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THE GREAT DEPRESSION AND INDUSTRIALIZATION: THE CASE OF MEXICO

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I Introduction

Neither the effects of the Great Depression on the Mexican economy nor the latter's general performance during the 1930s have been clearly established in the literature. Actually, not much consensus has been reached even that regarding the fundamental issues. Perhaps one of the few agreements in the historiography of this period is that the structure of the economy suffered a fundamental change and the basis were laid for the postwar development.

In particular, it is argued that the structural changes were carried out by a process of _Reform and Reconstruction_ (Reynolds, 1970). Reforms because a more active economic role of the government and its greater explicit commitment to the goal of redistributing income were recognized. Reform also because a considerable redistribution of wealth took place through the oil industry expropriation and the process of agrarian reform. The term Reconstruction has been used to mean the efforts to restore the economic power of prerevolutionary times, from industry and railroads to confidence in paper money, and the engagement of infrastructure projects, ranging from roads and irrigation facilities to laws and development banks. Similarly, it has been argued that during these years the basis for economic growth in the 1940s was established, meaning that a proper set of laws, financial institutions, agricultural infrastructure and property rights, were preconditions for economic development.

With regard to the process of industrialization, it has been suggested that it started as a response to World War II because the unavailability of goods from the belligerent nations provided a great incentive for import substitution. Although some substitution of imports is believed to have taken place in the 1930s, it has been discarded as unimportant and irrelevant. (Villarreal, 1976) that is to say, unlike other Latin American countries such as Argentina, Colombia and Brazil where the Great Depression provided the impetus for import substitution, this development had to wait until World War II to get underway in Mexico. Perhaps the single most important reason for this delay, it has been asserted, was the great uncertainty prevailing in the country at the time because of the government's intention to enforce the 1917 Constitution, particularly in regard to the ownership of the Nation's subsoil. (Hansen, 1971, pp.29-40). These conditions were later aggravated, so goes the argument, by the Cárdenas socialist policies and the government emphasis on the agricultural sector.

The process of Mexican industrialization during the 1930's is the main topic of this paper. It will be argued that a fundamental change in the economy's structure took place; one in which the industrial sector began to acquire preponderance and a relative independent dynamics which was to mature the following decades. That is to say, the 1925-40 years were indeed a period of restructuring and reconstruction in the middle of a crisis. But such structural changes were not only related to institutions, public works, laws and the like. The economy itself was transformed and a process of change from outward to inward development and growth began to take shape. The Great Depression contributed to this transformation by facilitating the maturing of institutions and creating pure economic conditions which promoted domestic industrialization. As a result, and partly because other sectors stagnated (Agriculture, mining, and to some extent oil), industry became the engine of growth during the thirties.

The purpose of this paper is to show how was it possible for the industrial sector to perform so well in this period, and to explore the particular role played by government policy and the Great Depression itself to permit this outcome. In particular, the strength and transmission mechanism of the crisis will be considered as well as the process by which it helped the maturity of an important institution, namely, that of Banco de México. The paper has been structured in a chronological way. The following section considers the shock of the Great Depression, paying special attention to the transmission channels of the crisis and to the macroeconomic policies pursued. Section III deals with the recovery and the remaining years of the 1930s In that section the emphasis is placed on the distinction between policy measures and the rather exogenous forces which accelerated the recovery from the shock. In addition, it is shown there how the financial authorities matured during the thirties in terms of their capability to respond to foreign crises. Finally a concluding section ends the paper.

II The Shock of the Great Depression

Neither the Wall Street Boom nor its corresponding Crash a year later were the immediate causes of the Mexican depression. Indeed, the impact of several depressive forces had been felt in the Mexican economy probably since 1925 and were somewhat aggravated in 1927 by the United States recession. The terms of trade had deteriorated 4 percent in the 1926-1929 period, although the volume of demand for Mexican mineral exports had remained strong after the mentioned 1927 recession. The other major export - oil - had been decreasing steadily its importance since the early 1920s, so that the Great Depression simply strengthened the falling path.

The depresive forces were exacerbated by the pro-cyclical , orthodox economic policies followed by the government. Like in most other countries at the time, Mexico was officially under the gold standard and took economic measures accordingly. However, Mexico's peculiar monetary system placed her under a floating exchange rate regime. Such a situation was unique in the Latin American context and deserves some explanation before one can deal with the role of economic policy during the Great Depression.

