Mexico's Economic Development in Historical Perspective

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FIRST DRAFT

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1. Introduction

Taking a long-term perspective, the economic performance of contemporary Mexico is marked by retrogression. From enjoying very high growth rates, enviable price stability, and steady social progress during the post-Second World War period, starting in the mid-1970s the economy faced recurrent severe economic crises, bouts of high inflation, and eventually declining living standards in the 1980s. Then, after major reforms in policymaking introduced since the mid 1980s, economic performance has been disappointing. Instead of entering a period of sustained prosperity, in the mid-1990s the country found itself immersed in the worst economic crisis of the last seventy years. In the early 2000s, after almost twenty years of economic reform, the Mexican economy experienced, for the first time in its modern history, three successive years of absolute decline in its real GDP per capita. After 2003, it has enjoyed a moderate recovery at rates well below the historical norm of the post second world war period.

This book starts from the premise that a historical perspective may be helpful in illuminating current obstacles to economic development. It will look at Mexico's present development policies and problems from a historical perspective by reviewing long term trends in the Mexican economy and examining in particular some past episodes of radical shifts in development strategy and in the role of markets and the state.

Aim and scope of the book

The economic history of independent Mexico appears as a succession of periods of stagnation or decline followed by periods of economic prosperity and transformation. A first period, which goes from independence to the beginning of the seventies in the XIX century, features five decades lost to economic development. This is the period during which, as Coatsworth (1978) has shown, Mexico's economic backwardness originates. From being a relatively prosperous region in the world economy at the end of the colonial period — with an income per capita around 60 per cent that of the United States (see table 1.1) — by 1870 Mexico's GDP per capita had fallen by over 10 percent with respect to its level five decades earlier (and probably much more with respect to its level on the eve of the independence wars). In the meantime, the gap with respect to the United States soared with its income level falling to nearly one quarter of the US level, a gap that with minor ups and downs has remained since then (see table 1.1).

The causes of this economic decline are well known. The most important one was probably the prolonged period of political instability rooted in a permanent conflict between liberals and

conservatives. Half a century of civil and international wars ended up destroying the potentially beneficial effects of independence while curtailing the resources needed by the state and the private sector to reactivate the mining industry and improve transport infrastructure. This severely constrained the division of labor and regional specialization in a country where the lack of natural means of communication resulted in very high transport costs. In addition, and somewhat paradoxically, independence had some adverse effects on the mining sector — such as the loss of low cost and guaranteed supplies of mercury from Spain — which partially counteracted the elimination of the fiscal burden, estimated to be much higher than that imposed by British colonialism on its North American colonies. The elimination of foreign trade restrictions turned also to be a mixed blessing as they accelerated the diversion of Mexico's foreign trade from Spain to the emerging industrializing powers of the North Atlantic, a trend that was highly adverse to the national manufacturing sector and thus to the main economic activity that could have compensated for the decline of the mining sector. Moreover, institutional modernization proceeded slowly in a regressive political and social order in a country with some of the largest economic and social disparities in the world, where a number of institutional arrangements tended to increase, rather than reduce, the gap between the private and social benefits of economic activity.

Table 1.1. Mexico's GDP per capita as percent of:

	US level	Latin America average	World average
1820	60.4	109.8	113.8
1870.	27.6	99.7	77.2
1910	34.1	115.9 1/	113.5 1/
1940	26.4	95.8	94.4
1970	28.7	108.3	115.6
1981	35.6	125.4	148.2
2003	24.6	123.3	110.2

1/ 1913

Source: Based on Maddison (2006)

This first and prolonged period of decline was followed by one of sustained economic growth which begins with the restoration of the republic and accelerates during the *Porfiriato*, the 33-year period during which Porfirio Diaz governed Mexico as a dictator. Between 1870 and 1910, Mexico's income per capita grew at about 2.3 per cent per year (Maddison, 2006), a rate above

that of the then most economically advanced regions. Thus, income per capita increased from less than 28 per cent to more than one third as a percentage of the US level and from about one third to one half of Western European levels. Performance with respect to Spain was particularly remarkable: by 1910, income per capita was almost 90 percent of the Spanish level (compared to a little over half in 1870).

This rapid expansion, the beginning of modern economic growth in Mexico, proceeded as the old obstacles to economic development fell one after another: political instability ended following the establishment of a strong state; transport costs fell dramatically with the arrival of railways allowing the emergence of an integrated national market with its positive effects on the division of labor and regional specialization; a process of institutional modernization in the areas of mining, banking and commerce made possible the development of a banking system and attracted capital from abroad; and an embryonic industrial policy, based mainly on selective protection of domestic markets, together with the gradual depreciation of the real exchange rate, favored the emergence of a modern manufacturing industry. To these domestic changes, one must add a favorable international economic environment as the transport revolution and the growing demand for raw materials in the emerging industrial powers led to a primary exports boom that effectively worked as an engine of growth.

The process of rapid economic growth during the *Porfiriato* came to an end with the 1910 revolution and the start of a second period in which the economy grew slowly on average and declined relatively to the advanced regions of the world economy. In the thirty years between 1910 and 1940, GDP per capita grew on average at a rate of 0.5 percent per year (INEGI, 1994; 0.3 percent according to Maddison, 2006). US GDP per capita as a ratio of the Mexican level, which had fallen from 3.6 in 1870 to 2.9 in 1910, increased again to 3.8 in 1930 and remained constant until 1940. The process of retrogression is evident also with respect to the larger Latin American economies: Mexico's GDP per capita falls with respect to the levels prevailing in these economies with the sole exception of Argentina.

Economic stagnation during this period can be explained by internal political shocks, beginning with the revolution and its sequel of several years of political instability, together with external economic shocks, including in particular the great depression that begins in 1929 in the Northern neighbor. It is interesting to note, however, that the disruptive effects of the revolution on economic activity appear to have been less than conventional wisdom suggests. In particular, the revolution did not prevent the continuity of the export boom of the *Porfiriato*, on top of which the first oil boom in Mexico's history took place. At the same time, the adverse effects of the great

depression, exacerbated by the adoption of procyclical policies of balanced budgets and monetary contraction, were much greater than generally believed.

The legacy of the initial revolutionary period was the consolidation of a developmental state during the presidency of Lázaro Cárdenas (1934-1940) which opened the door to the next period, the phase of fastest economic growth in Mexico's history. This period comprises the boom during the second world war, a period of 10 years from 1945 to 1955 of rapid growth with recurrent balance of payments crises and the years of "stabilizing development" which combined macroeconomic stability with an acceleration of economic growth. For the whole period, GDP per capita grows at a rate of 3.2 per cent per year (INEGI, 1994), the highest growth rate among the largest Latin American economies (with the exception of Brazil and Venezuela), and total GDP at a rate of 6.4 percent, with manufacturing as the engine of growth expanding at annual rates above 8 percent (INEGI, 1994). The gap with respect to the United States narrows and GDP per capita increases from below to above the world average (see table 1.1).

Economic and social transformations during this period were impressive. Society was transformed from an agrarian one into an urban, semi-industrial one in the midst of a demographic boom, the share of investment and manufacturing industries in total output soared while literacy and life expectancy jumped (see table A.3). What factors account for this outstanding performance? The short answer has to do with the prevailing development policies, geared towards the country's rapid industrialization. The long answer must explain why this development policy framework was more successful than in other countries with similar strategies and how, unlike what happened in many other Latin American countries, rapid growth was reconciled with relative macroeconomic stability. This answer includes, first, the impressive performance of agriculture up to the mid 1960s, associated in part to the land reform of the 1930s and the massive public irrigation projects and other infrastructure investments in the 1940s and 1950s. Second, the composition of public spending was heavily biased towards investments in economic development and made it possible to break the bottlenecks that naturally arise in any process of rapid growth. Third, Mexico's protectionism was successful in promoting industrialization while, at the same time, the size of the domestic market and the relative low levels of effective protection maintained the costs of protection, both static and dynamic, at low levels. The large labor reserves, associated to the dualistic nature of the economy, also prevented the crowding out effects on labor employed in the export sectors of the economy which in more mature economies (as the Argentine one) exacerbated the anti-export bias of industrial protection.

Preceded by the loss of macroeconomic stability during the 1970s, in the context of a still dynamic performance of the economy, a new phase begins in the early 1980s, that of the last quarter century. Just as the five lost decades of the XIX century and the initial revolutionary period between 1910 and 1940, these last 25 years appear in the historical context as a period of economic regress with GDP per capita growing at an annual rate of only 0.5 per cent, similar to that recorded from 1910 to 1940 (World Bank, World Development Indicators). Since 1990, after the debt crisis was over, growth performance has been better but still GDP per capita has expanded only at a rate of 1.5 per cent per year amidst a strong volatility in the level of economic activity (World Development Indicators). The growth of per capita incomes has not only fallen below the historical experience of the period before the debt crisis; it has also fallen short of the growth performance of most regions in the world economy, Latin America and the Caribbean included. By 2003 GDP per capita fell below one quarter of the US level, lower even than the percentage achieved in 1870 at the beginning of the process of modern economic growth (see table 1.1).

Unlike explanations that emphasize the slowdown of productivity growth, which in our view is a consequence rather than a cause of the slow rate of economic growth, or a supposedly sluggish rate of human capital formation, we believe that the direct cause of the slow growth process is the low rate of investment in physical capital that has characterized this period. In turn the lower rate of capital accumulation is related to a number of factors. First, the sharp fall in the rate of public investment, particularly in the area of infrastructure, a legacy of the fiscal adjustments in the face of the debt and oil crises of the 1980s, which has contributed directly to a slower rate of capital formation in the public sector and possibly also, through crowding in effects, in the private sector. Second, a recurrent trend towards real exchange rate appreciation — which has resulted from the macroeconomic stabilization process of the 1990s and an exclusive focus on the part of the monetary authorities on the reduction of inflation — and the dismantling of all type of investment incentives, a casualty of the dismantlement of industrial policy resulting from the structural reforms of the 1980s and 1990s, have caused a fall in the profitability of private investment in the economy as a whole and in particular in the tradable goods sectors. Finally, the contraction of bank credit for productive activities, an outcome of the financial crisis of the mid 1990s which followed an ill designed financial privatization and liberalization program, has prevented the realization of potentially profitable investment projects.

What features do the episodes of rapid growth have in common? In addition to political stability and a favorable international economic environment, we believe that there are three ingredients. The first is the establishment of a consensus on economic policy matters: the positivist

consensus in the case of the *Porfiriato* and the "developmentalist" consensus during the golden decades from the Second World War to 1970. Each of these consensuses appears in turn as a synthesis of previously opposed views. In the case of the *Porfiriato*, a synthesis of the market reforms and the institutional modernization supported by the liberals and the focus on industrialization emphasized by the conservatives. During the thirty years starting with the Second World War, and particularly during the period of stabilizing development, a consensus also emerged between the more orthodox views that underlined the need for macroeconomic stability and the priority to growth and industrialization advocated by those adopting more Keynesian and nationalistic views.

The periods of economic expansion feature also, and this is the second element, the presence of correct perceptions by the political and economic elites on the true constraints on economic development. The regime of Porfirio Díaz, in addition to achieving political stability, had clarity about such obstacles to economic development at the time as the high transport costs and the lack of financial capital. An example of these correct perceptions is the following succinct statement by Matías Romero, a minister of finance on four occasions under Juárez and Díaz: "This nation…has in its soil immense treasures of agricultural and mineral wealth, which now cannot be exploited due to the lack of capital and communications" (cited by Rosenzweig, 1965, translation by the authors). Similarly, the way out of the great depression in the 1930s, which will open the door to the second period of economic growth, can be attributed to a change in approach to the macroeconomic role of the State which, influenced by the Keynesian ideas of the time, was promoted by president Lázaro Cárdenas and his minister of finance, Eduardo Suárez.

