

Comment on HAS MONETARY POLICY BEEN SO BAD THAT IT IS BETTER TO GET RID OF IT? THE CASE OF MEXICO,

by Mario J. Crucini

It would be unthinkable to consider fundamental monetary reform in the United States outside the context of U.S. monetary history. The dollarization debate in Mexico is also in need of a historical context and Del Negro and Obiols-Homs are to be commended for providing one. In particular, the methodology they apply is one which has helped to shape the debate about the domestic effects of U.S. monetary policy. Applying the same methodology across the two countries is useful because it invites both the obvious comparisons and some new questions. Does monetary policy have larger or smaller effects in Mexico than in the United States? How do the policy functions differ across the two countries? Does the exchange rate regime matter? One methodological line Del Negro and Obiols-Homs follow a bit too closely is the practice of lumping all foreign variables into a single black-box. Doing so prevents them from assessing how U.S. monetary policy decisions – as opposed to other variables driving the U.S. business cycle – have affected the Mexican economy. By separately identifying the role of U.S. monetary policy, they would have come closer to answering the question posed in the title. I hope they will attempt to provide the rest of the answer to this rather intimidating question in their future research.

My comments will be divided into two parts. The first part of my comment will briefly review the estimation strategy, the resulting variance decomposition and what these results tell us about the effectiveness of Mexican monetary policy. The second part of my comment addresses the value and limitations of the counterfactual policy analysis, provides an alternative view of exchange rate regimes in Mexico, and concludes with a suggestion for adapting the methodology to more completely answer the question posed in the title.

The estimation strategy

The authors estimate a linear stochastic model of the form:

$$\begin{bmatrix} A_{MM}(L) & A_{MU}(L) \\ \bar{0} & A_{UU}(L) \end{bmatrix} \begin{bmatrix} y_{Mt} \\ y_{Ut} \end{bmatrix} = \begin{bmatrix} 1_M \\ 1_U \end{bmatrix} + \begin{bmatrix} e_{Mt} \\ e_{Ut} \end{bmatrix} \quad (1)$$

where the subscript “M” is for Mexico and “U” for the United States. The block for Mexico contains industrial production, the consumer price level, a nominal interest rate, the money supply and the nominal exchange rate. The block for the U.S. contains industrial production, the consumer price level, a nominal interest rate and the price of oil in U.S. dollars.

In attempting to separately identify the underlying economic disturbances and policy reactions to them, a number of auxiliary assumptions are made. The main identification assumptions are embodied in three additional equations which involve restrictions on the $A(0)$ matrix and two variable orderings: one for the production and one for the foreign sector. The three equations are:

$$(M_i - P_i) - y_i - a_1 R = e_d \quad (2)$$

$$d_2 R + M + a_3 E_i - a_4 R^* + a_5 p^o = e_s \quad (3)$$

$$d_3 E_i - a_6 M_i - a_7 R_i - a_8 P_i - a_9 y_i - a_{12} y^* + a_{13} P^* - a_{14} R^* + a_{12} p^o = e_i; \quad (4)$$

a money demand equation, a money supply equation, and an information market equation, respectively (the signs indicated correspond roughly to those estimated).

The money demand specification is standard for a closed economy. In the context of Mexico innovations to equation (2) may also have something to do with the use of U.S. dollars as an alternative medium of exchange. I found it interesting that during the period Mexico managed to peg its exchange rate, the money demand innovations explained a considerable amount of price variation while in other regimes they accounted for almost nothing. Perhaps the innovations are picking up an enhanced substitutability of domestic and foreign currency under this form of exchange rate regime.

The money supply equation allows the monetary authority to respond to all information available within the month. Shifts in the parameters of this equation are interpreted as relating to shifts in exchange rate regimes. The implications of these regimes are demonstrated through the use of counterfactual analysis. What is less clear is how the parameters of equation (3) embody the theoretical restrictions on monetary policy implied by alternative exchange rate regimes.

The information equation is an asset market or information equation allowing the exchange rate to respond to movements in all domestic and foreign variables. The ordering of the production sector and foreign sector variables is unimportant given that their individual contributions are not assessed. The single exception is the price of oil, ordered first in the foreign block. Finally, the block-diagonality displayed in equation (1) embodies the small open economy assumption: developments in Mexico have no impact on U.S. variables.