Indeed, Mexico was _de facto_ under a flexible exchange rate regime because the monetary system was essentially composed by gold and silver coins, and because the only currency with full legal tender was the gold peso. However, since most transactions were carried out with silver currency, basically because of the long silver tradition in the country, the relevant exchange rate was that of the silver peso _vis à vis_ the dollar, and not with respect to the gold peso. Naturally, the relative value of the gold and silver currencies varied with the fluctuations in the international price of both metals and on their relative domestic supplies and demands. Therefore, the silver peso would depreciate when the international price of gold increased relative to that of silver, or when pressures in the balance of payments ocurred which made gold flow out and become scarce domesically, so that its price relative to that of silver would also rise. The government could counteract this process by diminishing the coinage of silver money and increasing that

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(Ortiz Mena, 1943, p. 283 and Simpson, 1932, pp. 6-7) As a result, the exchange rate depreciated and the federal government reacted by accelerating the coinage of gold and halting that of silver pesos in February, 1927, and eventually interrupting the servicing of the foreign debt in the middle of 1928. This policy made the money supply diminish 10 percent in 1927[1], and prompted the exchange rate to appreciate 10 percent between February 1927, and April 1928. Naturally, this measure had a further depressing effect in addition to that caused by the fall in export demand, so that GDP in real terms fell 4.4 percent in 1927 and just barely increased 0.6 percent in 1928. In turn, the decline in income reduced the volume of imports in those years. Consequently, all these sources of taxes --exports, imports, and income--- dropped and with it the amount of fiscal revenues. With a balanced budget policy, such a reduction implied an additional contractionary effect. However, it was not possible to reduce expenditures in the same proportion and actual deficits appeared in 1926 and 1927. Nevertheless, the fact that such deficits were essentially financed with arrears reduced considerably their potential expansionary impact[2].

As a whole, the period preceding the Wall Street Crash witnessed a whole array of contractionary policies which continued after Luis Montes de Oca replaced Alberto J. Pani as Finance Minister in 1927. Indeed, expenditures diminished 15 percent between 1926 and 1929 by essentially reducing the government's payroll and additional taxes were levied. The new taxes together with the economy's recovery allowed the increase of fiscal revenues but only to finance a decreasing level of expenditure up to 1929.

Such a restrictive economic process was substantially accelerated by the Great Depression. Both the Mexican terms of trade and the export volume diminished drastically, basically because of the sudden decrease in foreign demand as income abroad fell, and partly due to the raise in tariffs in the United States in 1930. Indeed GNP in that country fell at an average annual rate of 8.2 percent in real terms between the peak (1929) and the though (1933) of the cycle. In turn, the Mexican terms of trade deteriorated 21 percent while the volume of exports contracted 37 percent during the 1929-32 years, which implied a fall of 50 percent in the purchasing power of exports. (See Table 1).

The foreign shock's impact on aggregate demand worked through various channels. First of all, the export sector itself was inmediately effected by the reduction in their output prices and the absolute fall of demand. However, the fact that a considerable share of the sector was in foreign hands and consequently that the return value of exports was relatively little--66 percent in 1926-- made the foreign shock milder in terms of its repercussions to the rest of the economy. Indeed, only 3 percent of the non-rural labor force worked in the oil and mining sector, which in turn represented approximately 65 percent of all exports. (Cárdenas, 1982, pp,22-30)

TABLE 1

MACROECONOMIC VARIABLES DURING THE SHOCK

	Percentage Change, 1929-32	
	Total	Yearly Average
Exports (dollars)	-64.9	-23.0
Imports (dollars)	-67.8	-24.7
Terms of Trade	-20.8	- 5.7
Capacity to Import	-50.3	-16.0
Real Total Output	-17.6	- 4.7
Real Industrial Production	-31.3	- 9.0
Wholesale Price Index	-18.8	- 5.1
Nominal Exchange Rate[1]	47.0	10.1
Real Exchange Rate[1]	21.9	5.1
Central Bank Reserves (dollars)[2]	-53.4	-22.5
Money Supply [3]	-60.2	-26.5

NOTE: All figures in nominal terms except stated otherwise.

[1]Pesos per U.S. dollar

[2]Period 1929-31 when reserves reached a bottom. Figures for 1929-32 are 23.6 and 5.4 percent respectively.

[3]Period 1929-31 when the money supply reached a bottom Figures for 1929-32 are -45.6 and -14.1 respectively

SOURCE: Cárdenas, Enrique México's Industrialization During the Great Depression: Public Policy and Private Response. Ph.D. Dissertation, Yale University, New Haven, 1982. Table 2.4

This experience contrasts sharply with that observed in Brazil or Colombia where the main export product--coffee--is really a labor intensive activity, and therefore the shock was much more widely spread.