Thirdly, and this is what planted the seeds of their eventual demise, the periods of expansion featured a very unequal distribution of the benefits of economic growth which in turn led to the loss of consensus in the subsequent periods of stagnation. Towards the end of the *Porfiriato*, in a society that was still predominantly agrarian, 835 families owned 95 per cent of all the arable land while more than 70 per cent of the population was illiterate and survived in conditions of meager subsistence. At the close of the stabilizing development period, the poorest 40 per cent of the population accrued less than 11 per cent of total income while the richest 10 per cent appropriated four times more. The Gini concentration coefficient was among the highest in the world (more than 0.5) and the distribution of income had not improved compared to 1950 (see table A.7). Using a nutrition-based poverty line, almost a quarter of the population lived in poverty (see table A.7).

By contrast, the periods of economic stagnation tend to feature political instability and external

economic shocks, together with misperceptions among the country's elites and/or the absence of consensus. Consider, first, the five lost decades of the XIX century. In addition to the lack of consensus among liberals and conservatives, neither one of the contending factions had a program adequate to the needs of the country's economic development. In fact, from a strict (and admittedly narrow) economic development perspective some of the main elements of the liberal economic program — free trade, privatization of corporate and public property, and liberalization of the land market — were ill conceived. It is likely that the first of them, free trade, further stimulated the downfall of local manufacturing industry. As a result of the second, the privatization of Church property, the main, and for a long time the only, banking institution of the country was destroyed. The third, the liberalization of the land market, would further contribute to concentrate agrarian property and, over time, to the social explosion of 1910. At the same time, the conservative faction was not any better. While it is true that some of its members had the merit of undertaking a first and brief attempt at industrialization during the 1930s through industrial protection and the creation of the first development public bank to finance the development of the textile industry, the social and political forces that supported the conservatives tended to perpetuate the economic, social and political disparities and the institutional backwardness which had had such negative effects on economic development since colonial times.

Similarly, the second period of stagnation begins with the breakdown of the positivist consensus and the political stability that characterized the *Porfiriato*. Later, when political stability is largely restored, the procyclical policies of balanced budgets and monetary contraction at times of recession, implemented between 1926 and 1932, contributed to exacerbate the negative effects on the Mexican economy of the great depression in the United States. This, together with the political shock of the revolution and its sequel, goes a long way in explaining the slow rate of economic growth that on average characterized the second period of stagnation. What was required then were anti-cyclical policies that took the economy out of the recession as would eventually be done during the Cárdenas administration and later at several points in the period 1940 to 1970.

What about the third period of stagnation, the present one? This period has witnessed a radical shift in the relationship between state and market, a result of a more open trade policy, liberalization of capital flows, deregulation of economic activity and privatization of public enterprises. In the dominant perceptions among the country's elites, this change should have inaugurated a new period of rapid economic development as the obstacles to economic growth present in an economy that was over-regulated by the state and excessively protected from external competition were brought down.

As we know, these expectations have not been fulfilled. Is it the case that, just as in previous periods of stagnation, the real obstacles to economic development are being misperceived? By reviewing the origins of the shift in the market-state balance and evaluating the results of the market reform process, this book argues that such seems to be the case. It argues, more precisely, that misperceptions about the causes of the slow growth of the economy since the early 1980s have prevented government policies to focus on the real obstacles to high and sustained economic growth.

While so far this process of slow growth has not impeded a continued progress in health and educational indicators and even a reduction of poverty rates in the recent past, there is no reason to take a complacent view of current economic and social performance. First, because slow growth has been accompanied by a deterioration in the quality of jobs provided by the economy, i.e., by a massive increase of underemployment in the informal sector. Moreover, as we shall argue, if poverty today is not rampant and the social situation is not explosive this is due to a large extent to the completion of the demographic transition, the demographic dividend, which so far has been the main factor explaining the paradox of poverty reduction in the midst of slow growth. The effects of the demographic bonus will be largely over from now on so that high growth becomes more of an imperative than ever. In addition, the tasks of social policy are today far more formidable than in the past as the present development pattern seems to be exacerbating in a number of ways economic and social disparities, leading to the impoverishment of large masses of rural workers as the state has retreated from agriculture as well as to the increasing wage inequality and rampant regional disparities that have accompanied the process of increasing international economic integration.

Overview

After this introduction, chapter 2 examines the five lost decades to economic development from the 1820s to the 1870s, when Mexico's current economic underdevelopment originates, and puts this period in international perspective by comparing Mexico to other Latin American countries as well as to developed countries. This is preceded by a review of the characteristics of the economy of New Spain in the eve of independence, the mining boom of the late colonial period, and the disruptive effects of the wars of independence on economic activity. The chapter then focuses on the constraints to economic development resulting from political instability, the decline of mining activity, foreign competition, institutional backwardness and the lack of transport infrastructure and financial capital. It also examines the economic programs of liberals and conservatives. A

main argument is that the coalition that could forge a developmental state could not emerge: the politically liberal that could and were willing to carry out the country's institutional modernization were also anti-statist in economic terms while the only ones that favored an economic modernization through industrialization and an interventionist state were the politically conservative, strongly opposed to political and social modernization. In the absence of a developmental coalition, the major obstacles to economic development remained in place.

Chapter 3 examines the *Porfiriato* and the removal of some of the obstacles to economic growth starting in the early to mid 1870s: the achievement of political stability through the establishment of a strong state, the dramatic reduction of transport costs and the integration of the domestic market through the expansion of the railways network, and the institutional modernization (including the abolition of tariffs on domestic trade and the modification of commercial and mining codes together with banking laws) that permitted the development of financial intermediaries and attracted foreign investment. The chapter then turns to the results of the change in development strategy. Economic growth and modernization were felt in many areas, primary exports boomed and modern manufacturing producing for the domestic market emerged. The other side of the coin were lagging and eventually declining real wages, the strengthening of the *peonaje* and labor's links of dependence with the rural areas, high levels of market concentration in industry and banking, and an extreme concentration of land resulting from what amounted to an enclosure movement in which federal and peasant communal lands were redistributed to land development companies and rich individuals. In sum, modernization went together with a process of increasing inequalities in the distribution of income and wealth that proved to be the Achilles heel of the regime. A final section puts the *Porfiriato*'s growth performance in international perspective. It shows that it impled a process of catching up with respect to the advanced regions of the world economy while in Latin America, although it fell short of Argentina's golden age, it was superior to that of Uruguay and much better than that of Brazil.

Chapter 4 looks at economic performance from 1910 to 1940 and challenges the conventional hypotheses about the evolution of the economy during the revolution and the immediate post revolutionary period. According to conventional views the revolution had extremely disruptive economic consequences. At the same time, a generalized perception is that the great depression in the United States had, compared to other Latin American countries, relatively mild effects on the Mexican economy due to a relatively early and vigorous recovery starting in 1933 that was made possible by Mexico's export structure (its luck in the "commodity lottery"). Thus, if Mexico had a relatively poor economic performance over the period 1910-1940 this was largely due to the adverse economic effects of the revolution and its sequel of political instability that more than

offset the relatively mild consequences of the great depression. Our findings put these hypotheses upside down. We show, along with a number of authors in the recent literature on the subject, that the revolution did not prevent a fairly sustained economic expansion, except for a brief period during the hyperinflation of 1914-1916, and left the productive apparatus of the country largely intact. In fact, it was not an obstacle for a continuation of the export boom that started during the *Porfiriato* and for the extraordinary development of new exports such as oil. On the other hand, we conclude that the great depression was in fact particularly harmful in the case of Mexico compared to other Latin American countries. This was so, despite the recovery of exports and terms of trade early in the 1930s, because Mexico's recession started earlier (in 1926), and for this reason was more prolonged than elsewhere, and the external shock of the great depression was among the worst in Latin America. Moreover, monetary and fiscal policies until 1932 were strongly pro-cyclical. It was this and not the economic consequences of revolution and political instability which explains Mexico's comparatively poor economic growth performance over the period 1910-1940.

The thirty years that followed the consolidation of a developmental state under the presidency of Lázaro Cárdenas were, by contrast to the previous period, a phase of catching up with most of the rest of the world. Chapter 5 examines the post war golden age of industrialization from 1940 to 1970 that made this process of catching up possible. It reviews the development policy framework that generated the rapid progress of the economy. This included trade policies that protected infant industries and towards the end of the period promoted the development of manufacturing exports, fiscal incentives oriented towards the creation of "new and necessary" industries, and industrial investment financing through the establishment of development banks. The thirty years from 1940 to 1970 can be decomposed into three periods: the war boom up to 1945 during which industrial expansion was driven by exports, the period of growth with a devaluation-inflation cycle from 1946 to 1955, and the gem of the golden age from 1956 to 1970 in which an acceleration of economic and industrial growth was reconciled with low inflation and balance of payments stability. The chapter also looks at the sources of productive capacity expansion, overall productivity growth and factor accumulation, and challenges the conventional view that stresses the extensive nature of the pattern of growth (based more on factor accumulation than on productivity growth). The outstanding growth performance is also placed in an international comparative perspective. Here we assess the role of the impressive agricultural growth up to the mid sixties, the high share of economic expenditures in the government budget, the low static costs of trade protection, and the geographic challenge of sharing a long border with an economic and military superpower. Finally, the shortcomings of the period and of the development strategy followed are highlighted: the persistency of inequality despite the progress

achieved in reducing poverty, the failure of tax reforms which left Mexico with one of the lowest tax burdens in the world, the insufficient efforts at export promotion in industrial policy and the inconsistent application of the infant industry protection argument.

Chapter 6 examines the period from 1970 to 1983 marked by continued economic growth but also by the reemergence of inflation and recurrent balance of payments crises in 1976 and 1982. The chapter begins by recounting the change in development strategy from stabilizing development to shared development under the Echeverria administration (1970-76) and how it achieved a temporary success in improving real wages and income distribution, strengthening export competitiveness, and preserving economic growth. But in the face of the failure of the attempt at tax reform in 1972, the change was accompanied by the emergence of macroeconomic imbalances that will eventually lead in 1976 to abandon the peso-dollar exchange rate that had remained fixed for 22 years. Higher than foreign inflation, in the context of a fixed nominal exchange rate, increasing fiscal deficits and the end of the golden age in the international economy were the main components of the crisis. The 1976 crisis was, however, short lived as the discovery and exploitation of massive oil reserves restored creditworthiness in international capital markets and triggered an oil boom from 1978 to 1981. However, as in the previous episode, the rapid growth process was accompanied by emerging macroeconomic imbalances that were exacerbated in 1981 by the loss of control over public spending. Together with the dramatic change in the international environment — the sharp increase in foreign interest rates resulting from the Volcker shock, the weakening of the oil market starting in 1981 and the eventual contraction of capital inflows — the result was the 1982 debt crisis to which the initial government response was the establishment of exchange controls and the nationalization of the banking system. Finally, the chapter discusses three interpretations of the domestic causes of the 1976 and 1982 crisis: the alleged exhaustion of import substitution industrialization, the role of populist pressures and macroeconomic populism during the Echeverria and Lopez Portillo administrations, and the existence of a sui generis political cycle by which public spending and fiscal deficits peak in the pre-electoral year when the internal party competition for the presidential nomination reaches its climax. Our discussion challenges the first two interpretations and finds considerable support for the third one.