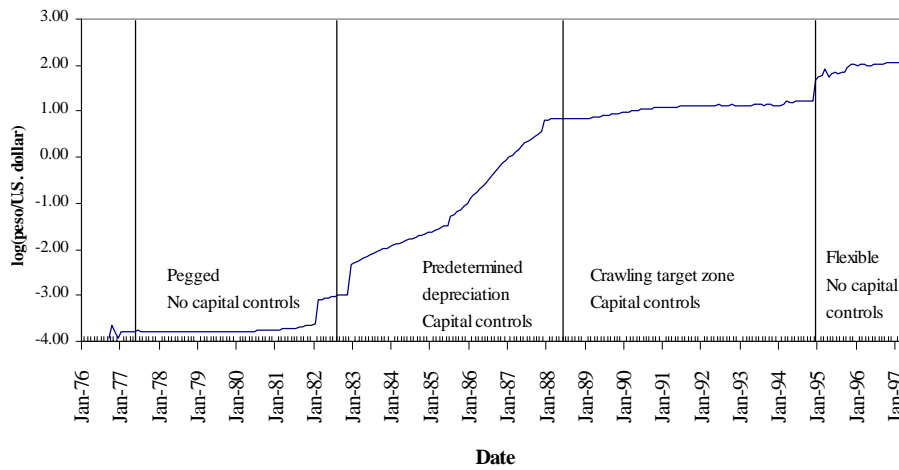
Together, these assumptions allow the variance of Mexican output and prices to be attributed to innovations in money demand, money supply, information, production, oil prices and the foreign sector. To this point the strategy is virtually identical to that employed by Cushman and Zha (1997) in their study of Canadian monetary policy.

Exchange rate regimes

One important departure from Cushman and Zha is that the coefficients linking current variables in the Mexican block, including the trend term, are freed up to shift at points in the sample when the exchange regime has changed. During the first three periods the exchange rate regime shifted from pegged with no capital controls to a predetermined depreciation rate with capital controls which are maintained during the third regime, a crawling target zone. The

fourth regime is a flexible exchange rate without capital controls. We see these regimes embodied in the time series behavior of the nominal exchange rate beautifully in Figure 1. This figure is not only informative, it is reassuring; reassuring in the sense that dollarization appears less dramatic a departure from Mexican historical experience once placed in the context of the rapid transition through regimes over the last 20 years.

Figure 1. The nominal exchange rate



Variance decompositions

The first piece of analysis conducted by Del Negro and Obiols-Homs is a traditional variance decomposition. Table 1 summarizes their principal findings. I have aggregated the money supply shock and the information shock and presented only the results at horizons of 6 and 48 months. The logic for the aggregation is that the information equation is intended to describe equilibrium movements in the exchange rate and uncertainty about policy may be an important source of the deviations from this equilibrium relationship. However, even with this liberal interpretation of policy surprises, these monetary shocks account for little of the variability of Mexican industrial production.

Domestic production and U.S. shocks account for about 39% and 48% of industrial production variability at short horizons. At longer horizons, these two shocks remain as important though most of the variation accounted for by domestic production is shifted to the U.S. shocks. The role of oil shocks seems conservative given the significant swings in oil prices over the sample period and the fact that at the start of the sample about 60% of Mexican exports were accounted for by crude petroleum. Given the dramatic rise in importance of the U.S. shock in the last period one is tempted to attribute this to increased integration of the two economies (e.g. NAFTA) but the short sample period suggests a more cautious interpretation.

The final observation I will make with my own contribution to Table 1 (contained in Panel C). The standard deviation of Mexican industrial production is virtually identical across all four exchange rate regimes. This observation is reminiscent of the findings of Baxter and Stockman (1989) who documented that the increased volatility of nominal exchange rates in the move from fixed to flexible exchange rates among industrialized countries was not accompanied by a significant increase in output volatility.

Table 1. Output variance decompositions

	Exchange rate regime			
	Peg	Predetermined	Crawling	Flexible
		depreciation	target zone	
Capital controls?	N	Y	Y	N
Panel A: Variance decomposition at horizon of 6 months				
Money demand	0.8	2.7	1.3	0.5
Money supply + information	5.7	4.8	4.1	1.6
Production	53.1	37.2	52.6	14.9
Oil price	4.9	13.0	11.0	2.0
U.S.	35.5	42.3	31.0	81.0
Panel B: Variance decomposition at horizon of 48 months				
Money demand	0.1	19.0	0.3	3.0
Money supply + information	0.9	4.3	1.4	0.8
Production	6.7	4.5	16.6	1.2
Oil price	3.4	1.7	5.6	4.4
U.S.	88.9	70.5	76.1	90.6
Panel C: Standard deviation of industrial production growth				
Mexico	35.9	30.8	35.9	37.6
United States	11.1	9.1	6.3	5.2

While each of the details are interesting in their own right, a truly remarkable feature of the numbers in Table 1 is what they do not reveal. The numbers do not reveal significant differences across exchange rate regimes. The number also do not reveal significant differences from Table 3 in Cushman and Zha (they used Canadian data). Based on this metric not only are exchange rate regimes virtually indistinguishable, so are the central bankers of Mexico and Canada!