A second related channel through which the foreign shock was transmitted was that of the fiscal linkage. The fact that almost 50 percent of all taxes were related to the foreign sector made the level of fiscal revenues highly dependent on foreign economic fluctuations. Consequently, it is not surpising to find that tax receipts dropped from 231 million in 1929 to 155 in 1932, of which 63 percent were caused by the fall in taxes related to the foreign sector (Nacional Financiera S.A., 1978, pp. 355) This decline in the flow of fiscal revenues took place in spite of government efforts to increase taxes. To a large extent, the new general tariff which came into effect in 1930, and definitely the 1 percent extraordinary tax levied in 1931 on gross output of agricultural, industrial and commercial activities, were emergency measures to stop the declining trend in taxes. With regard to expenditures, those decreased substantially in 1931. Naturally, these measures brought with them corresponding actual budget surpluses which were of a considerable magnitude, and largely exceeded the government plans to stabilize the Treasury net position. As a matter of fact, the accumulated surpluses in the 1929-31 years were slightly smaller, in real terms, than the deficits accumulated in the four years between 1937 and 1940 during President Cárdenas expansionary administration. (Cárdenas, 1982, pp. 131 and 280).

The foreign and fiscal contractionary elements were coupled with a third transmission mechanism, namely, that of the monetary channel. As mentioned above, the balance of payments received a further shock with the Great Depression and the surplus in the trade account continued its downward trend. The level of international reserves began to decrease at the beginning of the second quarter of 1930[3] partly due to the worsening of the trade account, and partly because the government paid ten million gold pesos to the foreign creditors in order to negotiate the resumption of servicing the public foreign debt. The exchange rate continued its depreciating trend and by the end of July 1931, the level of international reserves were practically exhausted reaching the low point of 6.1 million dollars: the government did not have any choice but to reform the 1905 Monetary Law and demonetize gold.

The increasing discount of silver, vis-à-vis gold since a few months earlier had raised expectations of devaluation and the banking system suffered a run: more than 20 million pesos were withdrawn from the banks and exchanged into gold or foreign exchange the week before the exactment of the new Monetary Law (Simpson, 1932, p. 67). However, the authorities were reluctant to abandon the considered gold standard and, in addition to the endowment of 15 million dollars to defend the exchange rate, the Treasury ordered the withdrawal of ten million (silver) pesos from circulation and the increase in the reserve requirement of deposits (U.S. Department of Commerce, 1932, p. 451; Banco de México, 1931, p. 27)[4].

The deteriorating balance of payments coupled with those restrictive monetary measures, as well as the panic conditions prevailing during most of 1931, made the money supply sharply fall in that year. M_1 reached an all time low value of 272 million pesos, more than a 60 percent decline in nominal terms and 54 percent at constant prices. Total resources of the banking system fell 21 percent in nominal terms and with them the volume of credit granted, though in a somewhat smaller proportion. As wholesale prices diminished almost 20 percent in 1931, the drop on financial resources in real terms was 37 percent and real interest rates soared, thus adding fuel to the fire of economic depression[5].

Summarizing the argument so far, the Great Depression impacted the national economy through three essential channels. First, by diminishing the demand and prices of the export sector. Secondly, by reducing the level of fiscal revenues and thus of expenditures as a consequence of the decline of foreign trade. And finally, because of the decrease in the money supply caused by a restrictive monetary policy, and by the export of gold which developed in response to the deteriorating balance of payments. These contractionary elements, however, were somewhat counteracted by the depreciation of the exchange rate, and its effects on the relative price of imports and domestically produced import-competing products. As this relative price rose, consumers tended to substitute imports for domestic goods and so, demand tended to increase. This price effect was to have a long lasting impact on the industrial sector's performance during the 1930s.

Finally, an autonomous element which aggravated the effects of the 1929 depression was the very bad crop of that year which resulted from adverse climatic conditions. The fact that the livelihood of a vast share of the population depended on agriculture and that many of those constituted part of the market for industrial goods and services, made the 1929 crop failure contract even further the level of aggregate demand in the early years of the depression.

The resulting contraction of demand left installed capacity idle. At the beginning, the government prohibited the close downs of factories in order to prevent a higher level of unemployment, but by the middle of 1931 that situation was no longer possible. Sales diminished, inventories accumulated, and finally the volume of output was also curtailed. Profits in industry tended to diminish partly because of idle capacity and partly because of the lag between sales and production. The continued forced-production in the face of falling sales implied that the wage bill was probably reduced but not proportionately. That is, nominal wages were reduced but that did not prevent profits from declining. Moreover, wages were also pressured down by two additional factors. On the one had, a total of over 310,000 mexicans working in the United Stated were repatriated between 1929 and 1933[6], which represented almost 6 percent of those employed in 1930 (Carreras de Velasco, 1974, 1973-4). On the other hand, the labor movement had gone astray with the withdrawal of government support in the late 1920s, fact which hindered the process of collective bargaining and the defense of labor, wages, and other prerogatives.

The failure of the financial authorities to manage the increasingly difficult economic situation made inevitable the resignation of the Minister Montes de Oca in late December 1931. Alberto J. Pani, who had already been the Treasury Minister under President Calles, became again the head of the ministry in February 1932, and shortly after he took several economic policies which significantly modified the economic trend.

III. Recovery and Performance During the 1930's

Like in various other Latin American nations, the Mexican economy was able to recover relatively soon from the contractionary effects of the Great Depression. By 1932 the business cycle had reached its trough, probably before the end of the first semester, and it resumed a steady growth trend thereafter through the remaining of the decade. Two major factors were responsible for the early recovery of the Mexican economy through pulling aggregate demand: an early increase in the value of exports and a series of expansionary monetary and fiscal policies. Let us consider these two elements in some detail.

The relative early increase in the value of exports was made possible by the rise in prices of some exports and the exploitation of a new oil field, elements which were strengthened by the rapid nominal and real devaluation of the peso since 1929. Indeed, the value of exports began to rise in 1933 only because the dollar price of all exports increased 8.5 percent in that year, while the volume only began to grow in 1934. In this latter year, as a result of a growing volume and price of exports, the export value experienced a substantial increase of 68 percent in dollar terms and 73 percent in peso values.

The rise was particularly strong in the mining and oil sectors which allowed these products surpass their 1929 dollar value of sales abroad in 1934, thus pushing substantially the early recovery of total exports. In fact, of the 82 million dollars increase in exports from 1932 to 1934, 63 millions (77 percent) were due to gold, silver and petroleum products. (Cárdenas, 1982, pp.298, 319 and 322) Consequently, the somewhat privileged position of Mexico by owning silver and oil made it possible to accelerate the recovery by increasing demand and the capacity to import, thus allowing the purchase of foreign raw materials which, in the face of idle capacity, permitted the quick resumption of production. This evidence contrasts with that of other countries which had to rely on only one major export and where prices did not rise fast enough. That is the case of Chile, for instance; they mainly exported copper and its 1929 international price was not surpassed until the 1940s. A less dramatic but similar case is that of coffee, fundamental export of Brazil and Colombia. That is to say, while the sluggish recovery in the price of industrial metals significantly effected the behaviour of Mexican exports, such influence was somewhat counteracted by the rise of prices of other products. Using Carlos Díaz Alejandro's allegory, Mexico was quite lucky in the export commodity lottery.

The second element which permitted a rapid recovery from the Great Depression, the expansionary economic policies, are perhaps of greater interest since they implied a fundamental change of course. With regard to the exchange rate, the new minister Pani *de facto* abandoned the policy of stabilizing or rather defending the exchange rate and in this sense the gold standard as well. The government implicitly made the decision to put the goal of full employment before the external equilibrium objective by means of letting the peso float freely, at least in the first few months after the monetary reform of March 1932[7]. Such a decision was not taken exogenously, however, but was forced by the very low level of international reserves in the central bank. Naturally, the peso continued to depreciate after the reform experiencing wide fluctuations until the middle of 1933, when the exchange rate became fairly stable again. The export recovery had increased the supply of foreign exchange and the actual level of international reserves so that the monetary authorities decided to fix the peso parity in November 1933. That new value implied a depreciation of 35 percent with respect to February 1932, and 67 percent with respect to 1929. Such parity would remain until March 1938, despite the abandonment of the gold standard by the United States in 1934.

With regard to monetary policy, the 1932 measures undertaken by Minister Pani were essentially expansionary. As soon as he took office in March, he ordered the resumption of silver coinage and, more quietly, the use of Banco de México bills to pay government employees in order to increase the means of payment. From the time of the Monetary Reform until the end of 1933, the coinage of silver amounted to 89 million pesos, whereas the issue of bills in excess of rediscounts amounted to 53 million[8]. In addition, Banco de México reduced the discount rate and the reserve requirement a few weeks after the Reform. Naturally, the general impact of these policies was very expansionary. According to the official figures, the money supply increased 31 percent in 1932, and 15 percent in 1933; It is estimated that over 80 percent of the growth in the money supply was caused by the federal government through increases of high powered money. As expected, the nominal interest rate diminished from 12 to 8 percent between 1931 and 1932, whereas in real terms the decrease was much larger with the rising prices. (Banco de México, 1981, p. 117, and Banco de México, 1933, pp. 19-20).