Chapter 7 looks at the years of adjustment to the debt crisis of 1982 and the oil price shock of 1986, the resulting lost decade to economic development, and the radical transformation of the development policy framework starting in the mid 1980s. It reviews the adjustment processes in a comparative perspective, arguing that the specificity of Mexico was a relatively minor internal transfer problem in the midst of a particularly severe external transfer one (as a result of being a

large debtor). This is because, unlike what happened in Argentina or Brazil, devaluation acted as a mechanism of redistribution from the private to the public sector that facilitated the transfer of resources abroad in order to service the government's external debt. It also describes how the adjustment problems conditioned the results of stabilization programs from the failed initial orthodox stabilization attempts to the more successful "heterodox shock" of late 1987. The analysis of the reform process examines trade liberalization from the initial relaxation of import controls in 1984 to NAFTA and beyond, the deregulation of foreign direct investment and the opening to foreign portfolio capital of domestic financial markets. It also looks at the privatization of public enterprises — including the sale of many small and medium enterprises in a first stage and the sale of the telephone company and the domestic banking system, involving much larger assets, in a later stage — and the uses of privatization revenues. The watering down of industrial policy is also examined including the elimination of production or credit subsidies, tax cuts, trade protection schemes as well as performance requirements on their beneficiaries, and the establishment of new programs, consistent with GATT/ WTO provisions, aimed at exploiting Mexico's static comparative advantages. The chapter also includes sections on competition policy and the deregulation of tertiary activities as well as on the reforms to the land tenure system and agricultural policy.

Chapter 8 evaluates the results of the shift in the market-state balance, the overall impact of the reform process on Mexico's quest for high and sustained, socially inclusive economic growth, its limitations and strengths. It examines, first, the effects of privatization on economic efficiency and the productivity of investment and argues that the lack of an appropriate regulatory framework has resulted in an undesirable concentration of ownership in some of the privatized areas. The chapter then turns to the consequences of trade liberalization on the volume of trade flows and the pattern of trade specialization, as well as its static and dynamic effects on productivity in the tradable goods sectors. It also examines the results of the liberalization of the land market and the dismantlement of agricultural support policies arguing that while a market oriented rural economy is certainly benefiting from the reforms, the overall performance of agriculture and, in particular, peasant agriculture has been very disappointing. Finally, the chapter discusses the limitations of the financial liberalization process arguing that the financial boom and bust cycle that culminated with the banking crisis of 1994-95 was a consequence, at least in part, of an excessive reliance on financial deregulation and capital market liberalization.

Chapter 9 discusses the growth slowdown of the Mexican economy during the reform and post reform periods. It addresses four possible factors behind the growth deceleration. First, the role of international trade integration showing that the trade policy reforms of the 1980s and 1990s were

in fact very successful in enhancing export growth and trade openness but not in promoting a dynamic pattern of trade specialization. Second, the chapter discusses the productivity growth slowdown, which has been highlighted by numerous authors as the main factor responsible for the slow GDP growth. It argues that the evolution of productivity growth is closely associated to the expansion of underemployment in the tertiary sectors of the economy and should be seen as a consequence rather than a cause of the growth deceleration. Third, our discussion of the role of human capital formation suggests that educational and health indicators have been improving during the recent period, partly as a consequence of the demographic bonus, and cannot be held responsible for the fall in output per worker that has taken place since the early 1980s. Rather than human capital constraining growth it is the slow growth process that has prevented a full use of the human capital reserves available to the economy. Finally, we focus on what we believe is the primary determinant of the growth slowdown, the low rate of physical capital accumulation. Our argument is that, together with the contraction of bank credit following the financial crisis of the mid 1990s, three main factors are constraining investment: the low level of public investment (particularly in the area of infrastructure) constrained in turn by the lack of government revenues, an appreciated real exchange rate for most of the period since 1988 and the dismantlement of industrial policy during the reform period. The first factor contributes directly to a slower rate of capital formation in the public sector and possibly also in the private sector. The last two have affected private investment profitability particularly in the manufacturing sector where increasing returns to scale and externalities are located with deleterious effects on the process of economic development.

Chapter 10 looks at social development. It describes the evolution of social policies during the structural reform process from the elimination by the de la Madrid administration (1982-88) of programs put in place during the oil bonanza to the strengthening of poverty alleviation programs that has accompanied the transition to democracy. It then evaluates the achievements and limitations of *Oportunidades*, the anti-poverty program of the Fox administration (2000-2006) that was inherited from the Zedillo government (1994-2000, with a different name, *Progresa*). The chapter then turns to recent trends in income distribution, focusing on the increasing wage inequality and regional disparities, as well as in poverty which paradoxically has been falling in the midst of slow growth after its sharp increase during the financial crisis and recession of 1995. A main argument is that the downward trend in the poverty rate cannot be fully explained by a firmer commitment of social policy to poverty alleviation goals. Our discussion suggests rather that the main factor explaining the puzzle of poverty reduction in the midst of slow growth is the completion of the demographic transition to low fertility rates and population growth rates that has taken place in recent decades, that is, the demographic dividend. The chapter concludes with a

warning: as the demographic transition is completed, the demographic bonus will disappear and further social progress will necessitate the resumption of rapid economic growth

Chapter 11 concludes by reviewing the current challenges to Mexico's development policy. It starts by pointing out the weakness of the contemporary Mexican state as revealed by the inefficiency of the fiscal adjustment process, its ineffectiveness in collecting taxes, its dependence on and vulnerability to oil incomes that are likely to decline in the near future and its inability to carry out anti-cyclical macroeconomic policies. It then addresses the growth imperative arguing that the current agenda in policy-making circles — which emphasizes a limited fiscal reform, the restructuring of the energy sector and the "flexibilization" of the labor market — largely misses the point by failing to fully address the binding constraints on economic growth discussed in chapter 9. The tasks of social policy are also extremely demanding, especially if the growth imperative is not fully met. This is due to the legacy of increased inequality from the 1980s and the accumulated backlog of unmet social needs, the fact that in some ways the present development pattern is exacerbating economic and social disparities, and the dismantlement of industrial policy which leaves in the hands of social policy the major development task of changing and enhancing the present endowment of resources and the structure of comparative advantages of the economy.

A statistical appendix presents historical series of economic and social indicators.

2. The "origins of backwardness": obstacles to economic development in the XIX century

Why hasn't Mexico joined the ranks of fully developed countries? Why has it lagged so much behind the United States? A popular explanation, present for example in an essay by Mexico's Nobel laureate poet and writer Octavio Paz, identifies the root of this contrast between Mexico and the United States in their different colonial origins, stressing their contrasting national, cultural and religious heritages. As he put it: "Ever since the seventeenth century, our history, a fragment of Spain's, has been an impassioned negation of the modernity being born: the Reformation, the Enlightenment, and all the rest". In his view, the United States benefited from being the product of the reformation and of the spirit of progress prevailing in the most prosperous countries in Europe. In contrast Mexico's development has been hindered by the influence of the counterreformation and the reaction against modernization that marked Spain political and cultural life (Paz, 1985, p. 143).

This quote by Paz is an example of a common, but as we shall argue partial, interpretation that identifies the colonial heritage as the root of the Mexican economy's problems and failure to catch up with the United States. Certainly, the centuries under Spanish colonialism determined Mexico's socioeconomic structure as well as its institutional development (Romero and Jáuregui, 2003). But there are other elements that, in our view, are more relevant to understand the contrasting dynamism of the two economies. Among them, the different factor endowments when they began their independent lives stand out. In particular, the availability of arable land, and of physical and human capital were very dissimilar in the United States and Mexico, as well as their mode of insertion in the world economy and domestic transport costs determined by geography. These features significantly influenced the degree of integration of the domestic market, the evolution of productivity and production costs, and the development path.

In addition, the degree of inequality, social cohesion and homogeneity of the population was different in the two countries. Colonial Mexico was a highly segregated society, split by skin color and characterized by sharp cultural and socio-economic disparities (Maddison, 1995). Of utmost importance is the fact that, in contrast to the US experience, during most of the XIX century Mexico suffered violent episodes of war, civil unrest and political instability. From its struggle for independence in 1810 to the various foreign interventions and invasions that it suffered, including the loss of a major proportion of its territory to the United States, the century's characteristic political instability and violence was hardly a proper climate for investment, innovation and economic growth.

Not surprisingly, it is precisely in the XIX century when the development gap of the United States with Mexico rapidly widened. According to Coatsworth (1990), it is in this century that one has to search for the "origins of backwardness" in Mexico. Indeed, in 1800 the New Spain was a relatively prosperous region of the world, with a GDP per capita equivalent to between one half and two thirds of the US level. In the next five decades, however it failed to keep pace with the US economy. Between 1800 and 1850 US GDP per capita averaged a 1.1% annual rate of expansion, the United Kingdom's averaged 0.8% and Brazil's 0.4%, while Mexico's suffered an average contraction of 0.7%! (Coatsworth, 1993). Coatsworth (1989) has argued that if the Mexican economy had expanded *pari passu* with the US economy from 1800 to 1860, it would be today among the group of developed economies.

Mexico's economic decline in the XIX century is also acutely evidenced in Maddison's data according to which while in 1820 Mexico GDP per capita was 14% above the world's average, by 1870 it stood at 23% below the world's average. In turn, Brazil's per capita GDP in these two years registered a deviation of less than 3% from the world average. Chile experienced a fast expansion going from 9% below the world average in 1820 to exceeding it by 49% by 1870. The United States was the country with the most dynamic performance during this period, with is per capita GDP going from a level 88% above the world's average to 182% above by 1870. Thus, in these five decades Mexico's GDP per capita went from being equivalent to 60% of the US level to just 28% of the corresponding figure. Why did the Mexican economy undergo such a long recession in the XIX century? What were the key constraints binding its long-term growth after independence? This chapter addresses these questions.

The economy of the New Spain on the eve of independence

At the beginning of the XIX century, the New Spain had a total population of six million, with 75% of it living in rural areas. Its economy was closely organized around the extraction and exportation of precious metals, particularly silver, coming mostly from a few mining centers (*reales mineros*) in Pachuca (Real del Monte), Zacatecas, Guanajuato and San Luis Potosí (Catorce)[1]. Gold production and that of other minerals (excluding quarries) and metals was much less relevant (see Humboldt, 1822, and Romero, 1997). In the XVIII century, New Spain's silver production grew at an annual average rate of 1.8%, higher than the 1.1% estimated by Crafts (1994) for British industry (Dobado and Marrero, 2006, referring to Lerdo, 1853). At the end of that century,

[1] It is worth noting, however, that despite the importance of an export-oriented mining sector in the colonial economy the role of foreign trade was still relatively small compared to the one it would have in the late XIX century (Coatsworth, 1990).

bullion represented close to 75 percent of Mexico's average annual exports, followed by cochineal (12 percent) and sugar (3 percent) (Brading, 1971, based on Lerdo de Tejada, 1853). Silver mining yielded around 65-70 percent of the total amount of silver extracted from America (Rosenzweig, 1973, p. 471; González Reina, 1944, p. 22, cited by Cárdenas, 1985). In fact, by 1800 New Spain was by far the largest producer of silver in the world, with an output of almost two thirds of the world's total (Dobado and Marrero, 2006, citing Schmitz, 1979).

