

Should Mexico Adopt the U.S. Dollar? A Study of Optimal Currency Areas
 Research Proposal
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 June 13, 1999

This paper will study key issues in the economics of optimal currency areas with the goal of contributing to an answer to the question of whether Mexico should adopt the U.S. dollar as its currency.

The paper will begin with a study of the key empirical issues suggested by the traditional literature on optimal currency areas. It will apply the methodology used in Altig and Stockman (1998, 1999) to distinguish the sources of macroeconomic shocks to Mexico and United States. That methodology involves estimating structural vector autoregressions with an extension of the identifying assumptions proposed by Jordi Gali (1998). That extension will allow this paper to distinguish nation-specific technology shocks, world technology shocks, nation-specific monetary demand shocks, world monetary demand shocks, nation-specific real demand shocks, and world real demand shocks. Those estimates will provide key evidence that, if interpreted in the traditional literature on optimal currency areas, will help answer to central question of this paper.

Consider the following structural vector autoregression, in which y , L , P , and e refer to the home country's GDP, employment, price level, and exchange rate, and variables with a star refer to the rest of the world. (Think of Mexico as the home country and the United States as the rest of the world.)

$$\begin{pmatrix} y^*/L^* \\ y/L \\ y^*/L^* \\ L^* \\ L/L^* \\ P^* \\ P/P^* \end{pmatrix} = A(L) \begin{pmatrix} \epsilon_T^W \\ \epsilon_T^R \\ \epsilon_D^W \\ \epsilon_D^R \\ \epsilon_M^W \\ \epsilon_M^R \end{pmatrix}$$

where the shocks refer to (in order) a world technology shock, a Mexican-specific technology shock, a world real demand shock, a Mexican-specific real demand shock, a world monetary demand shock, and a Mexican-specific monetary demand shock. (A "real demand shock" is intended to capture changes in fiscal policy, tastes, "animal spirit" effects on investment, etc.)

The identifying assumptions make the long-run response matrix, $A(1)$ diagonal:

$$A(1) = \begin{bmatrix} a_{11} & 0 & 0 & 0 & 0 & 0 \\ a_{21} & a_{22} & 0 & 0 & 0 & 0 \\ a_{31} & a_{32} & a_{33} & 0 & 0 & 0 \\ a_{41} & a_{42} & a_{43} & a_{44} & 0 & 0 \\ a_{51} & a_{52} & a_{53} & a_{54} & a_{55} & 0 \\ a_{61} & a_{62} & a_{63} & a_{64} & a_{65} & a_{66} \end{bmatrix}$$

These restrictions on $A(1)$ incorporate two sets of assumptions. The first set is a straightforward extension of Galí's identifying assumption that only technology shocks affect either the level of labor productivity (y/L) at home or its ratio across countries. That set of assumptions produces all the zeros in the first two rows of $A(1)$, except the first zero in the first row. The second assumption is that *monetary* demand shocks have no long-run effects on real variables (but may affect nominal variables, depending upon the monetary system and behavior of central banks). That assumption produces the second and third zeros in the third row of $A(1)$, and the zeros in the fourth and fifth rows. The first zero in the first row of $A(1)$ and the first zero in the third row reflect an orthogonalization in which any correlation between "world" and "nation-specific" shocks is attributed to "world" shocks.

The diagonal, recursive structure of the long-run response matrix ensures that the structural VAR model is just identified. Estimation of this model is straightforward, and yields impulse response functions and variance decompositions that can be useful in assessing the question of the effects of adopting the dollar on the Mexican economy.

Extensions of the model that might be important, and therefore will be studied for possible inclusion in the paper, include adding the exchange rate, oil prices, and the terms of trade to the system.

The second task of this paper is theoretical. The paper will seek to extend the literature on optimal currency areas by proposing a new model with two central elements: (1) a banking system, with a localized industrial organization, that is subject to potential crises and can be helped by the presence of a lender of last resort, and (2) political forces that affect government policies and a favor local interests. The main tradeoff in the model is the following. The larger the area with a single currency and single central bank, the less likely the central bank will respond to geographically isolated banking crises, because localized political forces favoring a response are weaker and political forces opposing a response -- because it imposes costs on the rest of the economy -- are stronger. That force alone suggests that currency areas should be small, so that political forces will support a central bank response to a shock that causes a localized banking crisis. However, there are costs of small currency areas. The traditional literature on optimal currency areas emphasizes some of those costs. However, modern political economy literature suggests additional costs associated with a disproportionate influence of localized interest groups on policy, creating inefficiencies in an attempt to extract resources for themselves. These two forces are the main elements of the tradeoff emphasized in the new model of optimal currency areas that will be proposed in this paper. While the traditional literature has ignored these political forces, experiences in countries subject to crises in the last two decades, along with the political forces operating on the IMF, suggest that these forces may be at least as important, if not more

so, then the forces emphasized in traditional models. Some of the issues in this theoretical model remain yet to be developed, and I propose to do that this summer.

The final step in paper -- which needs additional thought -- will be to develop empirical measures of the factors emphasized in the new optimal-currency-area model.

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inability to distinguish between (a) world monetary shocks, (b) relative monetary shocks, and (c) some “other” shock with a long-run effect on the exchange rate but without long-run effects on nominal price levels, labor productivities, or aggregate employment. That third shock may reflect, for example, speculation in financial markets that affects the exchange rate. In future work, we plan to add home and foreign price levels to our vector autoregression.

We also plan to examine the effects of other variables such as innovations to world oil prices and to world interest rates.

In particular, consider extending the system estimated here to the 6-dimensional system: