

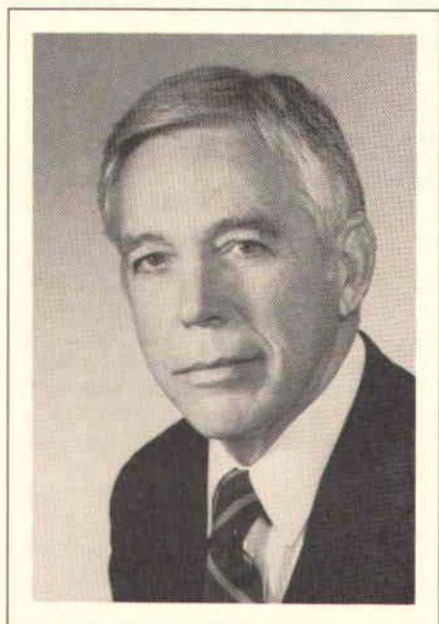
# Voice

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## Boykin Succeeds Baughman as President of Federal Reserve Bank of Dallas



Robert H. Boykin is the new President of the Federal Reserve Bank of Dallas, taking office on January 1, 1981. He was elected by this Bank's Board of Directors and approved by the Board of Governors of the Federal Reserve System. Boykin succeeds Ernest T. Baughman, who retired after serving the Federal Reserve System for nearly 35 years, the last 6 years as President of the Dallas Reserve Bank.

Employed by the Federal Reserve Bank of Dallas in 1953 in the Legal Department, Boykin was elected to the official position of Assistant Counsel in 1959. He was designated Assistant Counsel and Assistant Secretary of the Board of Directors in 1961, Assistant Vice President and Assistant Secretary in 1965, and Assistant Vice President and Secretary in 1967. He subsequently was elected Vice President and Secretary in 1968 and Senior Vice President and Secretary in 1971 and was appointed First Vice President on December 1, 1976.

Boykin served as Chairman of the Conference of First Vice Presidents of the Federal Reserve Banks in 1980. He has also served on several System committees, including the First Vice Presidents' Conference Committee on Communications and Payments and Committee on Automation Services.

Boykin was born in Carlsbad, New Mexico. He served in the U.S. Navy (aviation) from 1943 to 1947 and was released to inactive duty with the rank of lieutenant (junior grade). Boykin holds B.B.A. and J.D. degrees from the University of Texas and is a graduate of the School of Banking of the South at Louisiana State University. He has attended management courses at Texas A&M University and the American Management Association in New York.



# Currency Substitution: The Mexican Case

*By Leroy O. Laney*

In recent years considerable attention has been focused on a monetary phenomenon called "currency substitution." This term is generally taken to mean the existence of foreign money, circulating alongside domestic money as a medium of exchange and serving as a store of wealth in private portfolios, within the boundaries of a given country. Time deposits denominated in a monetary unit other than that of the country in which they are located—constituting by far the greatest part of what is called the Euromarket system—have, of course, been analyzed more extensively over a longer period. But usually currency substitution has a different connotation, in that the external money balances may be non-interest-bearing and fit within a narrower definition of money.

When economists speak of flows of "money" in the balance of payments of a particular country, the reference generally is to international capital movements, even though such capital may be of very short maturity. Money per se does not often flow across national boundaries at all, since a foreign exchange market translates, at some fixed or flexible rate, one currency into another. But with currency substitution as usually defined, it is more appropriate to think of the actual movement of money across national borders, just as we think of the physical movement of goods or factor inputs.

Foremost among the motives identified for holding these foreign currency denominated money

balances is exchange rate risk. It has been argued that the greater perceived risk inherent in the current system of more flexible exchange rates can lead to an increased private-sector demand for foreign currency as a hedge. Households and firms in a given country may be less likely under flexible rates to consider the domestic currency to be riskless. In addition to the uncertainty surrounding the rate at which inflation may depreciate the domestic money's value with respect to real assets, there also exists the uncertainty with respect to its value in terms of other kinds of money. Incentives for currency diversification are weaker in economies with stable prices but can exist in them also because of unpredictable exchange rates due to price level changes elsewhere.

This article examines currency substitution in Mexico. Those who follow economic developments in Mexico are quite familiar with "dollarization," or a faster increase in deposits denominated in a foreign currency—mostly the U.S. dollar—than in peso-denominated deposits. While the degree of dollarization in the country has varied over time, substantial foreign currency balances have existed there for years. Currency substitution may, in fact, be much more important quantitatively for Mexico than for many other industrialized or developing economies.

However, it is also relevant to observe that currency substitution has existed throughout most of Mexico's modern history under an adjustably fixed



peso/U.S. dollar exchange rate instead of a more continuously flexible one. (Even after the 1976 peso devaluation, when a floating peso was declared, movements in the rate generally have been held within an extremely narrow range.) In this regard, actual movements in the spot exchange rate itself may not be the proper gauge of exchange rate uncertainty. Underlying economic conditions and policies may be much more important in influencing exchange rate expectations and the currency substitution that derives from them.

### **Currency substitution in general is not new**

Although the movement toward greater flexibility in exchange rates in the 1970's may have been largely responsible for recent analyses of foreign currencies held and used in various domestic economies, the occurrence itself is not just a recent development. The forces governing private domestic demand for foreign money may vary in nature, or at least in magnitude, over time and for different countries. But such demand has been important historically, regardless of exchange rate arrangements.

Not surprisingly, currency substitution tends to develop in hyperinflations, with flight from domestic money into both foreign money and real assets taking place. As the decline in the value of the domestic money accelerates, there is an obvious preference for holding more stable foreign money as a store of liquid wealth. And as the cost of transacting with large volumes of domestic money becomes high, recipients become hesitant to predict its rate of decline in prices asked, so money from abroad that inspires more confidence can dominate as a medium of exchange also. If the rate of exchange between domestic and foreign money is fixed, this could even constitute a contradiction to "Gresham's law."<sup>1</sup> Under flexible exchange rates, more typical during hyperinflations, sellers of goods or services undoubtedly have an incentive to accept and hold the more stable foreign money.

In the European hyperinflations following World

War I, currency substitution became quite substantial. For several countries the fiscal and monetary policies that were pursued led to astronomical inflation rates that have served as case studies ever since. It has been reckoned that in Germany, for example, where the mark was stabilized in October 1923 at 1 trillion prewar marks, the value of foreign currencies in circulation there at that time exceeded, perhaps by some multiple, the value of the marks in circulation. A similar flight from the rapidly depreciating domestic currency into foreign money occurred in Austria, Hungary, and Poland—in spite of government attempts to prevent such movement by establishing exchange controls.<sup>2</sup>

Although the domestic currencies of these countries were depreciating externally as well as internally in this period, underlying government policies were the root cause of the currency substitution, not exchange rate movements per se. In each of the above countries, huge government budget deficits were accompanied by the rapid creation of money to finance them.

The use of foreign money in domestic transactions certainly has not been confined to hyperinflations, however. Although the amount of the foreign money may be small relative to most measures of the conventional domestic money stock, problems in money supply definitions and targeting can arise. Some countries currently include in various definitions of their money supply those commercial bank liabilities that are denominated in foreign currency. But frequently the foreign currency balances are not broken out separately, and there seems to be little consistency across countries with respect to how such balances are treated—that is, which aggregates include them and which do not, whether any distinction is made between foreign currency bank liabilities to residents and those to nonresidents, and so on.<sup>3</sup>

The answers to these questions can be important if resident holdings of foreign currency have a significant effect on domestic economic activity. The United States does not include private holdings of foreign currency as such in its money

1. Often paraphrased as "bad money drives out good," the proposition commonly attributed to Sir Thomas Gresham, a 16th-century English businessman and government adviser, is that when the rate of exchange between two kinds of money is fixed, the undervalued money is hoarded and the overvalued money is spent.

2. For discussions of currency substitution during this period in various hyperinflationary economies, see John Parke Young, *European Currency and Finance*, prepared for the U.S. Senate Commission of Gold and Silver Inquiry, 2 vols. (Washington, D.C.: Government Printing Office, 1925).



supply definitions; foreign currency denominated deposits (converted to U.S. dollars at prevailing exchange rates) are included, but their volume relative to the total money stock is quite small. For Mexico, foreign currency denominated deposits of the nonbank public frequently have not been included in published narrow money supply figures, although the foreign currency balances are presented separately in official publications. In the Mexican case, however, the effect of these balances on the domestic economy cannot be ignored easily.