Mining in New Spain represented between 25 and 40 percent of the market-oriented sector, perhaps the biggest mining sector of any pre-industrial economy (Dobado and Marrero, 2006). Most important, it was not an economic enclave. On the contrary, there is consensus that mining played a key role in inducing economic expansion (Van Young 1992, Ibarra, 2000, Romero 2006). It certainly had significant and varied backward and forward linkages to other sectors such as agriculture, manufacturing — inter alia textiles and beverages — and services including finance, transportation and retail. These linkages, mirroring the concentration of mining centers, were especially strong in the Central and Northern regions (Dobado and Marrero, 2006).

The state made a significant contribution to develop silver production by establishing a sound institutional framework including the relatively liberal mining code of 1783. Selective granting of fiscal incentives and tax exemptions on certain silver and mining inputs resulted in a low and decreasing fiscal burden on this activity. In addition, specific legal bodies — the Cuerpo de Mineria and the Tribunal General — served to safeguard mining interests and induce foreign investment. The existence of this institutional framework has led Dobado and Marrero (2006) to argue that "there was no predatory colonial state confiscating the results obtained by individuals from their productive efforts in New Spain's mining industry…The picture of mining in New Spain around 1800 is far from being the extractive, unequal, and inefficient one assumed by some authors".

Excluding peasant production done with traditional methods for self-consumption, marketable agricultural output was produced in haciendas, hiring workers in debt peonage conditions[2], as well as by rancheros and small and medium tenants (*arrendatarios*)[3]. It was geared to serve the market of mining centers and cities dispersed around the central and northern central regions of

[2] Though their formal labor relation was that of wage earners, in practice hacienda workers could not leave their jobs because of their massive indebtedness due to unpaid bills at the hacienda shop (*tienda de raya*) and cash advances received from the hacendados to pay poll taxes (Maddison, 1995).

[3] Brading (1971) states that in 1809 there were 4680 Indian villages, 6680 smaller ranchos and 4945 haciendas, with a significant proportion being owned by the church.

what is now Mexico, including the capital, Mexico City. The main agricultural products included corn, wheat and other such as vegetables, fruits and pulque (Solís, 2000, p. 16). The agricultural sector was subject to recurrent crises. The then most critically remembered as a major disaster occurred in 1785-86, triggered by an August frost in the valley of Mexico, with acute impacts, including hunger, disease and social tensions, especially among the rural population (MacLachlan and Rodríguez, 1985).

Most of the manufacturing supply was constituted by imports from Spain (oriented to satisfy the consumption patterns of the high income groups)[4]. However, a local industry gradually emerged under the protection provided by high transport costs and internal tariffs (*alcabalas*). Textile manufacturing was the most important, but not the only, industrial activity benefiting from these conditions as well as from the interruption of maritime routes, and the consequent difficulties for the importation of textiles, provoked by European wars at the end of the XVIII century (Cárdenas, 1985). Textile manufacturing was organized in *obrajes*, employing women and children as well as prisoners and slaves in hazardous working conditions, with technologies similar to the ones in XVIII century pre-industrial revolution Europe[5]. A putting out system coexisted along with the *obrajes* in the main urban centers including Mexico City, Queretaro, Oaxaca and Puebla, where half of the population depended on the production of textiles[6]. The sugar industry, another major manufacturing and exporting activity, developed in Morelos and Veracruz. By the early XIX century, small-scale manufacturing employed more workers and produced more output value than the mining sector itself (see Table 2.1). As has been noted by several authors (see in particular Beato, 2004), the beginnings of industrialization in Mexico did not follow the British path characterized by the gradual transformation of handicraft textile production into mass production manufacturing establishments. Instead, the origins of the capitalist class resided in the ranks of merchants and moneylenders.

By the middle to late 18th century, the discovery of new and rich silver deposits — La Valenciana in Guanajuato (1770) and Catorce in San Luis Potosí (1778) —, together with the provision of cheap mercury, fiscal exemptions, and the introduction of explosives and other technological advances created a boom in silver production which then reached the peak levels of the whole colonial era (Brading, 1971) (see figure 2.1). Economic activities closely linked to the mining sector benefited directly from the boom. The expansion of silver exports also made available

[4] During 1802-1806 textiles represented on average 64 percent of imports, wine and hard liquor 10 percent, cocoa from Caracas 6 percent, paper 5 percent and iron and steel 5 percent (Brading, 1971, based on Lerdo de Tejada, 1853).
[5] On the obrajes, see Chávez Orozco (1938) and Salvucci (1987).
[6] Cárdenas (1985), MacLachlan and Rodríguez (1980).

imported raw materials and capital goods for the new industries that were being developed in Europe as a consequence of the industrial revolution.

Table 2.1. GDP per capita and by sector, 1800-1877

	1800	1845	1860	1877
Per capita GDP at constant				
1900 prices (index 1800 = 100)	100.0	78.4	70.9	85.0
% of GDP				
Agriculture[1/]	44.4	48.1	42.1	42.2
Mining	8.2	6.2	9.7	10.4
Manufacturing	22.3	18.3	21.6	16.2
Construction	0.6	0.6	0.6	0.6
Transportation	2.5	2.5	2.5	2.5
Commerce	16.7	16.9	16.7	16.9
Government	4.2 [2/]	7.4	6.8	11.2
Other	1.1	-----	-----	-----

1/ Includes livestock, forestry and fishing
2/ Does not include net fiscal remittances to Spanish treasury. Total government revenues, including these remittances, amounted to 7.8 per cent of colonial income.

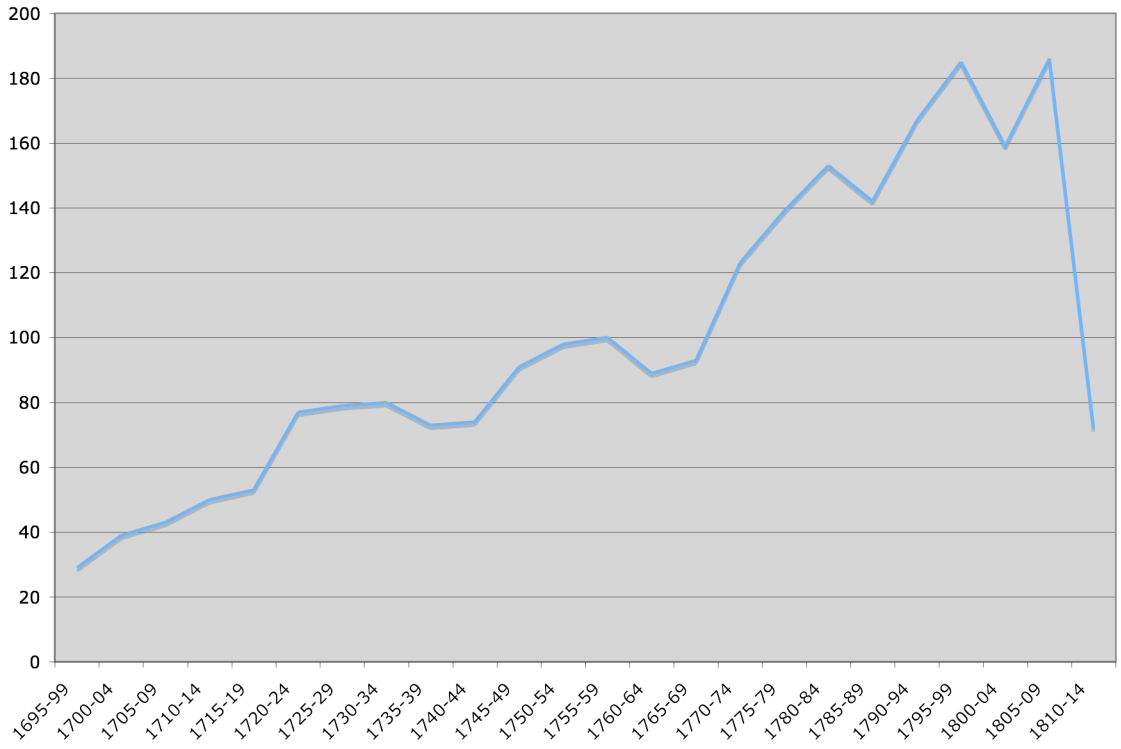
Source: Based on Coatsworth (1990), Tables V.4 and V.5

The duration of the mining boom and the role in it of the "economic liberalization" reforms of the Bourbon monarchs in the second half of the century are subject to controversy. The conventional view — presented, among others, in Florescano and Gil Sánchez (1976) and Cárdenas (1985) — sees the Bourbon reforms as supportive of the economic expansion of the period and the mining boom as extending until the end of the colonial period in the early 19th century. Coatsworth (see also Salvucci, 1997), in contrast, dates the beginning of economic decline and the end of the mining boom in the 1780s, well before the independence wars (1810-1821)[7]. In this view, increasing costs as a result of inflation and falling market prices for silver output produced the decline in mining production (Coatsworth, 1989).

[7] Brading (1971), on the other hand, sees the boom of the 1770s as part of the continuous increase in silver production throughout the XVIII century, only interrupted briefly during the 1760s.

Figure 2.1. Production of precious metals, 1695-1814

(Index 1755-59 = 100)



Source: Coatsworth (1986) based on Orozco (1857)

In any case, it seems clear that the reforms, the tax incentives to mining granted in the late 1760s and the Free Trade Agreement of the late 1780s which allowed freer trade between New Spain and Spain and allowed any port in Spain to establish trade with New Spain significantly contributed to the boom in silver production and exports. The array of incentives to silver mining included the following: the reduction to half of the price of mercury (regulated by the government), exemption from the tithe for most mines, and elimination of taxes on the sales of all primary inputs used by the mining sector (Brading, 1971). According to some estimates, these reforms reduced the cost of production by approximately 25 percent (Ponzio, 1998). The abolition of the Cadiz monopoly in 1778 also had significant economic and regional consequences and a great impact on a highly oligopolistic trade and distribution system. As a result Guadalajara and Veracruz emerged as important distribution centers, at the expense of Mexico City, and the relative profitability of merchant activities declined with a positive impact on investments in mining and agriculture (Cárdenas, 1985; Knight, 2002).

The boom of silver exports and the increase in non-tradable goods prices are connected through the familiar so called Dutch-disease effects[8]. Indeed, tax reductions for mining induced a shift of resources from the tradable goods sectors (including manufacturing) to mining. The increase in silver exports reduced the relative price of silver in terms of imports — given Mexico's prominent position in the world market of silver — thus increasing the domestic demand for it and further reinforced the increase in silver production. The crowding out of non-mineral tradable goods sectors could have slowed down the rate of growth of the economy (if learning by doing effects predominate in them). However, Ponzio presents evidence concluding that there was no reduction in the rate of per capita GDP growth in the late colonial period (contrary to what has been claimed by other authors, starting with Coatsworth, 1986).

During this period, the relation between business and the state under the system of the Spanish Crown was one of pervasive law and regulation. Trade with any country other than Spain was illegal. Import and export licenses for trade with Spain could only be obtained through a board, sitting in Seville, controlled by Spanish merchants. Trade inside Mexico was controlled almost as rigorously as foreign trade. Local monopolies, trading privileges, and tax exemptions proliferated in every area of the colony. Production was controlled even more than trade. In principle, nothing fabricated in Spain could be produced in Mexico and what was produced in Mexico was subject to the minutest regulation (Vernon, 1963; see also Coatsworth, 1982, Potash, 1953 and Schaeffer, 1949). That is, economic life was organized by highly detailed and particularistic provisions in order to shape economic activity in colonial society and to grant and maintain a complex web of privileges and monopolies. These provisions included social and ethnic distinctions — among Europeans ("*peninsulares*" and "*criollos*"), castes (mixed races) and Indians — in the access to employment, residence and fiscal treatment, corporate privileges, an extremely complex fiscal system, monopolies (such as the tobacco monopoly), and all kinds of regulations on production and trade (Coatsworth, 1982). The economic consequences of this organization were to reduce the geographic and occupational mobility of the labor force, distort the allocation of productive factors, and inhibit enterprise in new activities, thus reducing the allocative efficiency, productivity and growth potential of the economy. At the same time, the state did not perform a number of functions much needed to increase the overall productivity of the economy, including the improvement of the road and transport system and investment in human capital (Coatsworth, 1982)

[8] Ponzio (2006) states that the boom of silver production during the last three decades of the XVIII century led to an increase in the relative price of non-tradable goods (maize, wheat, sugar).

Yet, despite this adverse institutional framework by the end of the XVIII century the New Spain was surely the most affluent Spanish colony in America, with an economy whose productivity may have been close or even higher than that of Spain herself. Yields in the fertile wheat fields of the central highlands were, according to Brading (1978, p. 67 cited by Cárdenas, 1985), as high as those of England. According to Humboldt (1822), the miners earned higher wages in colonial Mexico than in Western Europe[9]. Output per capita in 1800 was close to two thirds that of the US (Coatsworth, 1998, p.26)[10]. Moreover, its overall economic structure in terms of output was less agricultural, having an advanced mining industry and a significant manufacturing sector. The value of exports was similar to that of her northern neighbor, even though total output produced was around half (Coatsworth, 1978). A Mexican enlightenment had made numerous contributions, described by Humboldt in his *Political Essay*, and a scientific community worked in impressive research centers and institutions of higher learning. Mexico City was the largest city in the Western hemisphere with a population of some 170,000 in 1810, larger than New York, Boston and Philadelphia combined (Knight, 2002).

Several of the conditions for rapid capitalist development were in place. The creation of an industrial labor force — that 'most difficult and protracted process' by which the population's ties to the land are broken (Gerschenkron, 1952) — although far from complete, was probably more advanced than in many European countries (especially in Central and Eastern Europe). The relatively high share of manufacturing in total output in 1800 (22.3 per cent, see Table 2.1[11]), also speaks about the presence of a critical mass of native entrepreneurs.

Economic decline and political instability: the origins of backwardness

Yet between 1800 and approximately 1860 — at the time when the US and other now developed economies were industrializing and recording unprecedented rates of economic growth — Mexico's total production fell. The magnitude of the collapse or slowdown is disputed, but with population growing at average annual rates of 0.6-0.7 percent there is consensus that per capita incomes did not grow and most likely had an acute fall, declining by as much as 30 per cent (Coatsworth, 1990, see table 2.1). The export sector did not recover its level of output per capita until the 1880s (Coatsworth, 1989). The economy reproduced at a smaller scale the colonial

[9] See also Dobado and Marrero (2006). According to these authors, around 1800 the average daily wage in terms of grams of silver of unskilled workers in the La Valenciana mine in Guanajuato was similar to those of workers in Amsterdam and London and substantially higher than those in Leipzig, Milan, Beijing, Kyoto-Tokyo and Canton (Dobado and Marrero, 2006, based on data from Velasco, 1989, and Allen et al., 2005).

[10] Maddison (2006) gives an estimate for the gap in 1990 dollars to be 40% in 1820.

[11] The manufacturing employment share, according to INEGI (1985), was 10 per cent in 1790.

economy with little structural change during the period (Coatsworth, 1989). According to other sources, between 1820 and 1870 Mexico's income per capita had fallen from 60% to 28% of that of the US, and has since then fluctuated between 25 and 36% (Maddison, 2006, see table 1.1).

Whether or not this decline had already started in the later decades of the colonial period, everybody agrees that independence did nothing to prevent the contraction of the economy during the half-century that followed it. Yet, independence eliminated the fiscal burden on the gold and silver extracted from the colony, a substantial burden — estimated by Coatsworth at 4.2 per cent of total output around 1800. It also abolished the trade monopoly whose cost has been estimated at 3% of GDP during the last two decades of the colonial period (Coatsworth (1978). The total burden, fiscal and commercial, amounted thus to 7.2 percent of colonial income, much higher than the burden of British colonialism on its North American colonies, estimated by Thomas at 0.3% of GNP (1965, cited by Coatsworth, 1978). Why then didn't independence and the emergence of a national state provide greater stimuli to economic development?

The most important reason is perhaps the prolonged period of violence and political instability that started with the independence wars. While independence eliminated the fiscal burden of Spanish colonialism, the independence wars had pervasive adverse effects on economic activity that partly offset the removal of this burden: the destruction of infrastructure in the haciendas of the central highlands, the flooding of mines, the interruption of the Northern wool trade which paralyzed the *obrajes* of Queretaro and other textile centers, the hazardous conditions in which communications and trade took place (Cárdenas, 1985), and the collapse of the tax system so that at the time of independence the only source of revenue left to the government came from the tobacco monopoly (Tenenbaum, 1986). Moreover, the end of Spanish rule also brought some unexpected costs for the mining sector. Not only were the direct effects of the independence wars on mining production highly disruptive, but they also involved the loss of low cost and guaranteed supplies of mercury (essential for processing low-grade ores) that Spain had provided from its large state-owned mine at Almaden. As a consequence of this disruption, silver production fell to less than one-fifth from 1812 to 1822[12]. According to some estimates, it did not recover its pre-independence level until the 1870s despite a plethora of tax incentives, the opening of the sector to foreign participation and the availability of new technological developments (Cárdenas, 1985).

The depression of silver production had, in turn, important consequences for the economy. First, by leading to the contraction of all the activities linked to the mining sector, including the

[12] Other estimates place the fall in mining production to be twice as harsh (Thomson, 1985, cited by Beatty, 2001 p. 26).

haciendas and the *obrajes* (Salvucci, 1987). Second, it implied a reduction in the volume of international trade, which in turn led to a decrease in fiscal revenues. Third, and most important, it caused a contraction in the means of payment available in the domestic economy (Cárdenas, 1985, 1997) as the monetary system of post independence Mexico remained for much of the century identical to that of three hundred years of colonial rule, one in which the determinants of the volume of circulating currency were the cycles of silver mining production rather than regulation by the government. The reduction in the means of payment aggravated the consequences of capital flight brought about by the exodus of Spanish miners and merchants, and thus the general lack of financial capital which characterized this period up to the 1860s when the first commercial banks were founded. Capital flight has been estimated at between 8 and 32 percent of national income (Cárdenas, 1985).

Moreover, political instability continued for decades after the conclusion of independence. From 1821 to 1867, Mexico had 56 administrations (Ponzio 2005) and in the 55 years between independence and the *Porfiriato,* the presidency changed hands 75 times as a result of the continuous struggle opposing the conservative and liberal factions (Haber, 1989). In contrast, the United States had 13 administrations in the 52 years between 1817 and 1869 (Ponzio, 2005). Between 1824 and 1867, the average duration of a period of presidents in Mexico was 15 months, 7 months for both ministers of war and justice, and less than 5 months for ministers of finance and foreign relations (Ponzio, 2005). The generalized episodes of civil unrest and violence reduced the population, disrupted mining and agricultural production, and severely curtailed trade. These effects were steps back in the creation of a domestic market. Continuity of economic policy for development became impossible, affecting public investment in roads, education, and social order. Econometric estimates conclude that between 50 to 100 percent of the reduction in growth during the lost decades after independence was due to the increase in political instability and that between 50 and 88 percent of the increase in the growth rate after 1867 was due to the reduction in political instability (Ponzio, 2005).

The relationship between political instability and economic stagnation is perhaps best described as a vicious circle (Beatty, 2001). On one hand, violence and instability contribute in several ways to keep productive investment, and thus the economy's growth potential, at low levels. First, they create an uncertain and risky environment for fixed capital formation. Moreover, by hindering the modernization of the transport infrastructure, instability kept markets fundamentally restricted to the local arena, rather than expanding to regional or national horizons. This phenomenon constrained from the demand side investment in modern technologies. In addition, it diverted resources away from productive investment and into government borrowing as governments,

unable to collect taxes, resorted to borrowing from the *agiotistas* (moneylenders) that might otherwise have financed business investments[13]. At the same time, however, economic stagnation fuels the conflict over limited resources thus causing more instability.

A particularly disastrous consequence of the prolonged civil strife was the loss to the US of half of the national territory in the mid-19th century. Fifty years after the 1848 Treaty which ended the US-Mexico war, and also after the beginning of the California "Gold Rush", the mineral output alone of the lost territories exceeded Mexico's total GNP (Coatsworth, 1978). The French occupation in the 1860s further contributed to conflict and instability.

Thus, half a century of political, social and international wars annihilated the potentially beneficial effects of independence, while at the same time curtailing the resources needed by the state to invest in human capital and infrastructure. Indeed, the diversion of resources into military expenditures implied that no efforts could be made to significantly invest in human capital in a country with very poor educational levels compared to the United States and the majority of European countries. Most important, it also prevented the improvement of transport infrastructure in a country where the lack of a river system suitable for transportation, its mountainous landscape and the long distances between the urban centers and the coast made its geography less fortunate than that of the United Sates, Great Britain or France with major coastal cities or at least well communicated by rivers, and low cost channels and roads[14]. The resulting high transport costs had highly adverse effects on the division of labor, factor mobility and regional specialization (Coatsworth, 1990)[15].

Railway construction was delayed by at least 20 years in Mexico with respect to South America. The first railway line — linking Mexico City to the seaport of Veracruz — was opened as late as 1873. In 1877, Mexico had a railway network of 570 kilometers compared to 2,388 in Brazil, 2,262 in Argentina, 2,030 in Peru, and 1,624 in Chile (Cárdenas, 2003, citing Riguzzi, 1996). Why did it take so long for the railways to arrive? Cárdenas (2003) argues that political instability, the

[13] The emergence of moneylenders was a response to three obstacles to the government's solvency and stability: the fact that the fiscal system as created in 1824 never generated enough revenue to cover expenses (as it was based on tariffs on trade that shrank with the contraction of foreign trade), the unwillingness of the wealthy to pay new taxes, and the refusal of foreign capitalists to lend after the default of 1827 (Tenenbaum, 1986)

[14] By the 1870s, Mexico still had less than one tenth the number of kilometers of road per 10, 000 inhabitants than the US (less than 5 kilometers of road passable by four-wheeled carts) (Beatty, 2001, p. 27).

[15] As a result, to just cite one example, machinery delivered in Mexico City was twice as expensive as in Veracruz, the port of entry (Cárdenas, 1985).

associated fiscal crisis of the state, and the lack of financial capital played a major role due to the long-term nature of railway investments and the high cost of railway construction, which was exacerbated by Mexico's geography. Recall that the Mexico City-Veracruz line — the first railway in Mexico — started at sea level but had to pass through an altitude of 8,333 feet above it before reaching Mexico City, making it then one of the highest in the world.

The deficiency of resources required to modernize the economy was aggravated by the lack of access to foreign credit. Mexico suspended payments on its foreign debt as early as 1828 and did not renew debt service for six decades, making the country an international pariah for foreign bankers during much of the XIX century (Marichal, 1998).

