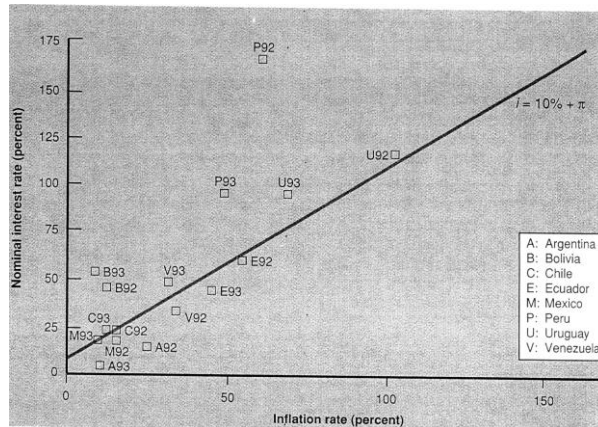


Chapter 4 and 5 Problems

C Level Questions

1. Consider the following observations of nominal interest rates and the inflation rate in Latin America:



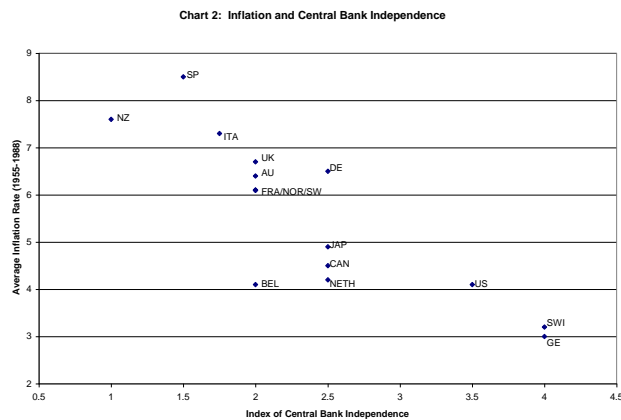
a. Is this data consistent with the Fisher Effect? Why or why not?

The data does appear to support the Fisher effect; a positive correlation exists between the inflation rate and nominal interest rates. As a matter of fact, there appears to be a one-for-one relationship according to the plot of the average line through the data; exactly what the Fisher equation would predict.

b. Consider the line drawn through the above graph. This line is a “best fit” line (linear regression). In short, this line predicts the nominal interest rate given any level of inflation. Does the “Fisher Effect” suggest that the best fit line should go through the origin? Explain.

No, the Fisher equation does not suggest the average line should go through the origin. For instance, if the inflation rate is 0, then one would still expect a positive nominal interest rate exactly equal to the real interest rate. Thus, the intercept should equal the real interest rate.

2. Consider the following relationship between central bank independence from the political system and a country’s average inflation rate:



The index of central bank independence measures how independent a nation’s central bankers are from the political system and politicians in general (0 is least independent and 5 is very

independent). It appears from the above diagram that there is a negative relationship between central bank independence and the average rate of inflation. Explain why this is likely to be true. **Seignorage. A system that allows politicians to control monetary policy will be susceptible to politicians increasing the money supply in order to pay for governmental expenses. The printing of this money will cause inflation.**

Do problems and applications #3, 5, 7 on pp. 109 – 110 of Mankiw.

B Level Questions

3. A large number of researchers have attempted to determine the historical relationship between the real interest rate and the level of economic investment in a country. The technique usually applied is to observe many months worth of real interest rates and economic investment, plot these on a graph, and then estimate a line that goes through this data.

a. What would you expect these researchers to find? Why?

The researchers are presumably looking for a negative relationship between investment demand and the real interest rate. Their job will be a difficult one though because it is impossible to simply observe investment demand without also observing the impacts of supply. In other words, one would think that the researchers would observe high real interest rates and low amounts of investment BUT it could be that savings supply is very low leading to a high real interest rate and a low amount of investment. In other words, the researchers will need more information to understand only investment demand.

b. As real interest rates are not observable, the researchers find the real interest rate by using the Fisher equation: $r_t = i_t - \pi_t$. Researchers can observe current nominal interest rates and later observe the inflation rate that prevailed over the period. Is this the appropriate method to use to estimate the impact of real interest rates on economic investment? If so, why? If not, why not?

The real interest rates these researchers construct are not the real interest rates used when making investment decisions. When making their investment decisions, firms realize the nominal interest rate but do not know what the rate of inflation will be. When researchers "Look Backwards" to compute the real interest rate, they use the inflation rate that actually happened—something that firms cannot do at the time when they make their investment decision. This is what is meant by the ex ante real interest rate (the real interest rate expected by firms at the time their investment decision is made) and the ex post real interest rate (the real interest rate found after inflation has occurred and usually the one observed by researchers).

4. "Macroeconomists are confused about the impact of reducing money growth on interest rates. Sometimes, they say it will raise interest rates; sometimes, they say it will lower them; and sometimes they say that interest rates won't change at all." Comment.

All three responses may be logical. An increase in the money supply may alter interest rates. An increase in the money supply makes money less scarce and hence pushes down the price of money (the nominal interest rates) but, at the same time, an increase in money supply raises the possibility of future inflation. Thus lenders may increase the nominal interest rate in response to expected inflation.

5. Frequently people will argue that printing more money will aid a nation's citizens because it gives them more money that they can spend in foreign countries. What is wrong with this argument? Be sure to explain carefully.

An increase in the money supply of a domestic country does give citizens in that country more spending power. But, what proponents of the above argument forget, is that sellers of goods realize that as money becomes less scarce, its value declines. Therefore, sellers of goods raise prices to sell their goods for the same "real" value as before. The only difference that occurs when these sellers are foreigners is that foreigners don't change their prices (remember, the quantity of foreign currency didn't change) but instead are willing to trade fewer of their foreign currency for a domestic currency. Thus, printing money in the domestic country causes the domestic currency to fall in value (depreciate) so change in goods is bought or sold overseas.

Do problems and applications #4 and #8 on p. 110 of Mankiw.

A Level Work

I've always liked the Cagan model described in the appendix to Chapter 5 however I've never had time to present it in class. You may find this interesting.