### **Geography makes Mexico a special case**

The occurrence of dollarization in the Mexican economy illustrates, on the financial side, an aspect of U.S.-Mexican relations that is referred to quite frequently in other contexts. Proximity, carried to the limit of geographic contiguity, makes for a distinctive relationship.

Mexico has no formal system of dictated exchange rate controls, and if it did, such controls would be quite difficult to enforce because of the highly permeable border with the United States. Opposition to exchange control, even though its use has been suggested occasionally over the years, in fact has been a long-standing commitment of the Mexican authorities. Given the level of surveillance that would be required, this has been a wise decision. Policing transactions in services, tourism, and other nonmerchandise items, which constitute a sizable share of the current account in Mexico's balance of payments, could

3. The United Kingdom is a case in point. There the narrow money measure, M-1, has not included foreign currency denominated deposits, but a more broadly defined measure, M-3, formerly included commercial bank liabilities, to residents only, in all currencies. One question raised by the latter definition was why a U.K. resident's holdings of U.S. dollars in a U.S. bank in London should be included in the U.K. money stock but the same resident's dollar holdings in a New York bank should be excluded (overseas banks do not make returns to the Bank of England). On the rationale that foreign currency deposits held by U.K. residents in U.K. banks substitute more for foreign currency deposits held abroad than for sterling deposits with banks in the United Kingdom, "sterling M-3" was presented beginning in 1977, a measure that does not include the foreign currency liabilities. But now the recent abolition of exchange controls in that country, accompanied by substantial switching into foreign currency deposits by U.K. residents, has raised the question of whether sterling M-3 is appropriate for money supply targeting after all.

be especially difficult. Imposition of controls possibly would result only in an increase in corruption and the development of a black market in U.S. dollars.

The problem might be exacerbated by the likelihood that more Mexican transactors actually think in terms of dollars, instead of the domestic currency, than do transactors in most countries with which the United States conducts substantial international trade. This has been a major factor historically underlying free convertibility of the peso and attempts to maintain, by official intervention, an absolutely fixed rate of exchange with the U.S. dollar. The Mexican currency was maintained rigidly for years at 12.49 pesos per dollar under the Bretton Woods system, for example, as if to eliminate any possibility of flexibility between the two currencies, even though the system did allow minor variation about the established parity. Much of Mexico's overall monetary policy during this period can be interpreted in terms of efforts by the central bank to assure exchange rate stability without unduly inhibiting economic growth.

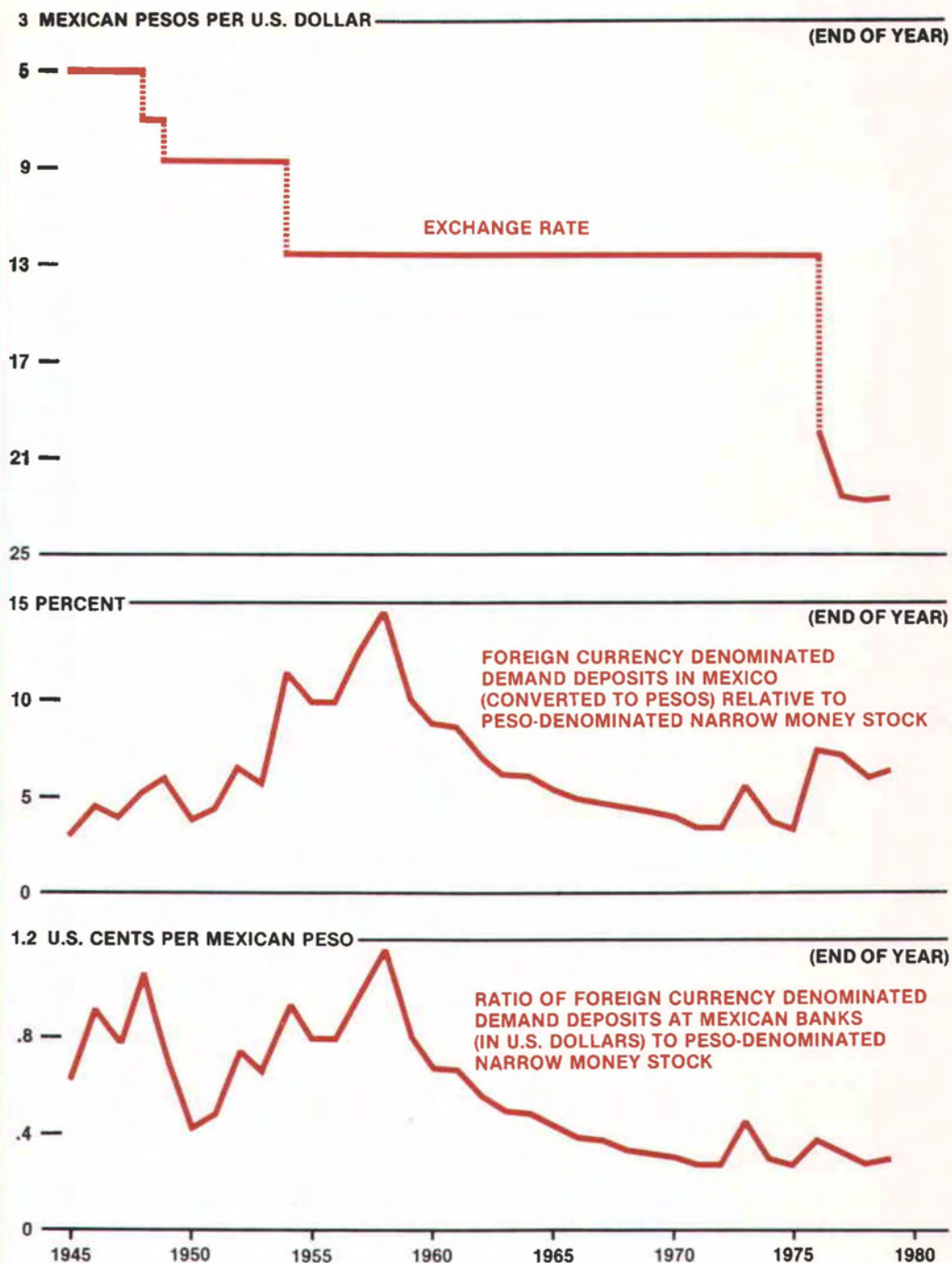
A major factor affecting the growth of dollar-denominated financial instruments in Mexico's external financing has been related to exchange rate expectations too. Foreigners investing in Mexico were induced by peso devaluations to demand a unit of account that would eliminate exchange rate risk. Early on, therefore, Mexican authorities allowed the assumption of foreign currency liabilities by financial institutions operating in the domestic capital market.

Thus, for years Mexican banks have been allowed to accept obligations, in the form of demand and time deposits and other liabilities, denominated in U.S. dollars or other foreign currency. In the case of interest-bearing dollar deposits, rates of return are linked to those in the London Euro-dollar market, which in turn move closely with interest rates in the United States. Movements in U.S. dollar interest rates have been an important factor in past decisions by the Bank of Mexico to change interest rates on peso deposits (which generally have been subject to official ceilings), and this further highlights financial linkages between the two countries. Elimination of interest rate-induced incentives to hold dollar deposits, reducing the interest rate differential, can stem growth in these deposits. Peso deposit rates have often been observed to move with dollar rates in a stepwise fashion, usually at a higher level to



**CHART 1**

Dollarization in Mexico has increased, in both peso-converted and foreign currency terms, before and after peso devaluations



SOURCES: Nacional Financiera.  
Federal Reserve Bank of Dallas.



compensate for the higher rate of Mexican inflation.<sup>4</sup>

In addition to liabilities of Mexican banks denominated in U.S. dollars, U.S. banks have dollar-denominated liabilities to Mexican residents. Relative to total foreign currency denominated private bank liabilities to Mexican residents, the share of U.S. banks often is quite significant. Over the 1974-79 period, for example, with respect to demand deposit liabilities only, the claims on banks north of the border ranged between almost 50 percent and just under 30 percent of the total. (The highest proportions in this interval were reached in 1975 and 1976, prior to the August 1976 devaluation of the peso.)

It is also possible that a nonnegligible amount of U.S. currency and coin circulates in Mexico. Much of this is likely to enter Mexican circulation in the border areas or tourist destinations farther south. Reliable estimates of U.S. currency and coin in Mexican circulation, however, are rather difficult to make.

#### **Measurement of dollarization relates to the Mexican banking structure**

The Mexican banking system outside the central bank can be divided into national credit institutions and private intermediaries. The former actually function as arms of the central government, are usually specialized in some particular socioeconomic field, and serve primarily as allocators of credit to projects of priority in national development plans. Through these banks the government controls a major share of all banking resources in the country.

The private intermediary system includes those deposit and savings banks that most closely resemble commercial banks in the United States. Often referred to as "private and mixed banks,"

these institutions also include some banks in which the government has purchased a majority equity interest. But the mixed banks still generally function more as commercial banks than do the national banks, operating under the same legal framework as the private banks. Often the mixed banks are concentrated in a specialized function, but some are syndicated together as "multiple banks."

The proportion of total Mexican bank liabilities denominated in foreign currency is one measure of the extent of dollarization. Changes in interest rate differentials and exchange rate expectations may have contributed significantly to variation in this measure. But when the total foreign currency liabilities in the Mexican banking system are converted to pesos for comparison with total liabilities in domestic currency, exchange rate valuation effects also play a significant, if for some purposes misleading, role. Devaluation can give the impression of increased dollarization when, in fact, no changes in behavior have occurred. Throughout most of the early 1970's, the peso-converted foreign currency proportion of total liabilities hovered slightly below 20 percent, rising to 22 percent at the end of 1975. At the end of 1976, the proportion rose to 46 percent, not only because of the August devaluation but also because of greater demand for foreign currency. Since then the share has declined, standing at 38 percent at the end of 1979.

The national banks hold the largest share of total foreign currency liabilities in the banking system. Their share was relatively stable around 80 percent in the early 1970's, but after rising to about 86 percent in 1974 and 1975, it fell to 66 percent at the end of 1979. While this dominant share of the national banks probably has derived partly from restrictions on foreign currency instruments available to the private banks, it is also due in large measure to the considerable external foreign currency denominated borrowing by Mexican public-sector agencies, which use the national banks as intermediaries. Most liabilities of the national banks, however, are not demand deposits.

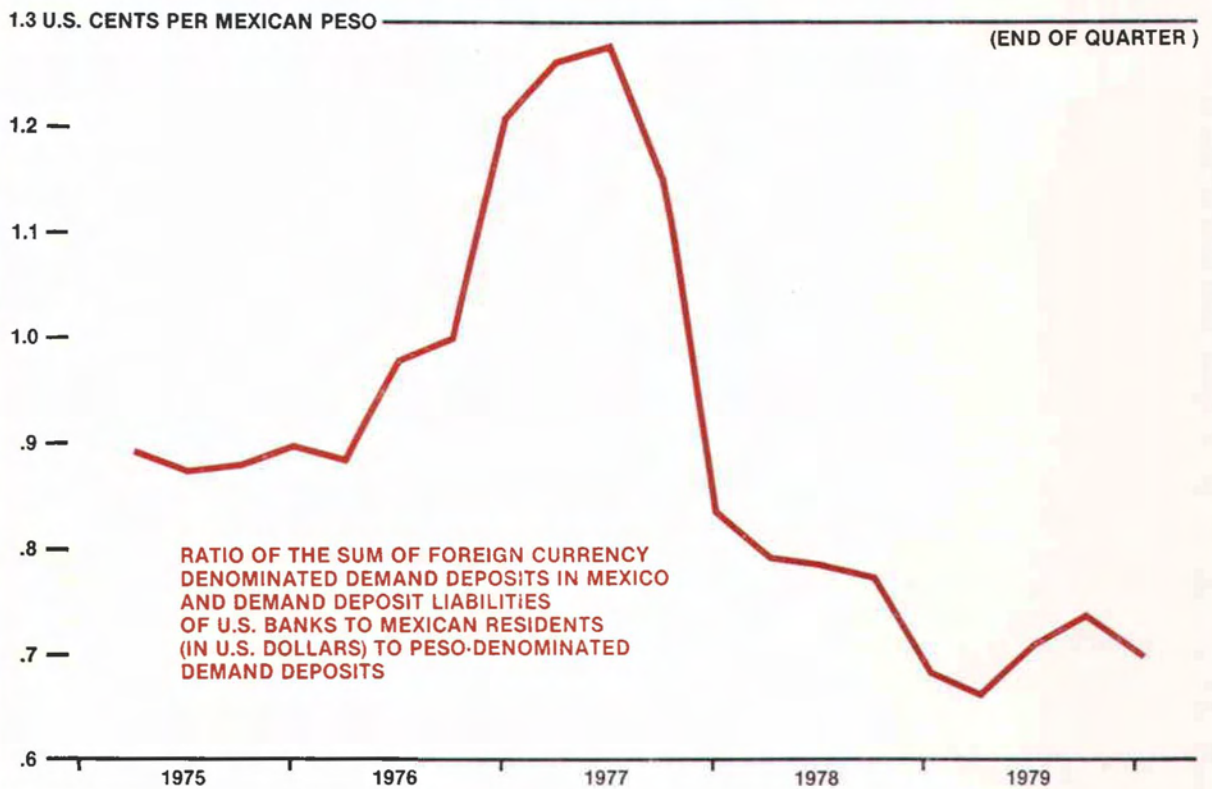
By far the largest share of demand deposit liabilities denominated in foreign currency is held by the private and mixed banks. Most discussions of the currency substitution phenomenon have focused on private nonbank exchange rate risk to holders of money or very near money assets. It is therefore desirable here to consider only banks' demand deposit liabilities to private individuals and firms

4. More recently, greater market determination of Mexican interest rates has been fostered. In January 1978 a new three-month Mexican treasury certificate, to be discounted continuously by the federal government, was introduced to encourage development of the domestic money market. In October 1979 the Bank of Mexico instituted a policy whereby maximum interest rates on bank deposits could be adjusted more frequently. And in February 1980 the central bank began allowing financial institutions to set their own interest rates on two-year deposits.



## CHART 2

### Higher dollarization surrounded the 1976 peso devaluation



SOURCES: Bank of Mexico.  
U.S. Treasury Department.  
Federal Reserve Bank of Dallas.



in Mexico, since these balances most closely meet the definition of money.<sup>5</sup>

### Currency substitution in Mexico can be important

To the extent that theories of currency substitution to date have been country-specific, they have concentrated on substitution between or among major trading currencies in industrial countries. And most empirical work to date has been on this same group of countries and currencies.<sup>6</sup> Mexico and its

5. The national banks may, of course, be exposed to foreign currency exchange rate risk, to the extent that they maintain foreign currency denominated net liability positions. And they do hold some small portion of the demand deposit liabilities to the nonbank, nonofficial sector that are included in the analysis here.

6. For some representative theoretical work on currency substitution in general, see: Lance Girton and Don Roper, "Theory and Implications of Currency Substitution," International Finance Discussion Papers, no. 86 (Washington, D.C.: Board of Governors of the Federal Reserve System, August 1976), along with their article with the same title that is forthcoming in the *Journal of Money, Credit, and Banking*, February 1981; Guillermo A. Calvo and Carlos Alfredo Rodriguez, "A Model of Exchange Rate Determination Under Currency Substitution and Rational Expectations," *Journal of Political Economy*, June 1977; John Kareken and Neil Wallace, "International Monetary Reform: The Feasible Alternatives," *Federal Reserve Bank of Minneapolis Quarterly Review*, Summer 1978; and Russell S. Boyer, "Currency Mobility and Balance of Payments Adjustment," plus David T. King, Bluford H. Putnam, and D. Sykes Wilford, "A Currency Portfolio Approach to Exchange Rate Determination: Exchange Rate Stability and the Independence of Monetary Policy," both in *The Monetary Approach to International Adjustment*, ed. Bluford H. Putnam and D. Sykes Wilford (New York: Praeger Publishers, Praeger Special Studies, 1978).

In empirical work, Marc A. Miles has investigated currency substitution in Canada under fixed versus flexible exchange rates in "Currency Substitution, Flexible Exchange Rates, and Monetary Independence," *American Economic Review*, June 1978. The same author discusses a different test applied to that country plus France, Germany, Italy, Japan, and the United Kingdom in "Currency Substitution: Perspective, Implications, and Empirical Evidence," in *Monetary Approach to International Adjustment*, ed. Putnam and Wilford. In Arturo Brillembourg and Susan M. Schadler, "A Model of Currency Substitution in Exchange Rate Determination, 1973-78," *International Monetary Fund Staff Papers*, September 1979, substitutability among the French franc, German mark, Italian lira, Swiss franc, Canadian dollar, British pound, Japanese yen, and U.S. dollar is tested under flexible exchange rates.

peso may fit this category less well, but at least two aspects of the Mexican situation mentioned in the introduction tend to make it just as interesting: the relative importance of currency substitution there and its occurrence historically under fixed rather than flexible exchange rates. It is appropriate to address these two aspects in turn.

The middle panel of Chart 1 indicates that foreign currency denominated demand deposits at Mexican banks, converted to pesos, as a percentage of the peso-denominated narrow money stock (currency and coin in circulation plus Mexican banks' demand deposit liabilities to the nonbank, nonofficial public) rose corresponding to peso devaluations in 1948-49, 1954, and 1976. But since the conversion of dollar balances to pesos can be deceiving, a simple ratio of foreign currency denominated demand deposits, in dollars, to the peso-denominated narrow money stock is presented in the bottom panel. Although the units of measurement are different and the two plots are not directly comparable, the patterns are similar. Surges in dollarization preceding and following peso devaluations are evident in the bottom panel also, especially early in the postwar period.

Inspection of higher-frequency data available for the recent past is more revealing with respect to the last discrete peso devaluation, in 1976 (Chart 2). A ratio of foreign currency denominated demand deposits (here including also the dollar liabilities of U.S. banks to nonbank, nonofficial Mexican residents), measured in dollars, to peso-denominated demand deposits rose sharply prior to and concurrent with the August 1976 devaluation and its aftermath. The ratio remained on the increase into 1977 but since has trended downward.

One interesting facet of the importance of the foreign money balances, especially since they are substantial relative to the domestic currency denominated money stock, is their influence on overall domestic economic activity and inflation. Do these foreign balances, for example, closely resemble some forms of nonmoney financial assets, or are they closer to the narrowly defined domestic currency denominated money supply? Can they be treated as equivalent to their peso-converted value in this regard, or is there some intrinsic difference making them more or less potent in their effects on the economy? The answers can be useful in determining whether, and how, they should be included as part of the money stock for policy-making purposes.



The accompanying box presents empirical results of an attempt to answer these questions. Outcomes indicate that dollar deposits have a statistically significant effect as money in the Mexican economy. The foreign balances seem to be at least as important, relative to the domestic narrow money stock, as their peso-converted share would indicate—perhaps more so.

### **Does currency substitution in Mexico suggest anything about the workability of flexible versus fixed exchange rates?**

When a country's money stock is free of any external influences, the country achieves national monetary independence, a desirable goal in the view of many economists and policymakers. Under fixed exchange rates, central bank intervention to maintain the rate affects the monetary base. Under purely flexible rates, various national monetary authorities cease completely to make their currencies supply-side substitutes since they conduct no intervention.<sup>7</sup> But if currency substitution is quantitatively important, attempts to achieve national monetary independence under flexible rates may be futile. Monetary independence may be irrelevant if it is unattainable. It has been contended by some economists, therefore, that the most desirable exchange rate system is not one that emphasizes monetary independence in any case, since currency substitution undermines what has traditionally been a primary argument for floating rates. It is suggested instead that greater conscious international coordination of monetary policies is more desirable and that fixed rates are better because they foster monetary synchronization.

Some have taken the currency substitution argument even further. This view, going beyond recognition that exchange rate uncertainty fosters the desire to hold a diversified currency portfolio, holds that the demand for different national moneys under flexible rates is of an all-or-nothing variety. If a decline in the value of a given currency is anticipated, for example, this would lead to completely unconstrained flight from that form

of money. It is contended that the burden of stabilizing the market therefore falls upon governments. This logic has occasionally been used to argue for a return to some form of international gold standard, allowing an overriding external discipline to dictate internal economic policies.

The Mexican case, however, demonstrates that currency substitution can be quite important under "fixed" as well as "floating" exchange rates. It may be erroneous, in other words, to assume that under fixed rates, private market participants will have no motive to substitute currencies. If, under an adjustably fixed rate, speculative accumulations of foreign money balances frustrate attempts by the authorities to peg the rate absolutely, then some form of managed flexibility that allows more continuous exchange rate response to divergent underlying economic conditions—reducing the possibility of the "one-way risk" that often emerges when the market anticipates a change in fixed rates—may be more desirable after all.

It might be argued that private market substitution between pesos and dollars would be even greater if the exchange rate were allowed to fluctuate more. But certainly currency substitution in Mexico can serve as an example of incentives to substitute foreign currency for domestic currency, at times probably in anticipation of abrupt rate changes, even when the spot exchange rate itself is observed to be constant.

Changes in dollarization, in fact, are frequently interpreted as an indicator of exchange rate expectations. This is likely to have been the case immediately before the 1976 devaluation, as well as in other instances both before and after. The increase in dollarization in the first part of 1976 was likely affected by the Mexican authorities' relaxation of restrictions on acceptance of foreign exchange deposits by private Mexican banks. (Changes extended eligibility to have foreign currency denominated accounts to Mexican residents in nonborder areas; previously, only border residents and foreigners were eligible.) But their action also came in response to fear of potential capital flight from Mexico into foreign banks in which accounts could be denominated in harder currencies.

In the current environment, growing oil exports and foreign borrowing may enable Mexico to resist indefinitely any downward pressure on the peso, even as the equilibrium rate that would be dictated by nonenergy trade and services accounts in the balance of payments diverges from the actual spot

7. For a discussion and empirical tests of this international monetary linkage under fixed versus managed floating exchange rates, see Leroy O. Laney, "More Flexible Exchange Rates: Have They Insulated National Monetary Policies?" *Voice of the Federal Reserve Bank of Dallas*, February 1980.



## How Relevant Are Foreign Money Balances for the Mexican Economy?

Postulating causation running from money to nominal economic activity,<sup>1</sup> but making no attempt to divide money's effects between changes in output and changes in prices, it is possible to specify the simple log linear equation:

$$(1) \ln Y_t = \alpha_0 + \alpha_1 \ln M_t + \alpha_2 \ln M_{t-1} + \dots + \alpha_{n+1} \ln M_{t-n} + u_t,$$

where  $Y_t$  is the Mexican nominal gross domestic product in period  $t$ ,  $M_t$  is the Mexican narrow money stock (peso currency and coin plus nonbank, nonofficial peso demand deposits, as well as foreign currency denominated nonbank, nonofficial demand deposits at Mexican banks, converted to pesos at end-of-period exchange rates) in the same period, and  $u_t$  is a random error term. The specification allows estimation of past effects of money on income by including lagged money variables.

It is possible to extend this equation to estimate directly the degree of moneyiness of the foreign balances relative to pesos. Introducing the symbol  $\lambda$  to represent the potency of a foreign money stock component  $M^f$ , converted to pesos, relative to a domestic component  $M^d$ , the current-period independent variable can be written:  $\ln M_t = \ln(M_t^d + \lambda_t M_t^f) = \ln[M_t^d(1 + \lambda_t M_t^f/M_t^d)] = \ln M_t^d + \ln(1 + \lambda_t M_t^f/M_t^d)$ .

But since the natural logarithm of 1 plus a relatively small fraction is close to the fraction itself,<sup>2</sup>

$$\ln M_t^d + \ln(1 + \lambda_t M_t^f/M_t^d) \cong \ln M_t^d + \lambda_t M_t^f/M_t^d, \text{ and } \alpha_1(\ln M_t^d + \lambda_t M_t^f/M_t^d) = \alpha_1 \ln M_t^d + \alpha_1 \lambda_t M_t^f/M_t^d.$$

Writing the equation

$$(2) \ln Y_t = \alpha_0 + \alpha_1 \ln M_t^d + \alpha_{1\lambda} M_t^f/M_t^d + \alpha_2 \ln M_{t-1}^d + \alpha_{2\lambda} M_{t-1}^f/M_{t-1}^d + \dots + u_t,$$

where  $\alpha_{1\lambda} = \alpha_1 \lambda_t$ ,  $\alpha_{2\lambda} = \alpha_2 \lambda_{t-1}$ , etc., allows computation of  $\lambda$  values for each period directly.