The abolition of restrictions to foreign trade turned out to be a mixed blessing. While generally regarded by economic historians as beneficial for the Mexican economy, the end of trade restrictions accelerated the diversion of Mexican foreign trade away from Spain and towards the emerging industrializing powers in the North Atlantic, a trend which had very harmful effects on domestic manufacturing and, therefore, on the major activity that could have compensated for the decline of the mining sector. Several studies documented how exposure to US and British competition, despite attempts at import prohibitions in the 1820s (Salvucci, 1987), led to the collapse of the wool textile industry at the turn of the century and to the prolonged decline of cotton textiles throughout part of the first half of the 19th century[16]. Trade opening towards the Atlantic economy and foreign competition — which in fact started in the period of *'comercio libre'* and *'comercio neutral'* introduced by the Bourbon reforms — also appears to have deepened the fragmentation of local markets and the cleavage between, on the one hand, a mining and agricultural north trading with the rest of the world and, on the other, a manufacturing center and agricultural south plunged into economic depression (Thomson, 1986). As argued by Salvucci (1987), successful protection, as the one implemented during this period by the United States, would have required better enforcement and higher tariffs. In any case, tariff collections represented, on average between 1822 and 1832, 45 percent of total federal revenues (Salvucci, 1987, p. 167). The Banco de Avío was established in 1830 to provide subsidies to manufacturing as a response to the dilemma implied by tariff protection, but became a casualty of the political turmoil of the 1830s.

The persistence of financial backwardness until very late in the XIX century is striking compared not only to advanced economies in the United States and Europe but also to other Latin American

[16] British cotton exports to Mexico in the 1820s have been estimated at between 30 and 60 percent of Mexico's national production (Salvucci, 1987, p. 166).

countries such as Argentina, Brazil and Chile (Marichal, 1997). Financial underdevelopment was manifested in the absence of a banking system, the non-existence of a formal stock market, the lack of modern financial legislation and the erratic behavior of very high interest rates. Haber (1997; see also Marichal, 1997) argues that four factors prevented the early development of capital markets: the persistent default on Mexican government debt which averted the development of a securities market, the political nature of enforcing property rights and contracts, the loose enforcement of financial reporting requirements, and the lack of modern commercial and incorporation legislation which retarded the development of banks and joint-stock companies. The limitations of capital market development became in turn a serious obstacle to rapid industrial development.

In addition, little progress was made in other areas. The colony had been one of the regions in the world with the sharpest social and regional disparities — the "country of inequality" as Humboldt observed[17] —, where 18 families at the end of XVIII century were wealthier than any other family in the Western hemisphere (MacLachlan and Rodríguez, 1980). It had been a caste society, in fact, where access to employment as well as geographical and occupational mobility were restricted on the basis of ethnic distinctions, and where a number of institutional arrangements tended to increase, rather than reduce, the gap between the private and social benefits of economic activity. This high degree of inequality tended to perpetuate backwardness by preventing the emergence of a middle class market, reducing the productivity of the labor force due to malnutrition, illness and lack of education, and producing higher risks of political and social upheaval leading to reduced investment. Inequality also hindered the emergence of a modern political system. The key point can be made with the example of the liberal constitution of 1857. Inspired by the ideals of the US political system and of a modern capitalist society it remained far from a viable legal framework. As Newel and Rubio note (1984):

> "The constitution assumed liberty and equality, representative government and economic liberty. Yet even a cursory analysis of the Mexican society of that time leads to an obvious contradiction: Mexico was an extremely unequal society, where only about 7 percent of the people could read and write and where the abyss separating the Indian society from the so-called enlightened society could not be bridged. The voting system, for instance, defined a citizen as a male over twenty-one who owned property and was literate; less than 3 percent of the population met these qualifications" (Newel and Rubio, 1984, p. 10)

[17] "Mexico is the country of inequality. Nowhere does there exist such a fearful difference in the distribution of fortune, civilization, cultivation of the soil, and property" (Humboldt, Political Essay, p. 64, cited by Knight, 2002, p. 227).

To be sure, some changes did take place with independence. Ethnic distinctions in the access to employment, justice and in fiscal treatment — which, among other things, had severely restricted capital and labor mobility — were formally abolished. Many corporate privileges, including most of the guilds, were eliminated, while corporate property rights were limited to the Church and the Indian communities and town councils. The number of royal monopolies on the production and distribution of many commodities was reduced and their activities regulated. Efforts were also made to modernize the judiciary and revise archaic judicial codes. The use of public force to collect the tithe ended in 1833 (Coatsworth, 1989, see 1990). But many of these changes had little effect in a backward social and political order. The ultimate reason is probably the nature of the foundational act of the post-independence state: the fact that having begun and been defeated as a popular insurrection[18] — feared by both the Spanish and Creole conservative elites — independence came eventually to Mexico through 'a virtual *coup d'état* by the colony's Creole elite, carried out largely to separate Mexico from the liberalizing process under way in the mother country' (Coatsworth, 1978)[19].

This had several consequences. Institutional modernization was *de facto,* and sometimes *de jure,* slow. A new civil code was only produced in 1870 — almost 50 years after independence — and even then nothing replaced a repudiated commercial code. The mining colonial code remained almost intact until 1877. Modern banking and patent laws were non-existent. In spite of constitutional dispositions, taxes and restrictions on domestic trade remained[20].

The system of government preserved the arbitrary nature of political power in colonial times. Economic success or failure strictly depended on the relationship between enterprise and political authorities. As Coatsworth (1978) put it:

> Every enterprise, urban or rural, [was forced] to operate in a highly politicized manner, using kinship networks, political influence, and family prestige to gain privileged access to subsidized credit, to aid various stratagems for recruiting labor, to collect debts or enforce contracts, to evade taxes or circumvent the courts, and to defend or assert titles to land. . . . The chief obstacle was the nature of the state itself, its operating principles, the basis for all its acts. Mexico's economic organization could not have been made more efficient without a revolution in the relationship between the state and economic activity (p. 94).

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[18] In contrast to other Latin American countries, independence in Mexico began as a radical, popular movement directed against *gachupines*, officials and landlords. Knight (1992) traces this peculiarity back to the increase in rural protest during the economic expansion of the late XVIII century combined with agricultural crises and political instability.

[19] Behind the triumph of the Army of the Three Guarantees led by Agustín de Iturbide were conservative interests wanting to separate Mexico from a Spain controlled at the time by liberals.

[20] Formally abolished by the 1857 Constitutional Assembly, domestic trade taxes (*alcabalas*) remained in operation well into the Porfiriato.

In sum, while economic activity had remained 'state-centered', in the sense that 'every enterprise was forced to operate in a highly politicized manner´, the state, compared to colonial times, had in fact been weakened and was unable to remove the obstacles to economic development resulting from the decline of mining activity, foreign competition, and the lack of transport infrastructure and financial capital. Economic and industrial stagnation followed, then, as a consequence of a persistent lack of markets and their fragmentation.

The first signs of a moderate recovery appeared in the 1830s in mining and manufacturing. In textile manufacturing the recovery was associated to the creation of the Banco de Avio in the 1830s, a protectionist stance in trade policy and the expansion of the money supply in the 1840s (Cárdenas, 1997)[21]. But it will not be until the late 1860s that the whole economy will start growing in a sustained way. A fundamental element behind the resumption of economic growth was the recovery of the mining sector. Indeed, after its drastic collapse during the years of the struggle for independence and their aftermath, many decades went by before mining activity gradually began to attract new investments. By the 1860s these investments had led to the discovery of new, rich deposits of precious metals and, thus, helped to boost, once again, mining activity. The recovery of silver mining, in particular, helped to put an end to the liquidity crisis and the credit crunch that had so adversely affected Mexican businesses for many years since independence (Cárdenas, 2003). In addition, this mining boom and the expansion of local and international trade had a major impact to strengthen tax revenues (Cárdenas, 2003).

Liberal misperceptions in the mid-19th Century?

The list of obstacles to economic development in 19th century Mexico is equally significant for what it excludes. Revisionism by economic historians suggests, indeed, that two of the traditional culprits, the land tenure system and the economic power of the Church, were not in fact among the major causes of economic stagnation during this period.

The system of land tenure and agricultural production had been organized since the 17th century into large estates called haciendas. While highly inequitable and, to this extent, socially and macroeconomically inefficient, the hacienda system was far from a semi-feudal organization,

[21] As documented in Sandoval (1976, cited by Cárdenas, 1997), the number of spindles increased by 34 per cent between 1845 and 1865 and then more than doubled between 1865 and 1879. The number of looms increased by nearly 70 per cent between 1843 and 1854 and more than doubled between 1865 and 1879.

promoting waste and resource misallocation. Recent research has produced an image of the hacienda as one of a capitalistic and technologically dynamic undertaking with an economic rationality comparable to that of a modern agricultural enterprise. In this view, the hacienda largely exploited its comparative advantages — economies of scale and access to external credit and information on new technologies and distant markets (see, among others, Van Young, 1981 and 1986, and Garcia de Leon, Gamboa and Semo, 1980). A 'division of labor' had, in fact, been established through time between the hacienda and other forms of agricultural production — small landowners, tenant farmers or Indian villagers — by which each of them had specialized in those products and crops where they enjoyed a competitive advantage: cattle, sheep, wool, food grains, *pulque*, sugar and sisal in the haciendas, and fruits, tomatoes, chiles, silk, and small animals such as pigs and poultry among the small-scale producers and villages.

Similar revisionism applies to the Church as an economic institution. By the middle of the 19th century, the Church had become the country's single major landowner, owning about one third of the arable land (López Cámara, 1967), and was the major financial institution. With respect to its first role, several studies[22]suggest that Church haciendas were at least as well managed as private haciendas and, in any case, after independence most of these estates were rented to private farmers and *hacendados* so that its efficiency did not depend on Church administration (Knowlton, 1985). On the other hand, the Church appropriated the tithe *('diezmo'),* a 10 per cent tax on gross output (charged mainly on agricultural and livestock production). As any other tax, the tithe reduced the profitability of agricultural production and probably discouraged it even though some authors have doubts about this[23]. The reason is that the effect of the tithe in pushing labor and capital out of private agriculture was probably very small because the Church itself, and the Indian villages, produced a major portion of the country's farm products and livestock. The net effect on GDP was, in any case, probably positive since differences in productivity between private agriculture and the rest of the economy suggest that nonagricultural activities were already more productive than agriculture.

More important, however, is the use to which Church revenues were put. Far from financing wholly 'unproductive' expenditures, the Church invested a considerable portion of its revenues (including also private donations and net income from its various properties) in loans to private entrepreneurs with no legal or practical restrictions to prevent recipients from investing in factories rather than haciendas or other activities. It did this by lending at below market interest rates — usually at a 6 per cent rate on the security on real property. Because it dominated the

[22] See on the subject Staples (1976), Bazant (1977), Knowlton (1985), Matute et al. (1995).
[23] See, in particular, Garcia Alba (1974) and Coatsworth (1978).

mortgage-lending market, this probably had the effect, in turn, of bringing market interest rates down. In addition, given its close contacts with landowners it likely let them run arrears on their debt without foreclosure (Maddison, 1995). As Coatsworth has put it, the Church 'performed like a modern development bank, charging taxpayers to subsidize the accumulation of private capital. . . . Indeed, the Church probably raised the rate of investment above what it would have been had the tithe revenues remained in private hands' (Coatsworth, 1978).

