Economics 314 — Spring 2014
Daily Question #17 — March 13

Milton Friedman is famously quoted as having said that "inflation is always and everywhere a monetary phenomenon," by which he meant that high inflation could never occur without rapid money growth. This question explores this proposition using the quantity theory to examine whether inflation could ever spiral ever-upward in a self-sustaining bubble in the absence of every-increasing monetary growth.

Suppose that an economy is characterized by the quantity theory: $MV = PY$. In terms of growth rates, $\frac{\dot{M}}{M} + \frac{\dot{V}}{V} = \frac{\dot{P}}{P} + \frac{\dot{Y}}{Y}$, or $\mu + \frac{\dot{V}}{V} = \pi + g$, where output growth g and money growth μ are given exogenously. Suppose that V depends positively on the inflation rate π with semi-elasticity β: $\ln V = \alpha + \beta\pi$.

1. Show that, all other things equal, an increase of 1 percentage point in inflation leads to an increase of β percentage points in velocity. (Remember that $d \ln V = \frac{dV}{V}$.)

2. Show that, all other things equal, an increase of 1 percentage point in velocity (due to an increase in α, for example) leads to an increase of 1 percentage point in inflation.

3. The answers to 1 and 2 suggest that there is a feedback cycle between inflation and velocity growth. Is it stable? If $\beta < 1$, then what will be the effect on inflation of a small increase $\Delta\mu$ in money growth? What happens after a small $\Delta\mu$ if $\beta \geq 1$?

4. Philip Cagan, in his famous 1956 paper entitled "The Monetary Dynamics of Hyperinflation," used data from seven hyperinflations in the 1920s and 1940s to estimate β. He finds that the evidence is strongly consistent with $\beta < 1$. What does this mean for Friedman's proposition and the possibility of a self-sustaining bubble in prices?