Fitting annual data from 1948 through 1979 yields results presented as equation 3.<sup>3</sup> (Lagged effects of both the domestic money variable and the ratio term past the prior year are statistically insignificant. Their exclusion does not alter the following analysis.)

$$(3) \ln Y_t = 1.66 + .27 \ln M_t^d + .61 M_t^f/M_t^d + .78 \ln M_{t-1}^d + .69 M_{t-1}^f/M_{t-1}^d + u_t$$

(23.06)\* (3.55)\* (2.47)\* (9.85)\* (2.78)\*

$$\bar{R}^2 = .999; D-W = 1.99; \rho = .33.$$

Each independent variable is statistically significant, and the lagged domestic money term appears more important than the concurrent-period one. The fact that both of the foreign money-to-domestic

money ratio terms are significant indicates that the contribution of foreign money balances to nominal economic activity in Mexico cannot be ignored.<sup>4</sup>

The values  $\lambda_t = 2.26$  and  $\lambda_{t-1} = .88$  also provide information. A value greater than 1 in the concurrent period suggests greater potency of the foreign balances as money than their peso-converted value would indicate. That is, they demonstrate intrinsically more of a pecuniary quality than the same amount of the domestic currency denominated money stock when both are converted to the same currency, in spite of the fact that both are the same in "nearness to money" as conventionally defined in terms of "closeness to cash." The value in the lagged period is less than but fairly close to 1. (In the concurrent period, .61 is significantly greater than .27 at the 90-percent level, but .69 is not significantly different from .78 in the lagged period.) Therefore, even though foreign money seems to be at least as important as domestic money, there is some suggestion here that its relative moneyiness may decline in lagged effects.

1. In "Money, Income, and Causality," *American Economic Review*, September 1972, Christopher A. Sims originally found this direction of causation for the United States. Since then, however, causality tests reported for other countries have indicated bidirectional causation or unidirectional causation the other way. For Mexico, testing causation between money and prices only, Susan M. Wachter, *Latin American Inflation: The Structuralist-Monetarist Debate* (Lexington, Mass.: D. C. Heath and Company, Lexington Books, 1976), reports results suggesting that money was adjusted passively to prices rather than vice versa. For the case at hand, in log linear regressions of nominal income on future, concurrent, and past values of money, future values of money were insignificant statistically and incorrectly signed. Concurrent and lagged values of money were both significant, but the lagged values demonstrated both greater statistical significance and larger coefficients. Likewise, in regressions of money on future, concurrent, and past values of nominal income, it was future values of money that carried the greatest significance and highest coefficients, while lagged values were insignificant and incorrectly signed. These investigations therefore suggest that causation as hypothesized above is correct.

2. The mean of the fractional series used here is 4 percent less than the mean of the series of the log of the sum of 1 plus the fraction. The coefficient on the fractional series itself is biased downward relative to that which would be obtained if the log series were used, but the approximation allows direct observation of  $\lambda$ .

3. In the regression,  $t$  statistics are reported in parentheses; \* indicates significance at the 99-percent level, using a single-tail test that the variable is signed as hypothesized.  $\bar{R}^2$  is the multiple correlation coefficient adjusted for degrees of freedom, D-W is the Durbin-Watson autocorrelation test statistic, and  $\rho$  is the first-order autocorrelation coefficient resulting from the use of a Cochrane-Orcutt procedure.

4. It is interesting to observe that Adrian W. Throop, who uses a similar technique to measure nearness to money of Euromarket deposits relative to a combined narrow money stock of the Group of Ten countries plus Switzerland, in "Eurobanking and World Inflation," *Voice of the Federal Reserve Bank of Dallas*, August 1979, finds no statistical significance for this term. He concludes that the Euromarket balances have been closer substitutes for other near-money financial assets than for money.



rate.<sup>8</sup> But any anxiety about a possible discretionary devaluation can lead to accelerated dollarization at some point, and this itself could become a factor leading to another abrupt exchange rate change.

Although some would argue that since early 1977 the Mexican exchange rate regime has been closer to a fixed than a managed floating one, there has at least been greater movement in the dollar/peso exchange rate than before the 1976 peso devaluation. And the downward movement in the rate that began about mid-1980 may be a sign that greater exchange rate adjustment is being fostered. Overall dollarization, which underwent an increase throughout most of 1979 and into 1980 (some of which was attributable to higher dollar interest rates), began to be less pronounced about the same time. It declined further later in the year.

## Conclusion

Foreign currency denominated deposits in Mexico have been fairly important in relation to the overall economy for some time. The Mexican case

historically is a very good example of currency substitution and the erosion of monetary independence that it produces, even under adjustably fixed exchange rates. As long as the possibility exists that the rate may be changed, private markets may substitute foreign for domestic money even though no concurrent movement in the spot exchange rate is observed.

This example can weaken arguments for fixed exchange rates that rely too heavily on the absence of currency substitution under fixed rates. It is now rather widely conceded that floating rates do not remove all elements of macroeconomic interdependence, and monetary independence is, by definition, relinquished under fixed rates because of the more obvious linkages deriving from official exchange market intervention. But if fixed rates are advocated out of major concern about the possibility of exchange rate instability under flexible rates arising from currency substitution, a case can be made that a better system may be one that allows more gradual rate changes to reflect the underlying fundamentals of exchange rate determination. Currency substitution itself can lead to abrupt changes in fixed parities if the rate is perceived to diverge from that dictated by these fundamentals. And over the longer haul it is these underlying factors that will likely prevail in any case.

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8. For an analysis of various recent pressures on the peso/dollar exchange rate, see Leroy O. Laney, "Oil, Inflation, and the Mexican Peso," *Voice of the Federal Reserve Bank of Dallas*, September 1979.



# “Fed Quotes”

Brief Excerpts from Recent Federal Reserve Speeches, Statements, Publications, Etc.

“The record shows, unambiguously, that we do take the targets seriously. But it also strongly suggests that no single target can reasonably be interpreted in isolation, and that the lower order aggregates, M-1A and M-1B, can be extremely volatile. All of them—and the interrelationships among them—are affected by institutional change in a way that cannot be quantitatively pinned down in advance.

“A clear case this year is the relationship between M-1A and M-1B. The half-point difference in the ranges for these two aggregates set almost a year ago reflected an assumption that growth of ATS, NOW and similar accounts would be limited; those new types of account make up the entire difference between M-1A and M-1B. As the year wore on, NOW and ATS accounts have grown more rapidly than anticipated, perhaps because passage of the Monetary Control Act prompted commercial banks with the authority to do so to market those accounts more aggressively before their power was extended to potential competitors. As a result, we now know the difference between M-1A and M-1B will be more like 2 percent rather than the  $\frac{1}{2}$  percent we earlier assumed. What we cannot know with any accuracy is the extent to which ATS and NOW accounts were fed by flows from savings deposits or other funds not counted in M-1B, and how much reflected shifts from demand deposits, depressing M-1A. Put differently, if we arbitrarily assume NOW and ATS accounts substitute for savings deposits and demand deposits in roughly equal proportions, M-1A has been “artificially” depressed by  $\frac{3}{4}$  percent, and M-1B increased by about the same amount, relative to the targets set at the start of the year.

“I make the point at some length because these shifts are expected to be much larger in the year ahead, when we will have nationwide NOW accounts, and will raise important questions of interpretation of both M-1A and M-1B. In essence, it is wrong to view either in isolation.”

Paul A. Volcker, Chairman, Board of Governors of the Federal Reserve System (Before the Committee on Banking, Finance and Urban Affairs, U.S. House of Representatives, November 19, 1980)



# Mexico: A Growing Market for U.S. Farm Products

By Don A. Riffe

Mexico has become a more important market for U.S. farm products over the past two decades. In spite of this growth, U.S. agricultural imports from Mexico have almost always exceeded exports of farm products to that country. However, the farm trade balance between the two countries now seems likely to be more favorable for the United States during the next two decades. Growth in Mexican farm output is lagging at a time when the nation is experiencing rapid growth in food demand.