If this revisionism by economic historians is correct, then some of the main elements of the liberal economic program — free trade, the privatization of corporate and public property, and the liberalization of the land market – were largely misdirected from a strictly (and admittedly narrow) economic development perspective. The first (free trade) probably gave further stimulus to the decline of local manufacturing and to the 'ruralization' of the labor force. The second, the privatization of corporate property, had the effect of destroying the major, and for a long time practically the only, banking institution in the economy; while the third, the liberalization of the land market, was to contribute to further land concentration and, eventually, to the social explosion of 1910.

The conservative faction was, of course, no better. Although some of its members, Lucas Alamán (1792-1853)[24] in particular, had the merit of pioneering the first, and short-lived, industrialization efforts in the 1830s — through industrial protection and the creation of the first public development bank (Banco de Avío) to finance the development of the textile industry[25] — the social and political forces that supported them tended to perpetuate the very arbitrary nature of political power that had had such harmful effects on economic development since colonial times.

As a result, the coalition that could forge a developmental state did not emerge, and in its absence some of the major obstacles to economic development remained in place. The liberals that could and were willing to carry out the country's political and social modernization were also anti-statist in economic terms; while the only ones that favored an economic modernization through an interventionist state were the conservatives, strongly opposed to political and social modernization.

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[24] Lucas Alamán was the first finance minister to implement trade protection measures for the development of Mexican manufactures. On Alamán, see Hale (1961).

[25] Another figure worth mentioning is Estevan de Antuñano, a creole industrialist, whose very many pamphlets best articulated the case for protectionism and industrialization. On Antuñano, see Hale (1961) and Morales (1999).

Mexico's decline in international perspective

While Latin America as a whole also fell behind during most of the XIX century, Mexico's decline was particularly deep. Brazil, Chile and Venezuela, the other countries with available data, did all registered a reduction of their GDP per capita relative to the United Sates but were far from recording a collapse of the magnitude of the Mexican one and advanced relative to Mexico (see table 2.2). In fact, Mexico's economic retardation took place with respect to all regions in the world (see table 2.3).

Table 2.2. GDP per capita as a percentage of US level (1820 and 1870)

	1820	1870
Mexico	**60.4**	**27.6**
Chile	55.2	52.8
Brazil	51.4	29.2
Venezuela	36.6	23.3

GDP per capita in 1990 Geary-Khamis dollars
Source: Maddison (2006)

Table 2.3. Mexico's GDP per capita as percentage of GDP per capita in:

	1820	1870
USA	60.4	27.6
Western Europe	63.1	34.4
Eastern Europe	111.1	71.9
Latin America	109.8	99.7
Asia	130.6	121.2
Africa	180.7	134.8
World average	113.8	77.2

GDP per capita in 1990 Geary-Khamis dollars
Source: Maddison (2006)

The role of political instability in Mexico's decline can be illustrated with the comparison to Chile, the Latin American country, among the four in table 2.2, with the smallest relative decline with respect to the US. In contrast to Mexico, which was marked by continuous political instability until

the installation of the dictatorship of Porfirio Diaz in 1877, Chile achieved political stability in the decade following independence with a modernizing conservative regime formalized in the 1833 Constitution[26]. The fortunes of these two countries could not be more different: while Mexico, as we have seen, plunged into economic decline for most of the century, Chile managed to prosper on the basis of its exports of copper and temperate agriculture products (wheat) as well as nitrates after the war of the Pacific[27]. Thus, while Chile almost doubled its GDP per capita between 1820 and 1870, Mexico saw its own income per capita reduced by more than 10 percent. Chile's exports per capita, which in 1800 had been around 25% below those of Mexico, were over 6 times the Mexican level in 1870 (see table 2.4).

Table 2. 4. GDP and exports per capita in Chile and Mexico (1820 and 1870)

	1820	1870
GDP per capita		
Chile	694	1,290
Mexico	759	674
Exports per capita		
Chile	1.6 1/	14.2
Mexico	2.1 1/	2.3

GDP per capita in 1990 Geary-Khamis dollars
Exports per capita are in current dollars
1/ 1800

Sources: Maddison (2006) for GDP per capita; Coatsworth (19--) and Bulmer-Thomas (2003) for exports.

The comparison with Brazil, which had a peaceful transition to independence followed by relative political stability, also confirms the role of political instability. Starting from a lower per capita

[26] On the Chilean exception to the rule of political instability and the tradition of "caudillismo" in Hispanic America, see Valenzuela (2006).

[27] Causality, however, probably also ran the other way around from economic prosperity to political stability (just as in the case of Mexico it also ran from economic stagnation to political instability). Furtado (1970), for example, gives the primary role to economic prosperity. He argues that the opportunities, determined by foreign demand conditions, were exceptional in the Chilean case. First, Chile had a mining economy based on copper and nitrates replacing cooper after the War of the Pacific (1879-1883) with a demand that expanded during this period. Second, she produced a surplus of temperate agricultural commodities, notably wheat, which gave her distinct advantage in the Pacific zone at the time when gold was discovered in California and Australia.

income than Mexico in 1820, Brazil had moved ahead of Mexico by 1870 (table 2.2). The comparison also highlights the role of other obstacles, for political stability did not prevent Brazil from falling behind the United States and some European countries[28]. High transport costs and archaic economic institutions, as in the case of Mexico, remained in place and prevented Brazil from catching up with the industrializing economies at the time (on the economic retardation of Brazil during the XIX century, see Leff, 1972).

The role of inequality, a feature that Mexico shares with the rest of Latin America, is highlighted by the comparison with the United States. Engerman and Sokoloff (2002) emphasize how relative equality generated the conditions for growth in the former British colonies in North America. In the United States, together with the high income per capita, equality in the distribution of income led to the formation of a middle class market that was essential to the development of industry (the mass production of standardized goods subject to economies of scale, "the American system of manufactures") to the extent that the poor used to spend a smaller share of their income in manufactures and the wealthy used to spend their income on non standardized goods. It was also favorable to technological innovation as greater equality meant a general concern with extracting opportunities from innovation and this led to a patent system most favorable to the common people. These conditions were absent in the case of Mexico where, as already mentioned, the high degree of inequality inhibited growth by preventing the emergence of a middle class market, reducing the productivity of the labor force, and contributing to political instability.

Finally, it is worth noting that the role of inequality is complementary to that of other factors. This role cannot be fully separated from that of political instability — since this is one of the channels through which inequality has adverse effects on growth — nor from that of institutions since such institutions as the hacienda and debt peonage are precisely those that contribute most to inequality in wealth and human capital. On the other hand, differences in the degree of inequality are unlikely to provide a complete explanation of differential paths of development. Mexico was no less unequal in the late XIX century when economic growth finally started. In fact, it may have been more unequal, as a result of the liberal reforms in the mid to late XIX century, than it was during the first part of the XIX century.

[28] Nor, incidentally, did the political stability provided by colonial rule in Cuba (until 1898) prevent this country from falling behind.

3. The *Porfiriato* and the beginnings of modern economic growth

While the consolidation of a developmental state in Mexico would take place well into the XXth century, the removal of some of the obstacles to economic development in the last decades of the previous century would open the door to a process of high and sustained economic growth. Such process was made possible by, in particular, the emergence of a strong state capable of ending social violence and achieving political stability, and by the integration of the domestic market that resulted from the reduction of transport costs brought by the arrival of railways.

In 1877, at the time when General Porfirio Diaz seized power, 42 per cent of Mexico's GDP was generated by agriculture and only 16 per cent by manufacturing (see table 3.1). Over 70 per

Table 3.1. GDP per capita and by sector, 1877-1910

	1877	1895	1910
Per capita GDP at constant 1900 prices (index 1800 = 100)	85.0	128.8	190.2
% of GDP			
Agriculture[1/]	42.2	38.2	33.7
Mining	10.4	6.3	8.4
Manufacturing	16.2	12.8	14.9
Construction	0.6	0.6	0.8
Transportation	2.5	3.3	2.7
Commerce	16.9	16.8	19.3
Government	11.2	8.9	7.2
Other	-----	13.1	12.9

1/ Includes livestock, forestry and fishing

Source: Based on Coatsworth, J.H. (1990), Tables V.4 and V.5

cent of a population of 9.5 million lived in rural areas and more than 80 per cent of those aged six and above could not read or write (see table A.3). In the following years, a turnaround in Mexico's long-term economic decline took place. Main barriers to economic expansion were brought down

by the transformation of the international economic environment as well as by domestic changes in Mexico's political and economic structure that took place under the dictatorship of Diaz, a 33-year period of political stability (1877-1910), aptly named 'the *Porfiriato'* by Mexican historians.

Order and Progress

The assessment by historians of the *Porfiriato*'s significance for Mexico's social and economic development has changed markedly in recent decades. From being seen essentially as a period of dictatorship and harsh exploitation of peasants, it has come to be considered as a key phase in Mexico's transition from a semi-feudal mode of production towards a capitalist one promoted by the state. It was the first period in Mexico's history as an independent nation when the country managed to build a strong State that, besides ending civil strife, created economic institutions that helped to remove key obstacles to its economic development (Tenorio and Gómez, 2006). The Diaz administration was able to secure sufficient financial and fiscal resources for the state to implement a strategy of selective trade protection plus sectoral incentives to promote industrialization, and thus foster a more dynamic integration of the domestic economy to the international markets. However, the strong expansion and structural change in Mexico's economy was not accompanied by a more egalitarian distribution of income and wealth among the population. Thus, it kept being characterized by sharp social cleavages and widespread poverty, especially in the rural areas.

Melding a liberal political background with conservative economic goals, the *Porfiriato's* ideology is summarized in the positivist lemma of Order and Progress. The positivist ideology was promoted by a group of highly educated managers, lawyers and entrepreneurs in the government (the *cientificos*), led by José Yves Limantour and trained in the positivist and liberal tradition that saw order as the precondition for economic progress. Indeed, order was considered a *sine qua non* for economic growth. The end of the military and political struggles that had plagued Mexico since its independence was considered an essential pre-condition for business confidence and the recovery of private investment. Another condition was securing sufficient financial and fiscal revenues for the State. Strengthening of the central government was efficiently pursued by a combination of the authoritarian use of force and alliances with relevant groups. By having a practically full hold of the political structure, the Diaz regime brought about nearly three decades

of institutional stability, ending an era of violent insurrections[29]. Moreover, in all six presidential elections held between 1876 and 1910, Díaz obtained at least 75 per cent of the vote[30].

Progress meant transforming Mexico into an industrialized nation that could have a more dynamic performance in the world economy. To achieve this required addressing some of the traditional barriers to economic growth, such as the scarce integration of the domestic market and the lack of financial capital both for the State and for large-scale investment projects. The importance of these obstacles to economic development was well recognized at the time. In the words of Matias Romero, a minister of finance on four occasions under Juárez and Díaz: "This nation…has in its soil immense treasures of agricultural and mineral wealth, which now cannot be exploited due to the lack of capital and communications.." (cited by Rosenzweig, 1965, translation by the authors).