On the fiscal side, which given the simple financial system was closely related to monetary policy, the declining trend in the level of public operations had continued through the bottom of the depression when a balanced budget was achieved in 1932. Moreover, the surpluses obtained the previous years were transformed into monetary (gold) reserves which were partially evaporated with the deterioration in the balance of payments. By 1932 arrears had arisen again and 1933 showed an actual deficit. Both of these were indirectly covered with the seignorage gains which resulted from the extraordinary coinage of silver and the corresponding bill issue of those years.

It must be mentioned that these seignorage gains were considerable during 1932 and 1933, and actually implied fiscal deficits in both years of a relatively important magnitude. Although the official figures show an actual balanced budget in 1932, the fact that 33 million pesos were obtained as seignorage gains makes the relevant deficit equal to that same magnitude which amounted to 1.09 percent of GDP. The adjusted deficit for 1933 is of 46 millions or 1.3 percent of GDP. This implies that about 17 percent of government expenditures were actually financed with seignorage gains in these two years. Moreover because relative changes and not levels is what matters, one can say that the change between 1931 and 1932 was very significat. From a surplus of 0.75 percent of GDP in the former year, it jumped to a deficit of 1.09 percent in 1932. The expansionary policy is then of almost two percentage points of GDP which is by no means negligible. In fact, these actual deficits were larger as a percentage of GDP than those run during the expansionary years of the Cárdenas administration. Consequently, it can be said that a quite significant expansionary fiscal policy was carried out at the very bottom of the Depression which in fact pushed the process of recovery up, and complemented the expansionary monetary and exchange rate policies discused above[9].

Finally, it is interesting to note that several indicators suggest that the response of the economic system to those expansionary measures was very rapid indeed. First, the wholesale price index began to rise in April 1932 and by December it had reached an 18 percent increase with respect to the bottom level of the previous March. Another indicator of such quick response can be inferred from the difference between the expected and actual fiscal revenues of 1932. This difference, which was of 13.3 million pesos in the first quarter, disappeared by August. Of the actual 16.2 million pesos decrease in fiscal revenues during 1932, 95 percent of them corresponded to the first quarter. (Pani, 1941, p. 167).

But to emphasize the economic recovery detracts attention from the truly important consequences of the Great

Depression, namely, the strong process of industrial development that took place in the 1930s and the more relevant role of the government in managing economic policy. Indeed, export led growth gave way to growth based on the domestic market. Industrial real output increased at an average rate of 6.1 percent per year from the bottom of the depression in 1932 to 1940, and actually constituted the economy's engine of growth during the 1930s. Output per worker increased 37 percent during the decade and that sector contributed with 38 percent of GDP growth while it had only a relative weight of 17 percent. That is to say, while the industrial sector produced only 15 percent of GDP in 1928-1929, it contributed with 38 percent of GDP growth in the thirties and raised its share in production to 18 percent in 1939-1940. It is in that sense that I call industry the engine of growth.

Why was the industry's performance so outstanding given the difficult economic circumstances? In general terms one can argue that increasing profits and a growing level of aggregate demand were the essential factors behind such a process. With regard to supply, there was on 86 percent increase in the domestic terms of trade between 1929 and 1940, urban relative to rural prices, which invited resources to be transferred to the modern sector. In addition, the agrarian reform program, which was substantially accelerated during the 1930s, introduced an element of uncertainty that diminished expected profit rates in agriculture and thus investment in that sector. Consequently, resources were reallocated to other areas where conditions were more favourable such as in industry. Similary, the relative price of (industrial) import-competing commodities to that of non-traded goods and services also increased during the 1930s (38 percent) and resources tended to shift correspondingly.

Other elements which played a significant role in the increasing profits of industry were the availability of excess capacity in some key industries such as electric power and cement, and the public investment outlays in various public works. In particular, the construction of the road network was accelerated merging most of the industrial and urban centers. That reduced transaction costs and signif-iicantly enlarged the available market, thus increasing overall productivity. Actually, some estimates show that the effect on productivity was substantial indeed, its growth contributing with approximately 27 percent of the industrial increase in output during the 1930s. (Cárdenas, 1982, pp.252-8 and 289). As a whole, the increasing profitability of the modern sector was soon reflected on a strong process of capital accumulation there, and some public investment in agriculture too, which practically doubled the investment coefficient during the 1930s.