The United States has traditionally been the major supplier of farm products to Mexico as well as the major market for Mexican farm exports. After suffering its worst drought in over 20 years during 1979, Mexico purchased approximately \$2 billion worth of U.S. farm products in 1980, about double the value of 1979 purchases. Mexican purchases may not be as large in coming years, but a return to normal weather conditions is not going to boost farm output enough to eliminate the need for substantial imports. The long-term trend in Mexican farm output has been toward slower growth. During the 1970's, growth in farm output consistently fell below the rate of population growth.

Looking ahead toward the next two decades, population growth will continue to be a powerful demand shifter. Of potentially equal importance, Mexico's substantial petroleum revenues will undoubtedly have some impact on food demand as this wealth filters down to some, if not all, segments of the population. These prospects for increasing food demand, combined with the fact

that agricultural output growth has been slowing and is already failing to keep pace with population growth, indicate that Mexican agricultural imports will grow more rapidly than in the past.

## **Sources of demand pressure include population growth . . .**

Population growth is one of the most important factors in Mexico's food supply dilemma. With about 70 million people, Mexico ranks as the 11th most populous country in the world. Yet, among the 50 most populous countries, only Kenya (ranked 43rd) and Venezuela (ranked 47th) matched Mexico's population growth rate during 1970-78. With less than one-third the U.S. population, Mexico has more new people each year than the United States.

There is some evidence that the birth rate in Mexico has recently begun to decline. At least part of the reported decline, from 45 live births per thousand population in 1975 to about 38 in 1978, can probably be attributed to family planning programs begun by the government in 1974. If so, further gains may come more slowly because the most receptive group in the population has already been reached.

It is possible, too, that the decline in the birth rate may be somewhat deceptive. The infant mortality rate has also declined significantly since 1960, raising the proportion of the population under age 15. Other things being equal, an increase in the number of persons outside the prime child-bearing age boosts the denominator in calculating



the birth rate, the effect being a decrease in the rate itself. Thus, the decline in the birth rate may hold less significance for the future than the magnitude of the change would seem to indicate.

Nonetheless, the possibility that some fundamental changes in the birth rate are occurring must be considered when projecting population growth. Projections of Mexican population in the year 2000 range from an extremely optimistic 109.9 million people to 143.5 million.<sup>1</sup> The World Bank projects 116 million people by 2000, which reflects a significant slowing in the rate of population growth.

Estimates of the average annual rate of population growth during the 1970's range from about 3.3 percent to 3.5 percent, depending on assumptions made about migration to the United States. The World Bank projection of the Mexican population in the year 2000 implies an annual growth rate of roughly 2.6 percent. However, it is likely that population growth will follow a pattern of slow decline, with growth close to 3 percent during most of this decade. Without substantial improvement in agricultural output, a higher level of imports will be required to maintain per capita consumption levels.

### ... and rising incomes

Population growth is not the only source of demand pressure. The scant income data available provide some evidence that incomes have been rising in Mexico. Real per capita gross domestic product has risen at an annual average rate of 1.8 percent since 1970. Household budget surveys indicate that even the poor may have had a real increase in income. Budget data, adjusted by the World Bank for underreporting, show that the real income of the poorest 40 percent of Mexican households increased about 35 percent, or almost 4 percent a year, from 1968 to 1977.<sup>2</sup>

While such increases among the poor are small in an absolute sense and contribute little to the alleviation of poverty, they hold more significance for food than for most other types of goods. In-

### Farm output in Mexico is not keeping up with growth in population and income



creases in income among the poorer segments of a population typically produce a larger increase in food consumption than do proportional increases in income among the affluent. That is, the poorer segments usually have higher income elasticities of demand for all types of food.

Although reliable estimates are lacking, a large proportion of the Mexican population probably has a relatively high income elasticity of demand for most foods. This is so because a large proportion of the population is relatively poor. In 1975, 45 percent of Mexican households had incomes less than \$658 (U.S. dollars), which was half the national average. The upper 10 percent of Mexican households receives about 41 percent of all household income, while the lower 40 percent receives

1. Arpad von Lazar, Althea L. Duersten, and Mary T. Dickinson, "Development Planning in Mexico: Case Study of an Oil-Rich Economy," *Resources Policy*, September 1979.

2. Joel Bergsman, "Income Distribution and Poverty in Mexico," World Bank Staff Working Papers, no. 395 (Washington, D.C.: World Bank, 1980).



about 10 percent of the household income. The distribution has not changed much in the past 20 years, indicating that all income groups have been gaining at about the same rate.

For per capita Mexican incomes, a range of growth of 4.5 to 6.0 percent a year is anticipated through the year 2000, based on estimated real gross domestic product growth in the range of 8 to 9 percent.<sup>3</sup> The upper end of that income range may be a somewhat optimistic figure, but the lower end is not unlikely, given a gradual slowing in the rate of population growth.

Some rough estimates of changes in demand for crops and livestock have been calculated, assuming a 2.5-percent average rate of population growth and a 4.5-percent rate of per capita income growth, over a range of income elasticities.<sup>4</sup> A conservative income elasticity of 0.3 is associated with an estimated annual growth of 3.9 percent in demand for crops. For livestock, an income elasticity of 0.7 yields an estimated annual growth of 5.7 percent in demand. Although these estimates are crude, they do provide an idea of the kind of growth that will be necessary for agricultural output to keep pace with demand.

### **Easiest output gains have been made**

Mexican agriculture has developed as a nearly dual system. After the revolution of 1910-17, an agricultural system based on prerevolutionary traditions of communal landholding received strong government support. Under the communal *ejido* system, land assigned to community members to work could be inherited but never sold or mortgaged. Many large estates were expropriated and organized as "collective" *ejidos*, retaining their large size to take advantage of economies of scale.

In the 1940's, emphasis shifted dramatically toward government support of privately owned commercial agriculture. Most of the collective *ejidos* gradually lost their organizational structure when government support was withdrawn. There was no widespread shift away from the "traditional" *ejido* form of land tenure, however, because the new emphasis was more the result of a shift in political power than in economic planning.

Large landowners were generally favored in subsequent programs and policies affecting agriculture, while subsistence and near-subsistence farmers were essentially ignored.<sup>5</sup> Thus, a system of large-scale commercial agriculture developed within an overall system of traditional communal and private holdings.

The so-called green revolution in Mexico was achieved by concentrating development efforts, to a great extent, on large private farms, accounting for a relatively small proportion of total farmland. These farms were the primary beneficiaries of public investment in irrigation projects, new land development, agricultural research, long-term agricultural credit, and guarantee prices for crops. A substantial expansion in farm output was achieved between the forties and the midsixties without significant attention to increasing the productivity of traditional agriculture.

This pattern of development delayed the resolution of problems that Mexico is now facing, for while the limits of arable land, irrigation, and improved technologies have certainly not been reached, the easiest gains have been made. The history of farm output growth tells the story. After surging from 3.9 percent in the 1936-45 period to 9.2 percent in 1946-55, the average annual rate of growth in the volume of agricultural production slowed to 5.3 percent in 1956-65 and to 2.5 percent—below the rate of population growth—in 1966-75.

### **Price policies have contributed to slower growth**

Government food price policies have also been a factor in the gradual slowing of agricultural output growth. Production incentives for basic foodstuffs, in particular, have often been distorted during the past two decades. Government actions have tended to keep consumer food prices and prices paid to farmers relatively low through ceilings on prices and profits for some food products, regulation of farm imports and exports, and a system of guarantee prices for staple crops. Because prices paid to farmers have generally not been allowed to rise as rapidly as farm input costs, the farm sector

3. John E. Link, "Mexican Agriculture: At the Crossroad?" (unpublished working paper, U.S. Department of Agriculture, International Economics Division, 1980).

4. Ibid.

5. United Nations Research Institute for Social Development, *Modernizing Mexican Agriculture: Socioeconomic Implications of Technological Change 1940-1970*, by Cynthia Hewitt de Alcantara (UNRISD Report No. 76.5), 1976.



