

THE FRIEDMAN-EICHENGREEN THEORY OF THE GREAT DEPRESSION

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This note is an attempt, for teaching purposes, to clarify my own thoughts about Barry Eichengreen's interpretation of the international spread of the Great Depression. As I interpret it, Eichengreen's story of what happened to the relationship between gold and monetary base at the international level closely resembles Friedman and Schwartz's story about what happened to the relationship between monetary base and broader monetary aggregates at the domestic level. So one can write down an integrated Friedman-Eichengreen theory of the Depression.

One can also ask whether this theory looks right. I've expressed some doubts about the Friedman explanation of the US Depression; by extension, one has to worry about how well the international extension of that explanation works.

So here goes. I imagine a world of two countries, Home and Foreign, each producing a distinct good. Effective demand for each country's good, which determines real output, is a function of its own output (via consumer demand), foreign output, the real exchange rate, and the interest rate:

$$y = A(y, y^*, EP^*/P, i)$$

$$y^* = A^*(y^*, y, EP^*/P, i^*)$$

I assume interest arbitrage:

$$i = i^*$$

In each country there is a demand for money:

$$M/P = L(y, i)$$

$$M^*/P^* = L^*(y^*, i^*)$$

Now, assume prices fixed in the short run (Eichengreen and Sachs, more realistically for the 30s, had upward-sloping AS curves, but it doesn't matter for current purposes).

In each country the money supply is determined via a multiplier by the monetary base:

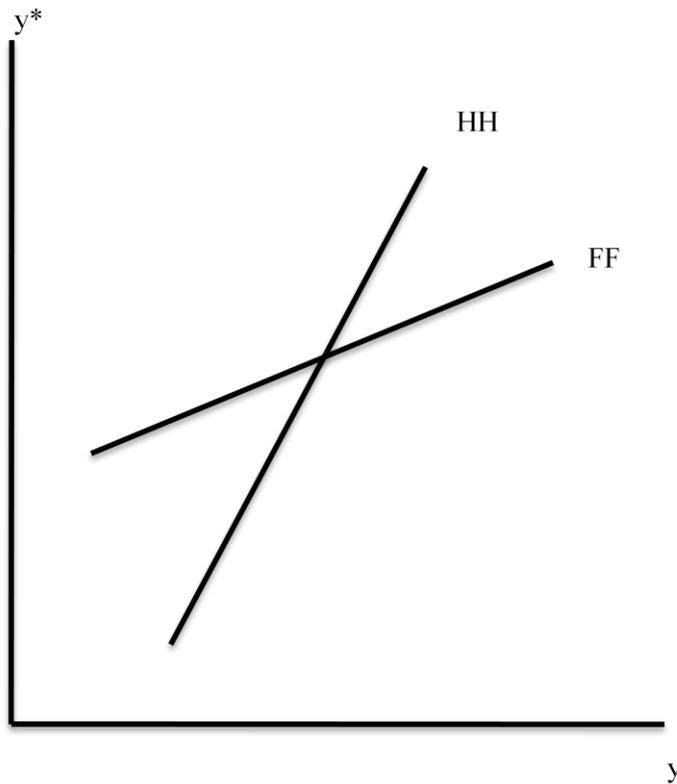
$$M = \mu B, M^* = \mu^* B^*$$

And now for the gold-exchange standard thing: each country pegs its currency to gold at rates R , R^* currency units per ounce, so that $E = R/R^*$. And each country adjusts its monetary base to achieve a gold coverage ratio,

$$G = \gamma R B, G^* = \gamma^* R^* B^*$$

And the total world gold supply, $G + G^*$, is fixed.

How do we work this thing? First, hold the world interest rate constant, and look at the determination of y and y^* : this can be thought of in terms of the old Romney Robinson diagram:

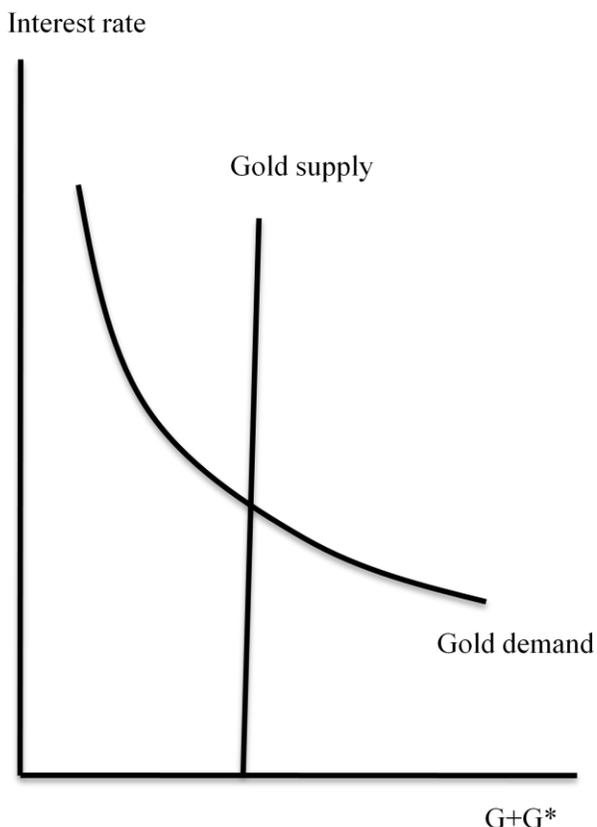


A fall in the interest rate shifts HH to the right and FF up, so it leads to a rise in both countries' output.

A fall in i therefore leads to a rise in the quantity of both countries' money, both because of a lower interest and because of higher income. This in turn means a larger quantity of monetary base and hence indirectly of gold demanded:

$$G + G^* = (\gamma R / \mu) PL(y, i) + (\gamma^* R^* / \mu^*) P^* L^*(y^*, i)$$

Which means that global equilibrium can be represented in terms of the demand for and supply of gold, where the gold demand curve takes the effects of the interest rate on output into account:



OK, now to the Friedman-Eichengreen theory of depression. Friedman famously argued that the key factor causing the Depression was a collapse in the US money supply, which was not due to a sharp fall in the monetary base, but rather to a sharp fall in the money multiplier, as households decided that cash in the mattress was better than money in the bank, and the surviving banks decided that cash in the vault was better than money lent out. The Eichengreen theory of the international spread is that as countries' commitment to the gold standard came into question, the gold coverage ratio rose: central banks, especially the Bank of France, started wanting to hold more gold reserves.

In this model these have basically the same effect. Notice that in the gold demand equation above, things keep showing up in the form $\gamma R/\mu$ -- that is, increases in gold coverage and declines in the money multiplier have the same effect, both raising the demand for gold at any given interest rate. And thus the run on the banks and the run on the gold standard worked together to drive up interest rates, other things equal, and hence to cause global contraction.

What actually happened? Below are discount rates in the US, UK, and Germany from 1927 through 1934 (from the NBER Macro History Database). There really was a spike in interest rates as the gold standard fell apart, small in the US, much bigger in Britain and Germany.

Did this cause the Depression? I think that's a hard case to make for the US, and even for the UK; the blow to Germany was much bigger. And there remains the question of why the world

stayed stuck in Depression even after the rates had come back down. But for sure the “golden fetters” produced important, perverse policy responses.