On the demand side, the 67 percent devaluation of the peso in 1929-33 was able to change relative prices of imports and import-competing products fostering the substitution of domestic goods for those imported. Actually, about 37 percent of industrial demand growth in the decade was caused by import substitution, a process being stronger in the consumer goods industries and less so in the intermediate good category. Moreover, the substitution of domestic for imported commodities seems to have been very rapid indeed, as it is suggested by estimated high elasticities of substitution in the early thirties.

The contribution of import substitution to the growth of demand in the 1930s is considerably high and comparable to that observed in Brazil, where industrialization in that period was heavily induced by substituting imports (Cárdenas, 1982, pp. 166 and 181, and Fishlow, 1972). In fact, Foreign observers were aware of the magnitude and strength of that process: Joseph Pike, writing for the British Overseas Trade Department in 1936, said that the country was strongly heading towards self-sufficiency and that imports into Mexico would have to be more raw materials and equipment than consumer goods. As a matter of fact, he listed many industries as being normally supplied by domestic production with the exception 'of a small demand in the largest cities, chiefly from foreign residents' (Department of Overseas Trade, 1936, pp. 9-17).

In addition to the process of import substitution, government expansionary policies with a fixed exchange rate through most of the thirties were instrumental in sustaining a high level of agreegate demand. As mentioned above, during

1932-3 the monetary expansion financed about 17 percent of total public expenditures, fact which helped the process of economic recovery. The years that followed, 1934 and 1935, essentially witnessed an accomodating monetary policy and a fixed exchange rate. The growing foreign demands reflected the economic recovery abroad while the domestic economy approached a high level of employment. Domestic prices remained practically constant in those years while those abroad were increasing. With a fixed exchange rate, the peso became somewhat undervalued and the real exchange rate depreciated 19 percent between 1933 and 1935. This price effect helped the diversification of exports and continued to strengthen the process of import substitution.

From 1936 to 1940, especially in 1938, government expenditures were financed in a samaller proportion (7 percent on average) by monetary expansion with the corresponding budgetary deficits. This figure is not particularly high but there was an important qualitative change: public expenditure shifted from administrative to social and economic projects. Beyond the supply side effects, these government outlays implied certain demand consequences which effected the industrial sector. In particular, the building of public works increased the demand for certain raw materials produced at home, especially those related to the cement and steel industries. Moreover, the construction of roads merged small communities with larger towns of cities. To the extent that merging new, previously isolated areas actually took place, one can think of growing demands of several products simply because the market became larger. That is, more individuals with purchasing power appeared with the building of new means of communication. In fact, this phenomenon not only concerned nationals but also foreigners. It has been claimed that international tourism was greatly enhanced during the post-depression years by the availability of roads connecting Texas and Mexico City (Banco de México, 1941). In addition to tourism's effect on the supply of foreign exchange this activity demanded more of other industrial goods, especially construction of hotels and other sorts of service type facilities. In economic development terminology, road building had both forward and backward linkages which particularly effected the construction industry.

The previous discussion has shown the fact that one important consequence of the Great Depression was the acceleration of the import-substitution process and domestic industrialization by means of changing relative prices. This outcome was also influenced by an expansionary macroeconomic policy and the maintenance of a high level of aggregate demand through the remaining of the thirties. This fact is closely related to the second most important economic consequence of the Great Depression, namely, the wider role the government was able to play in macroeconomic policy management. In particular, the authorities could make monetary policy in a relatively autonomous fashion for the first time.

Indeed, it was until the 1930's that the central bank could actually finance the budgetary deficit by printing money. Indeed, one can argue that government economic policy between the mid-1920s and 1935 was essentially orthodox, in the sense that they sought a balanced budget financed with fiscal resources, whereas a deficitary budget was consciously or consistently obtained and financed through money printing during the second half of the decade. That is to say, the budget deficits observed in 1926-27 and 1932-3 were completely different in nature to those observed since 1936. The former deficits were rather forced by circumstances; in the specific case of 1932-3, the government apparently fell justified to pay its employees and other expenses with bills backed with silver earned through seignorage gains. Much to the contrary, the deficits observed in the second half of the 1930s responded to explicit policy measures. There was a determination to raise the level of aggregate demand even if financed with fresh-printed money. And by that time the central bank had finally become the de facto monopoly of paper money issue, a power acquired essentially as a consequence of the Great Depression[10].