## Mexico is already among the top 10 markets for U.S. farm products

**TABLE 1. U.S.-Mexican Agricultural Trade**

(Dollar amounts in millions)

	Fiscal years <sup>1</sup>				
	1960	1965	1970	1975	1980
Mexico's rank among U.S. farm product markets . . .	20	18	12	6	3
U.S. farm exports to Mexico . . . . .	\$56	\$ 79	\$139	\$852	\$2,005
U.S. farm imports from Mexico . . . . .	n.a.	270	527	584	1,200
Trade balance . . . . .	n.a.	-\$191	-\$388	\$268	\$ 805

1. July 1-June 30 through 1975; October 1-September 30 for 1980.  
n.a.—Not available.  
SOURCE: U.S. Department of Agriculture.

has often been in the position of subsidizing urban consumption of basic foodstuffs.

As a result of Mexico's food price policies, many farmers have shifted away from producing basic foodstuffs, such as corn and beans, toward producing crops with higher profit potential—fruits and vegetables for export, sorghum for livestock feed, and oilseeds for feed and food uses. The lack of strong profit incentives for farmers probably has also been a factor slowing the expansion of cultivated land area.

### There are obstacles to increasing output

Given the current situation, there are basically two practical ways for Mexico to increase farm output substantially: bringing additional land into cultivation at a faster rate and improving the productivity of traditional agriculture. Attempts to achieve both of these goals are currently being made and include some changes in food price policy. There are, however, some serious problems to overcome.

The Mexican government exerts a very strong influence on the agricultural sector through its system of guarantee prices, dominance as a supplier of farm credit, control of major inputs, and regulation of farm imports and exports. Yet, the legal and political framework within which the government must operate may impede its ability to implement some changes that might help boost farm output.

To understand the problem, it is useful to go

back to the revolution of 1910-17. Before the revolution, about 3 percent of the population held about 95 percent of the land. The desire of the peasant class for land was a driving force behind the revolution, and land redistribution has continued in each succeeding decade. Land reform continues to be a politically sensitive issue, and Mexican agricultural policies (or the lack thereof) have been uniquely influenced because of the unavoidable link to land issues.

Some of the most desirable remaining tracts of uncultivated land in Mexico are now being used for grazing. Ranchers with no more than 500 head of cattle may raise crops for their own use; however, the Agrarian Reform Law dictates that crops grown on ranchland cannot be sold. If commercial crops are produced on ranchland, the land may be reclassified as farmland and, technically, the owner risks expropriation of the property. The Agrarian Reform Law is deeply rooted in Mexican history and may prove to be an obstacle to rapid expansion of cultivated land area.

The traditional *ejido* form of land tenure, also deeply rooted in Mexican history, represents the most inefficient segment of Mexican agriculture. Because a farmer's assigned share can be inherited but never sold, traditional *ejido* plots are now supporting more people than originally intended. Unlike the larger collective *ejidos*, many traditional *ejidos* are of an uneconomic size and lack adequate access to credit and other resources. The incentive for an individual to invest in land improvements is not strong, since the land belongs to the state



and its use is controlled by the local community.<sup>6</sup> Although agricultural efficiency might be improved by changing some of the laws affecting the structure of the *ejido* system, the sensitivity of the land reform issue will make significant changes difficult.

There are physical problems to be overcome as well. Mexico's technological advances in agriculture have been oriented toward irrigated production. However, water is a very scarce resource in most areas of the country. To increase the productivity of traditional agriculture, it will be necessary to develop improved technologies for dryland production.

Getting traditional farmers to adopt new technology may prove to be a more formidable task than developing it. A 1968 survey revealed that only about 7 percent of Mexico's farms, representing about 19 percent of total farmland, were using any modern technology. Since agriculture is still a way of life for about 35 percent of the population, an effort to improve productivity on traditional farms is going to involve the cooperation of a large group of people.

Rural Mexicans are less likely to be educated and more likely to be poor than Mexicans in urban areas. Farm families are obviously scattered across the country, and Mexico currently does not have the infrastructure to reach many of them. But because traditional farms account for a large proportion of total farmland, Mexico's ultimate degree of independence from food imports may hinge on its success in increasing output on these farms.

### **The Mexican government is aware of problems**

In March 1980 the Mexican government, in recognition of its food supply and distribution problems, announced the beginning of a strategy for restructuring the food system to guarantee all Mexicans a minimum level of nutrition and to achieve self-sufficiency in the production of basic foodstuffs. Referred to here as the Mexican Food System (MFS), the strategy encompasses all aspects of the food system from production through consumption. Specific objectives are to achieve self-sufficiency in corn and beans by 1982 and in other

basic foodstuffs by 1985.<sup>7</sup>

Relatively little about this ambitious strategy has been revealed. Low-income dryland farm families are the primary target group. Ironically, they are the poorest and worst fed group in Mexico but, nonetheless, constitute the largest segment in terms of number of farms, producing many of the basic foodstuffs that must now be imported.

The MFS places a much-needed emphasis on increasing the productivity of traditional agriculture. To help boost food production, the government proposes a number of actions, including subsidizing inputs to target farmers, funding of research focusing on small-farm technological needs, raising guarantee prices for basic foodstuffs, establishing a risk-sharing program with target farmers, improving extension activities, and increasing credit to the agricultural sector.

The MFS strategy appears to be receiving the attention of a cornerstone of government policy. According to Mexico's Global Development Plan for 1980-82, the agricultural sector will be receiving one-fourth of all public investment by 1982. Unfortunately, the MFS attempts to squeeze long-term agricultural development into a very short time frame and does not directly address the inefficiencies of the traditional *ejido* system. The term of the present administration expires in 1982, and there is no assurance that the MFS will receive strong support as a long-term program.

### **Dramatic changes in prospect**

Eventual achievement of self-sufficiency in basic foodstuffs with a combination of additional cultivated land and some progress under the MFS may allow Mexico a degree of food security, but it will not avert substantial farm product imports in future years. Prospective increases in income, especially for middle-income groups, portend dramatic changes in quality as well as quantity of foods demanded.

A change in the quality of foods demanded associated with rising incomes of middle-income Mexicans would likely mean more meat in the diet. Mexico's poultry industry is already growing very rapidly. Poultry tonnage has increased an average of 12.4 percent a year since 1970, or about

6. W. David Hopper, "Distortions of Agricultural Development Resulting from Government Prohibitions," in *Distortions of Agricultural Incentives*, ed. Theodore W. Schultz (Bloomington: Indiana University Press, 1978), p. 76.

7. S. Kenneth Shwedel, "SAM—The Mexican Food System" (speech presented to Mexican-U.S. Businessmen's Committee Meeting, Cozumel, Q. R., October 1980).



## Livestock feeding is boosting Mexico's grain needs

**TABLE 2. Estimated Mexican Grain Consumption and Imports**

	Years beginning July 1							
	1960	1965	1970	1975	1976	1977	1978	1979
Grain consumption (Millions of metric tons) .....	7.2	9.7	12.8	17.7	18.6	18.9	19.7	20.7
Percent used for livestock feed ...	4.8	9.5	18.2	24.5	25.5	24.8	25.2	26.2
Grain imports as a percent of grain consumption .....	2.0	1.6	1.4	10.1	12.4	15.3	16.3	36.1

SOURCE: U.S. Department of Agriculture.

9.3 percent a year on a per capita basis. Tonnage of beef and pork has increased an average of about 2.1 percent a year on a per capita basis. The demand for livestock feed and forages will undoubtedly be much stronger in the future, and this demand is not likely to be met by domestic production.

In addition to anticipated gains in per capita incomes for all income groups, the possibility of a shift in the distribution of income further increases the likelihood of dramatic change in food demand. Mexico's surging petroleum revenues, although they might exacerbate income disparity in the short run, would seem to increase the probability of shifts in income distribution benefiting middle- and lower-income groups during the next 20 years because of the potential impact on economic development. Government attempts to improve agricultural productivity may also work in this direction, since Mexico's many farm families include some of the poorest people in the country.

## Conclusion

Over the past two decades, Mexican crop output has risen at an annual average rate of about 2.8 percent, and livestock output has risen at a rate of about 3.9 percent. In recent years growth has

been slowing. From 1970 to 1979, annual growth in output averaged only 1.9 percent for crops and 3.2 percent for livestock. In view of potential annual increases in demand on the order of 3.9 percent for crops and 5.7 percent for livestock, it is apparent that gains in output will have to be dramatic for substantial imports to be avoided.