How do we reconcile these numbers with the conventional view that monetary institutions and policy in Canada more closely resemble those in the U.S. than those in Mexico? The answer to this question comes in two parts. The first part is revealed in the counterfactual analysis conducted later in the paper. The second part comes from looking at the same data through a different lens.

The counterfactual considered by Del Negro and Obiols-Homs centers around the dramatic events of late 1994. Recall that during this period the Federal Reserve increased the discount rate in a number of successive rounds, NAFTA was

ated, presidential candidate Colosio was assassinated, and Chiapas rebels seized control of a number of Mexican towns. With this as a backdrop for the analysis, Del Negro and Obiols-Homs proceed in two steps. First, they determine that foreign shocks were of paramount importance and isolate the increase in the Federal funds rate as the main culprit. Second, they ask if the policy reaction of the Mexican authorities exacerbated or mitigated the impact of the interest rate increases on the Mexican economy. They find that if the policy rule estimated in the prior regime had been continued into 1994 and 1995, the crisis would have been averted, the recession avoided, and the depreciation smaller and less abrupt. Ironically, it was not that the Mexican authorities deviated from their policy function in unpredictable ways that made monetary policy "bad," it was that they adhered to a policy that was inappropriate given the circumstances. The counterfactual captures an important facet of the real effects of Mexican monetary policy and possibly part of what distinguishes the Canadian and Mexican experience. Because this part of monetary variability is identified as endogenous it necessarily does not appear in the variance decompositions reported in Table 1.

Exchange rate fundamentals?

The other sense in which monetary policy can be seen to differ dramatically over time (and relative to Canada) is summarized in Table 2. The table reports average rates of change for the nominal exchange rate and fundamentals emphasized in the monetary approach to exchange rate determination. Longrun means give a very different picture of the exchange regimes than do the variance decompositions.

The first regime comes closest to what we would expect to see with dollarization. During that period the peso was successfully pegged (apart from a few abrupt depreciations early on in the period). Assuming the peg was credible we would expect Mexico to forgo monetary independence during this period. As measured by U.S.-Mexican inflation rate and interest rate differentials this is what happened. The interest rate and inflation rate differentials were 2.7% and 12.2%, respectively – the lowest levels achieved during the 20 year sample. Industrial production growth was highest, at about 8%.

In contrast, periods in which Mexico has allowed its currency to fluctuate are periods where monetary independence is most evident. During the second and fourth regimes Mexican inflation was considerably higher than U.S. inflation and we observe a longrun depreciation of the nominal exchange rate as we would expect. The first is hardly exact but combined with regime 1, the patterns in the table demonstrate what constraints exchange rate regimes place on Mexican monetary policy.

Table 2. Analysis of Means

	Exchange Rate Regime			
	Peg	Predetermined depreciation	Crawling target zone	Flexible
Capital controls?	N	Y	Y	N
Exchange rate				
mean growth	4.0	73.2	6.1	33.2
standard deviation	(54.6)	(116.3)	(10.8)	(111.7)
Fundamentals				
R_i R^a	2.7	53.4	18.0	23.5
$\frac{1}{4}_i$ $\frac{1}{4}^a$	12.2	63.8	11.7	27.1
$\Phi \log M_i$ $\Phi \log y$	19.8	50.9	31.7	17.3
$\Phi \log M^a_i$ $\Phi \log y^a$	4.1	5.5	4.0	-7.6
$\Phi \log y$	8.2	0.1	3.2	2.3
$\Phi \log y^a$	3.3	3.5	2.2	4.7
$\Phi \log p^0$	25.7	-12.6	1.2	5.0

How do we bring these long horizon considerations to bear on the question posed by the authors? I suppose we might consider them in the context of longrun policy goals of the central bank of Mexico. According to the bank's recent constitutional mandate the main objective of monetary policy is general price level stability. Based on the historical evidence, even fairly recent experience, policy has fallen short of achieving this goal. Dollarization, then, might be viewed as an alternative institutional arrangement to achieve a common U.S.-Mexican policy goal. Thus, an interesting counterfactual that Del Negro and Obols-Homs may want to consider in future work is that of subjecting Mexico to U.S. monetary policy. Such an exercise may provide additional insight into the trade-offs associated with alternative exchange rate regimes: the sacrifice of an independent monetary policy in return for specific longrun goals.

Literature cited

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