Such a change in policy proved to be extremely helpful during the 1937-8 recession. Indeed, it is possible to assert that the Mexican government was much more able to cope with an external shock in 1937 than just a few years earlier, managing to keep economic activity growing though at a lower rate. Although a comparison of the Great Depression with the 1937-8 recession poses some difficulties, 1937-8 was not as bad an agricultural year as was 1929-1930, it is worthwhile to make a simple comparative excercise and see if such an assertion is valid or not. Table 2 shows the behavior of several variables during the Great Depression and the 1937-8 recession. It is quite stunning to see that whereas the external shock was at least as bad in 1938 as in the 1929-32 period, the effect on the level of output was considerably more favorable in 1938 than during the Great Depression. Indeed, exports and the terms of trade fell in such a way as to make the drop in the purchasing power of exports practically the same in both periods. Moreover, the decrease in the level of international reserves was far more severe in 1938 than during the 1929 Depression. On the contrary, GDP and industrial production had positive and actually much greater rates of growth in the latter recession than in the former one.

Perhaps the single most important variable that made such a difference was the money supply. During 1929-32, it fell 18.4 percent yearly on average (and -25.4 percent during 1929-31), whereas in 1938 it increased 10.8 percent. In fact, the government was instrumental in preventing the money supply from falling in 1938 by means of expanding domestic credit as much as possible. Therefore, it is probably safe to assert that the monetary authorities played a fundamental role in counteracting the effects of the

TABLE 2

Comparison of the Great Depression with the 1938 Recession

(Percentages)

	Great Depression[1]	1937-1938 Recession[2]
Exports	-29.5	-25.2
Terms of Trade	-15.8[3]	-23.5
Purchasing Power of Exports	-22.8	-22.2
International Reserves	-31.7[3]	-56.3
Money Supply	-18.4[4]	10.8
Output (GDP)	- 6.3	1.6
Industrial Value Added	-10.5	4.0

1 1929-32 yearly average rate of change.
2 1937-8 rate of change.
3 1929-31 yearly average rate of change. The reason is that these variables reached a bottom in 1931. The 1929-32 figures are -7.5% for the terms of trade and -8.6% for reserves.
4 If the 1929-31 value had been computed instead, when M_1 reached a bottom, the result would have been larger in absolute terms: -25.4%

SOURCE: Cárdenas, Enrique Mexico's Industrialization During the Great Depression; Public Policy and Private Response, Ph.D. dissertation, Yale University, New Haven, 1982. Table 3.3.

external shock. Which instruments did the government, and particularly Banco de México, have in 1937 and did not have in 1929, which in fact helped to counteract the latter recession more quickly and effectively? Most important of all were the political will and the actual capability to expand aggregate demand directly through budget deficits. As opposed to the former period, the public accepted the central bank's bills freely and institutional arrangements existed which made deficit financing possible. Furthermore, the exchange rate had become an instrument for stabilization and no longer a goal of economic policy: the government was unwilling to sacrifice a rapid rate of development for the sake of a fixed exchange rate. That is to say, Banco de México in particular and the government in general became much more capable to manage macroeconomic policy in the thirties, partly as a result of the Great Depression.

IV CONCLUSIONS

It has been argued in the previous pages that Mexico's experience, in terms of the shock, response, and consequences of the Great Depression, was not very different to that observed in other Latin American countries. Indeed, various other nations pursued expansionary macroeconomic policies in response to the crisis and experienced a strong process of import substitution during the 1930's. Mexico was not an exception but rather confirmed Carlos Díaz Alejandro's perception regarding the <u>larger countries</u>. In particular, one can say that the rapid process of industrialization in Mexico and in other Latin American countries was due, in the last analysis, to a responsive and strong economic policy, to the actual possibility to substitute imports, and to a dymamic domestic (and foreign) industrial sector which was quick to react to new market opportunities. It is interesting to note in this regard that the process of import substitution did not respond to an explicit protective government policy. True, the change in prices was caused by a devaluation of the exchange rate, which ultimately is a policy variable. But, at least in the case of Mexico, the government did not devalue the peso <u>in order to</u> promote import substitution. This fact sharply contrasts with the postwar strategy of development, which relied so heavily on tariffs and other import restrictions to promote domestic industrialization.

Finally, it is important to comment on some of the implications that this research has regarding the interpretation of the Mexican process of industrial development. First of all, it is no longer possible to argue of Second World War as the turning point in the country's modern industrialization. The story that I have advanced in these pages has hopefully shown that such a turning point should be traced back <u>at least</u> (with true emphasis) to 1929 or the Great Depression. I have shown elsewhere (Cârdenas, 1982, pp. 168--176) that a number of industries representing 35 or 40 percent of manufacturing output did not rely on imports to supply the domestic market as early as 1929, which suggests that a considerable development in some industries had taken place earlier. As a matter of fact, there seems to be evidence that such a process appeared in the 1920's, partly relying on excess installed capacity inherited from the prerevolutionary years of the Porfiriato.