Considering the obstacles to be overcome, Mexico is not likely to markedly narrow the gap between growth in domestic farm output and food demand during the 1980's. Many types of farm products, including basic foodstuffs, will have to be imported in large quantities. As incomes rise, Mexico will become a much more important market for items other than basic foodstuffs. Feedstuffs, oilseeds, and livestock products appear to have the greatest market potential over the longer run.



# Now Available

Recently issued Federal Reserve circulars, speeches, statements to Congress, publications, etc., may be obtained by contacting the Bank and Public Information Department, Federal Reserve Bank of Dallas, Station K, Dallas, Texas 75222, unless indicated otherwise.

## Circulars

- Amendment to Regulation D [Reserve Requirements of Depository Institutions]: Calculation of Eurocurrency Liabilities.** 5 pp. Circular No. 80-229 (December 4, 1980).
- Educational Film.** 1 p. Circular No. 80-230 (December 8, 1980).
- Regulation Z—Truth in Lending: Revision of Proposed Regulation.** 15 pp., including attachments. Circular No. 80-232 (December 9, 1980).
- Release of Final Agency Enforcement Documents.** 1 p. Circular No. 80-234 (December 12, 1980).
- Regulation Y—Bank Holding Companies and Change in Bank Control: Notice of Final Rulemaking Relating to Real Estate Advisory and Appraisal Services; Notice of Comment Period Relating to a Portion of the New Rule.** 6 pp. Circular No. 80-235 (December 16, 1980).
- Holidays [Federal Reserve Bank of Dallas and Branches].** 1 p. Circular No. 80-236 (December 16, 1980).
- Holidays [All Federal Reserve Banks and Branches].** 1 p. Circular No. 80-237 (December 17, 1980).
- Belize (Formerly British Honduras) Money Orders.** 1 p. Circular No. 80-238 (December 18, 1980).
- Regulation C—Home Mortgage Disclosure Act: Final Amendment.** 6 pp. Circular No. 80-239 (December 19, 1980).
- Amendments to Regulation D—Reserve Requirements of Depository Institutions.** 5 pp. Circular No. 80-240 (December 22, 1980).
- Proposed Amendment to Regulation T: Credit By Brokers and Dealers.** 2 pp. Circular No. 80-241 (December 22, 1980).
- Regulation K—International Banking Operations: Notice of Final Rulemaking Relating to Additional Investment under General Consent Procedures.** 2 pp. Circular No. 80-243 (December 23, 1980).
- Revised Schedule of Operating Hours for the Transfer and Settlement of Funds.** 2 pp. Circular No. 80-244 (December 30, 1980).

## Speeches and Statements

- Remarks by **Paul A. Volcker** ("A Rare Opportunity") before the **43rd Annual Dinner of the Tax Foundation**, New York City. 13 pp. December 3, 1980.
- Remarks by **Henry C. Wallich** ("Federal Reserve Policy and the Economic Outlook") to the **Chesapeake Chapter of Robert Morris Associates**, Bethesda, Maryland. 14 pp. December 3, 1980.
- Address by **J. Charles Partee** ("The Changing Environment for Banking") before the **American Institute of Certified Public Accountants Annual National Conference on Banking**, Washington, D. C. 14 pp. December 4, 1980.



# Regulatory Briefs and Announcements

## Board Announces Actions on Pricing and Access to Federal Reserve Services

The Federal Reserve Board has published the principles, various fee schedules, and implementation dates for pricing and access to Federal Reserve services. This action was taken to implement some provisions of the Monetary Control Act of 1980.

Under the act, the Board is required to publish a set of pricing principles and a proposed schedule of Federal Reserve fees dealing with the following: currency and coin, check clearing and collection, wire transfer of funds, use of automated clearinghouse facilities, net settlement, book entry and safekeeping of securities, noncash collection, and the cost to the Federal Reserve of float.

The principles underlying Federal Reserve fees provide that:

1. All services covered by the fee schedule be priced explicitly.
2. All such Fed services be available to nonmember depository institutions at the same price charged to member banks, with some institutions required to hold clearing balances.
3. Fees be established on the basis of all direct and indirect costs actually incurred in providing the Fed services.

4. Float be charged at the Federal funds rate.

To encourage competition and provide for an adequate level of services nationwide, the Board also adopted pricing principles specifying that:

5. Fees be set so that revenues for major service categories match costs.
6. Service arrangements and related fee schedules should be responsive to the changing needs for services in particular markets.
7. The structure of fees and service arrangements may be designed to improve the efficient utilization of Fed services and improve the nation's payments system.

Concurrently, the Board also took three other actions. One set the procedures that depository institutions should follow if they maintain low or zero required reserve balances with the Federal Reserve and want to obtain services directly from the Federal Reserve. The second allowed nonmember depository institutions to have immediate access to Federal Reserve regional check processing centers (RCPCs) for the collection of local checks. The third action postponed for a short period the pricing of all check collection services and access by nonmember depository institutions to the Fed's check collection facilities other than RCPCs.

The accompanying table indicates the implementation dates for pricing and access to Federal Reserve services for all depository institutions.

Service	Schedule
Wire transfer . . . . .	Access and pricing, January 29, 1981
Net settlement . . . . .	Access and pricing, January 29, 1981
Automated clearinghouse . . . . .	Access and pricing, August 1, 1981
Check collection and clearing . . . . .	Full access and pricing, August 1, 1981
Purchase, sale, safekeeping, and transfer of securities . . . . .	Access and pricing, October 1981
Noncash collection . . . . .	Access and pricing, October 1981
Coin and currency transportation . . . . .	Access and pricing, January 1, 1982
Coin wrapping . . . . .	Access and pricing, January 1, 1982



## **Regulation C: Amendments Implement Calendar-Year Reporting**

The Board of Governors of the Federal Reserve System has amended Regulation C, which implements the Home Mortgage Disclosure Act of 1975. The regulation requires financial institutions to make annual disclosure of their mortgage lending activity, including home improvement loans.

The Board's action requires institutions to use a calendar-year, rather than a fiscal-year, basis for reporting of 1980 data. In addition, institutions that previously compiled data on a non-calendar-year basis must prepare a separate disclosure statement for that portion of 1979 not included in their fiscal year ending before January 1, 1980. The Board established March 31, 1981, as the due date for both disclosure statements.

Regulation C applies to banks only if they have assets of \$10 million or more, make first-lien mortgage loans on one- to four-family residences, are federally insured or regulated, and have a home or branch office in a standard metropolitan statistical area (SMSA).

## **Bank Holding Companies Allowed to Expand Activities**

The Federal Reserve Board has adopted a final rule under Regulation Y that expands the list of permissible activities for bank holding companies to include real estate appraisals. In adopting this rule, the Board modified the proposed rule by incorporating appraisals of single-family residences.

In addition to expanding the activities list for bank holding companies, the Board also has determined that within the scope of nonbanking activities already approved for them, holding companies may advise state and local governments about methods available to finance real estate development projects and may evaluate projected income to determine for the governments whether debt resulting from proposed development projects can be adequately serviced.

## **Regulations D and Q: Proposed Amendments Permit International Banking Facilities**

The Board of Governors of the Federal Reserve System has issued for public comment a proposal that would amend Regulations D and Q to permit the establishment in the United States of international banking facilities (IBFs). Under the proposal, IBFs could be established by all U.S. depository institutions, Edge Act and Agreement corporations, and branches and agencies of foreign banks located in the United States.

By amending the Federal Reserve regulations regarding reserve requirements and interest rate ceilings, the Board's proposal would permit IBFs to:

1. Accept time deposits, free of Federal reserve requirements, from foreign residents.
2. Borrow funds, free of Federal reserve requirements, from depository institutions located outside the United States or from other IBFs.
3. Offer to foreign residents time deposits with a minimum maturity, or notice requirement, of two days and pay interest on these deposits free of the interest rate limitations of Regulation Q.
4. Offer time deposits authorizing minimum deposits or withdrawals of \$500,000. As an alternative, offer time deposits in which the depositor must maintain a minimum average daily balance of \$500,000 and is permitted to make transactions of not less than \$100,000.
5. Extend credit to foreign residents, other IBFs, or the U.S. office of the IBF's parent institution.