets, are thick and competitive and filled with speculators. Surely here taking careful account of expectations and assuming market-clearing makes sense as a first approximation. Labor and most product markets, however, are poorly approximated as continuously clearing competitive markets in homogeneous commodities. Treating price adjustment as sluggish and examining direct quantity responses to non-market-clearing allocations is an attractive first approximation here.

To the extent that the models examined in this volume are based on the ISLM framework, they cannot, in my view, give a useful assessment of the effects of large and truly permanent differences in monetary and fiscal policy rules. They will contain some version of an estimated IS curve relating real interest rates to "demand". Such a relation will not be stable under shifts in fiscal and monetary policy rules.

This is not to say that these models cannot give useful insights into the effects of variations in fiscal and monetary policy. Because they have no facilities for considering changing expectations about distant future policies in asset valuation, they should not be asked to deal with such issues directly. They can be asked to project the effects of modest differences, sustained over modestly long periods, in settings of monetary and fiscal policy variables, with agents assuming that monetary and fiscal policy reaction functions will return to normal thereafter. Probably, despite the organizers' request for assessment of an unusual, unsustainable combination of monetary and fiscal policies to be maintained over 10 years, many of the models have relied on estimated aggregate demand relationships that reflect agents' continued belief in "normal" long-run policy. The results may therefore have some use as qualitative guides to the effects of less sustained policy changes in the direction of those specified by the organizers, if not to the specified changes themselves.

REFERENCES

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