By looking at the 1920s and 1930s in this new fashion, and eventually at the revolutionary period too, it will then be possible to have a long term picture of the Mexican industrialization process. I have the suspicion that such a process was far more continuous than it is usually believed, so that the interwar period was not a break with the long term trend of development. In fact, it could probably be argued that the period of revolutionary upheaval was quite shorter and milder with regard to their destructive effects. In this way it will then be possible to merge the Porfiriato's industrial growth with that which occurred after the revolution.

A second implication is related to postwar development. Mexican economic growth during the 1940s through part of the 1960s has been called the Mexican Miracle. That is so because of the rapid growth of the economy in that period, and because it was not clear how and where that outstanding performance came from. The present story provides an explanation for the rapid growth during the 1940s, which occurred almost without any additional investment.

Indeed, the strong capital accumulation that took place in the 1930s made the growth of the 1940s possible, which was especially of the labor intensive form, and that makes the miracle much less astonishing.

A final implication also related to the postwar period arises from the fact that the process of import substitution had advanced substantially by 1940, especially in the non-durable consumer good industries; that implies that there was not much more room for additional substitution of imports. Rather, there was room for a regression in such a process and/or most growth would have to come from an expanding domestic market or from foreign demand, much in contrast to what is usually believed. For the economy to have witnessed considerable import substitution in the 1940s, as currently believed, such a process ought to have taken place in the consumer durable, raw materials or capital goods industries; the standard view does not argue this.

NOTES

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1.- The concept of money supply in this work is defined as M_1, namely, the sum of Banco de México bills and coins in circulation plus checking accounts. The official source is Banco de México and it does not specify whether the figures are in gold or silver peso terms. My own impression is that the figures shown were revalued with respect to gold and consequently are expressed in silver pesos.

2.- It is interesting to note that the increase in expenditures for at least 1927 was essentially due to the investment programs on roads and irrigation and not for emergency purposes. (Secretaría de Hacienda y Crédito Público, 1963, p. 84).

3. The fall in reserves came relatively late for Latin American standards, particularly for Brazil, where capital outflows and decreases in international reserves began to take place in response to the Wall Street Boom which preceded the late 1929 Crash. Apparently, the continued coinage of gold with the aim of stabilizing the exchange rate made international reserves delay its fall in the Mexican case until mid-1930. Between January 1929 and July 1931 when the so-called gold standard was abandoned, the monetary authorities coined 48.3 millions of gold pesos. (Secretaría de Hacienda y Crédito Público, 1932, p. 108).

4. The decision to continue the contraction of silver means of payment to prevent a further depreciation of the peso clearly indicates that there was no shift in exchange rate policy, in spite of the gold domonetization.

5. The level of aggregate output increased over 3 percent, however, because of an extraordinarily good agricultural year in 1931. Nevertheless, industrial

production fell 6 percent as a result of the monetary contraction and high interest rates, and in the face of substantial stockpiling. See Cárdenas, pp. 284, 294, 302 and 306 for sources of figures.

6. An additional impact of deportation was the fall of foreign exchange remittances sent to Mexico, which reduced the supply of hard currency with all the contractionary effects that a decrease in exports imply.

7. In fact, the monetary authorities tried to peg the exchange rate at the end of 1932 but had to abandon their attempt fairly quickly. (Martínez Ostos, 1941. pp. 432-3 and Banco de México, 1934, pp. 21-2).

8. A most interesting question that arises at this point is why the public began to accept so quickly Banco de México notes after more than 15 years of repudiation. I have argued elsewhere (Cárdenas, 1982, pp. 102-5) that a substantial excess demand for money emerged in 1931, caused by a fall in the money supply coupled with a relatively stable demand for money, to the point that barter transactions began to appear. Consequently, the public was ready to accept a new means of payment as soon as it was available. Also Banco de México induced its notes acceptance by paying government employees with paper money.

9. In comparative terms, however, one cannot really speak of a very vigorous contractionary or expansionary fiscal policy during the 1925-40 period. In terms of surpluses or deficits as percentage of GDP, it can be shown

that the Roosvelt administration did not intend to be as as expansionary as it actually was. (Brown, 1956, and Peppers, 1973).

10. See footnote 8 above.

11. See his piece in this volume.

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