OTHER THINGS EQUAL

Alan Greenspan Doesn't Influence Interest Rates

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A little person in a large market can't move the price very much. You know the reason. If Farmer Brown is one of a million growers of corn then even if she, say, doubled the amount of corn she grew, or cut it in half, nothing much would happen to the market price. As we economists say, the elasticity of the demand curve facing Brown is "infinite' (all right: very high). A big change in her personal quantity supplied pushes around the going market price not at all (all right: very little).

I first got clear the notion that a supplier "faces" a personal demand curve, and that the elasticity of that demand curve just *is* his market power, as a junior in college, taking micro from an aged and terminally ill Edward Chamberlain, he of *The Theory of Monopolisic Competition*. But I didn't get it utterly, mathematically clear until I read the footnotes in the 3rd edition of George Stigler's *The Theory of Price*, while teaching the stuff to grad students at Chicago ten years later. I was that way in economics: a slow learner, not a natural. (I am proud to be one of Chamberlain's last students, if a slow one; it's always bothered me, though, that the final, utter clarity came from Stigler, a man whose scientific method and grasp of economic thought, not to speak of his humanity, were so defective.)

As an economist you know the Chamberlainian and Stiglerian reasoning. (It would please neither of them to be linked this way: in those days Harvard monopolistic competition was arrayed against Chicago School competition, "realism" against "perfect competition"; perfection won.) You want to know the elasticity of demand facing Farmer Brown; or, to invert the number, how much the price she faces will fall for each percentage point she raises her quantity supplied. We all agree as economists that all she can do is fiddle with her quantities. Like OPEC with the price of crude oil, she can "set" or "announce" the price of corn all she wants—until the cows come home, you might say. But she can't actually make the market's price of corn do her bidding unless she can substantially raise or lower the amount of corn going to consumers. Price announcements do not make for market power. Control over quantities does. (That's another thing I learned from Stigler, darnit, from his theory of oligopoly.) OPEC meets in Vienna to "announce" the price of crude. But we and the journalists have finally learned that the announcement is a non-event. What matters

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is what in subsequent months Saudi Arabia or Iraq or whoever actually do about the quantities supplies, pumping more or less into the market.

The accounting is merely that the quantity demanded for corn facing Farmer Brown is a residual from the whole market's demand and the other suppliers' supply: $q = D - S$. By higher math (a sort I learned from the economic historian Bob Fogel) the percentage change in Brown's personal quantity-demanded has to be merely:

$$q^* = [D / (D - S)]\, D^* - [S / (D - S)]\, S^*.$$

Dividing through by the percentage change in price makes it into the Master Equation of elasticities (the minus sign changes to a plus, you know, because elasticity of demand is defined positive):

The elasticity of demand facing Brown =
The inverse of Brown's share in demand
multiplied by the market elasticity of demand
plus
the inverse of Brown's share in supply
multiplied by the other suppliers' elasticity of supply.

You can find a ton of problems using this equation in *The Applied Theory of Price*, where I summarized for myself what I had learned from Chamberlain through Stigler to Coase and Fogel and Friedman. If Brown is one in a million then D is about equal to S and the formula is just (1,000,000) x (sum of demand and supply elasticities). That's very elastic. Farmer Brown, we say, has "no" influence over the price he faces.

"For Lord's sake, Deirdre," I hear you exclaiming, "I thought this column was about Alan Greenspan. *What* is the significance of elementary price theory for Greenspan's influence over interest rates?"

Plenty, dear. *If the changes in portfolio over which Greenspan exercises his directive power are small relative to the market supplies of credit, Greenspan can't "announce" an interest rate change and make it stick.*

Don't get confused here by expectations. Greenspan spoke last summer at my 35th college reunion. His first, jokey remark before turning to his subject (which was bourgeois virtue, I'm glad to report) was to say to the Establishment types there gathered, "Turn off your cell phones. I'm not going to say anything about interest rates!" If enough people *believe* in Greenspan's magical powers (I suspect Greenspan is not one of them) then for the short run and over the limits of the gold points, so to speak, his announcements can influence interest rates. Market demands and supplies, after all, depend on expectations, and maybe some denial of price theory can for a while hold back its force. But Greenspan, like King Canute, cannot hold back the tide of global supply and demand for funds, not for long.

What the International Monetary Fund calls "Reserve Money" (what Friedman and Schwartz called High Powered Money) is the tool. Fed buying and selling of secondhand bonds moves it up and down. In the first quarter of 1998 this Reserve

Money was \$499.5 billion. In the first quarter of 1999 it was \$540.3 billion, a rise of \$40 billion. That's what Greenspan and Company did. In Farmer Brown's equation it's the q (excess demand facing her, $D - S$, what the world demands of her). Remember that figure: \$40 billion.

What's the D (or $S = D - q$)? We're looking for a figure for the world's stock of IOUs, which determines the interest rate. It's not good enough to take financial capital in New York, or in the USA, or the West. The interest rate in Riverside, California is obviously not determined by supply and demand for loanable funds *in Riverside* or even in California but in the world, since places to put money at interest are substitutes for each other worldwide. Any sensible theory of interest rates would include all the elements of world supply and demand for loanable funds. But that number is empirically not so easy to know as the size of Greenspan's reach.

But we're economists here: let's get some rough scientific feel for it (Daniel Thornton at the St. Louis Fed has made a more conservative calculation than mine, but with the same logic and the same conclusion). Well, suppose all capital is the result of places to put money at interest. Income is the return to such capital. So the capital stock—and hence the bond stock (I realize I am making a false assumption of their identity here, but we are after orders of magnitude; you tell me what better accounting to use; it won't change the outcome, you agree)—can be reckoned as the capitalization of world income. Suppose to be conservative it can be capitalized at 10 percent. World income in 1992, according to Angus Maddison (p. 19, in 1990 prices), was about \$28,000 billion. Capital was therefore \$280,000 billion.

Compare the two. The market over which Greenspan is said to have control is \$280,000 billions. In a year the Fed moved \$40 billion. Hmm. If the supply and demand elasticities were both about 1.0 the elasticity of demand for Federal funds (as it were) would be $2 \times (280{,}000 / 40) = 14{,}000$. That's no influence. As I said.

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