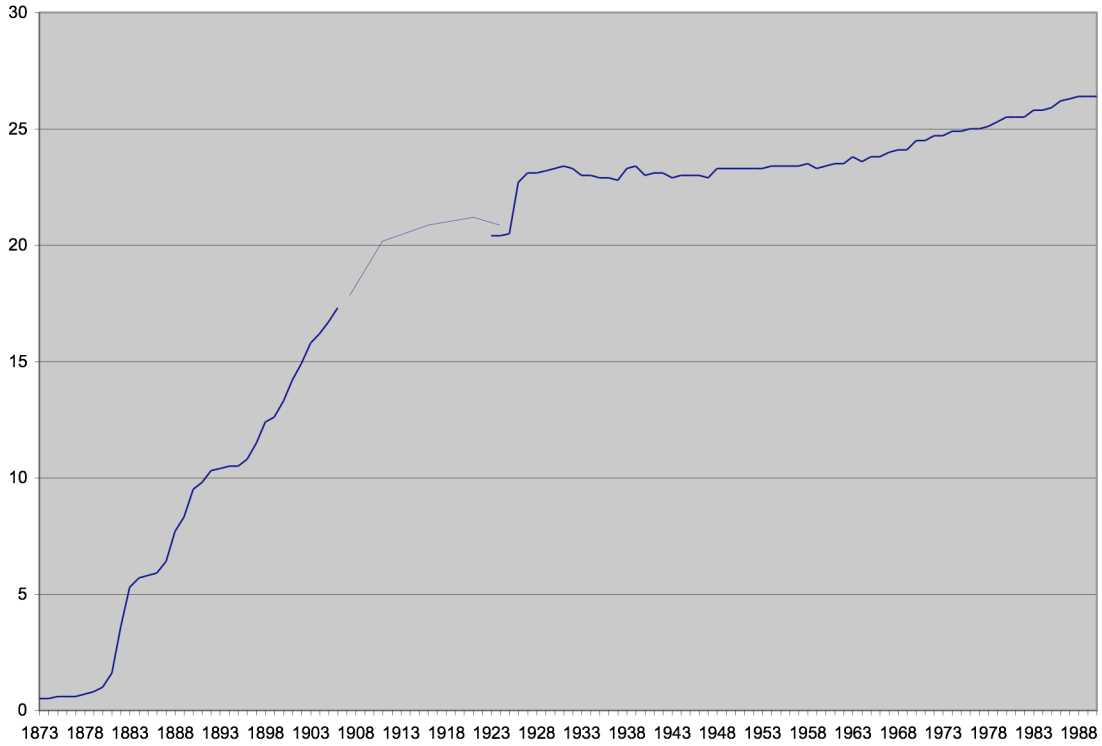
The expansion of the railways network and the integration of the domestic market

Accordingly, one of the *Porfiriato´*s major achievements was the integration of the domestic market, rapidly pushed forward by the expansion of the railways network. Indeed, in 1877 Mexico had 570 kilometers of railways constructed, and actually only one line fully operating, the Mexico City-Veracruz. By 1885, the network covered six thousand kilometers, and in 1890 it had gone up to ten thousand and ten years later to 14 thousand kilometers. In 1910 it span close to 20 thousand kilometers (Kuntz Ficker, 1999; Rosenzweig, 1965). By 1990 only some 6 thousand additional kilometers had been constructed so that by that year around 75 percent of the network had been built during the *Porfiriato* (see figure 3.1)[31].

Such fast expansion of the railroad network was made possible by the concessions and financial incentives awarded by the state to railway companies, mainly foreign ones. Subsidies granted on railway construction amounted to between 20 and 35 per cent of the total cost (Calderón, 1965, Cárdenas, 1997). The amount of subsidies granted to private companies was so large that, in general, guaranteed that they would not incur any losses (Marichal, 1998).

[29] The State, during the Porfiriato, accumulated enormous political power but, to a certain extent had to accommodate to diverse local and foreign interests (Tenorio and Gómez, 2006).
[30] More precisely, Díaz stepped down after his first term in office, in accordance with his original lemma of 'no reelection'. In 1884 he assumed the presidency again, until 1911.
[31] By 1910, Mexico had one kilometer of railways for 100 square kilometers of territory and 13 kilometers for each 10,000 people (Rosensweig, 1965).

Figure 3.1. Expansion of the railways network during the *Porfiriato* and beyond
(Thousands of kilometers)



Source: INEGI (1994)

The state's support to increase social overhead capital in this area went beyond granting financial subsidies (Coatsworth, 1984). Though initially conducted by private and mainly foreign investors, the railroad boom saw an increasing institutional involvement in it by the Mexican public sector (Grunstein, 1999). Indeed, in the 1890s the government started to participate more directly in the promotion of railways as well as other infrastructure projects. By the first decade of the 1900s the state gradually gained a majority share in many railroad companies and in a number of vast public work projects such as the construction of the railway across the Isthmus of Tehuantepec, the modernization of the port of Veracruz and major drainage works in the valley of Mexico. This increasing public sector intervention in the railroads culminated in 1908 with the nationalization of some of the principal lines connecting Mexico to the United States (Marichal and Topik, 2003), and the creation of *Ferrocarriles Nacionales de México* (FNM), a public sector enterprise. In practice FNM eliminated all competition in the railroad system in the domestic market (Grunstein, 1999). The financial obligations entailed in this nationalization process bulged Mexico's external debt (Marichal, 1998)

The rail network was mainly oriented from the center to the ports, essentially in the Gulf of Mexico, and towards the borders, mostly in the North, approximately along the routes of the mule trade that had prevailed for centuries (Rosenzweig, 1965). Notwithstanding this pattern, however, Mexico's train system served much more to meet the domestic markets demand than to transport goods for exports (Kuntz Ficker, 1999). The long rail lines did help to boost foreign trade, but there were numerous short railroads connecting local markets within regions and transporting inputs for the construction, mining, metal and other industries. In fact, the majority of the train freight was destined to the domestic market. For example, between 1898 and 1905, less than 2.5% of Mexico's total freight carried by train went to the United States (Kuntz and Connolly, 1999).

As in other less developed countries, the most significant economic impact of the creation of a railway system in Mexico was the reduction of transport costs and the integration of the domestic market. This impact was enormous, as Mexico's geography had prevented any other general solution to the need of having a rapid, modern transportation system at a national level. By reducing transport costs and interconnecting regions, the expansion of the railroad system gave a "big push" to the economy that lifted it from the stagnation trap in which it had plunged. According to Coatsworth's estimates, the railroad boom brought an 80% reduction in freight costs per kilometer from 1878 to 1910. By this latter date the average costs of transporting goods by train were 50% lower than those of the alternative means of transportation then available (Kuntz Ficker, 1999). The trains reliability, speed and lower costs amplified enormously the size of the domestic market, increasing labor mobility and its geographical redistribution, and bringing down local and regional trade barriers while allowing for more intensified competition. These effects were reinforced by the significant increase in road travel safety that the Diaz regime achieved.

According to Haber (1989) from 1861 to 1895 the internal market expanded threefold, and had increased to 5 million people with sufficient purchasing power to acquire manufactured goods (Cárdenas, 1997). The boom also helped to integrate agricultural producers to the market economy, and to integrate different regions. Simultaneously, it contributed to the birth of new activities whose production scales and capital intensity made them unprofitable in the absence of a unified national market. The boom also benefited some old activities such as mining, which would most likely have remained abandoned without the railway expansion as neither the necessary capital inputs for its development nor the commercialization of mineral products would have occurred.

Without the railways, the exploitation of copper, zinc and lead would have remained unprofitable due to the high transport costs (Cárdenas, 1997). This process allowed the exploitation of the rich mining northern zones in Sonora and Chihuahua, traditionally separated from the rest of the country by the lack of communications. Another effect of the expansion of railroads was the displacement of European countries by the United States as Mexico's main trading partner.

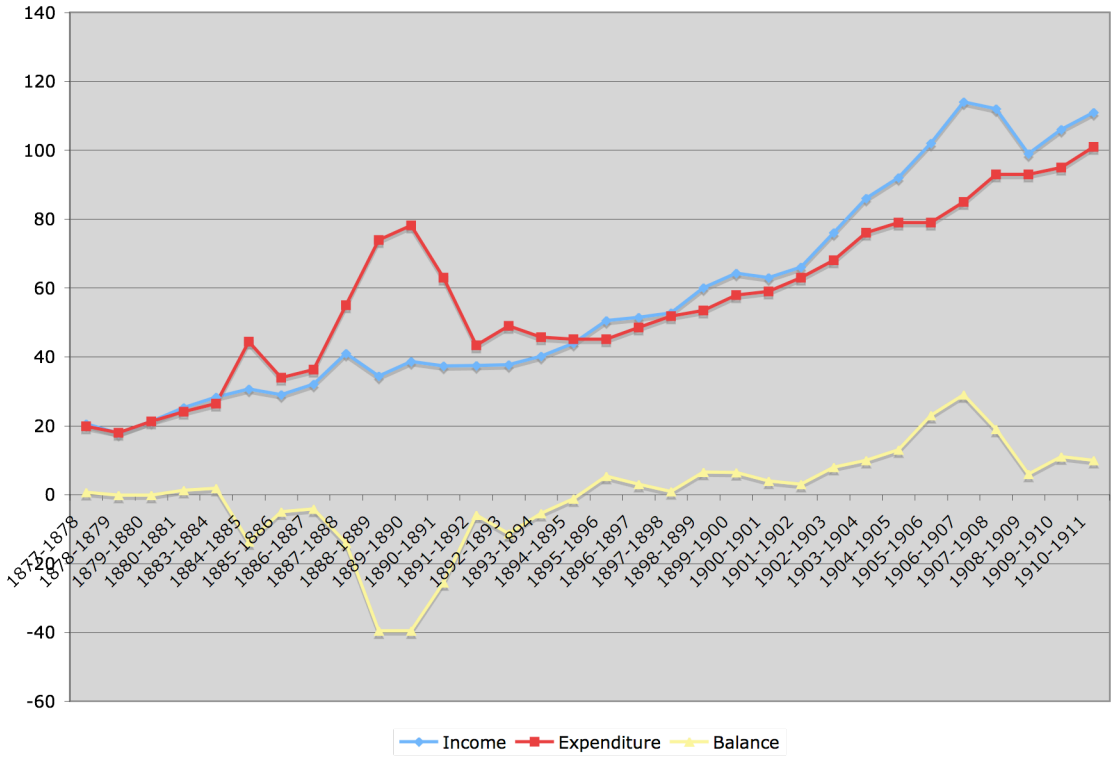
Besides cost reductions, the construction of a railway system may tend to promote economic development by inducing innovations in the way trade and some activities are managed or carried out, as well as by raising demand for domestic suppliers. In the case of Mexico at that time, however, due to the lack of backward linkages railway construction gave scant impetus to local industrialization. Moreover, it may have even reinforced the comparative disadvantages in some manufacturing sectors. Indeed, although the demand from mining and railroad tracks led to generate the first steel plant in the country, most of its intermediate inputs and capital goods — from the simple ones like iron tools and rails to the more sophisticated ones like spare parts and locomotives — were imported. Moreover, the labor hired locally for the railway companies was generally low skilled and poorly paid and the supervisory and engineering personnel was hired from outside (Kuntz, 1999). Such lack of domestic human capital restricted the spillover effects of the novelty of the railway systems' administration processes on the managerial practices of other industries. In addition, reinvestment of profits was rather limited as shown by the fact that by 1910, 57 percent of gross earnings were spent abroad (Coatsworth, 1979). Notwithstanding these limitations, there is consensus that the railway system was a fundamental contribution to Mexico's economic growth through its impact on integrating the regional networks of production and trade (Schmidt, 1974; Parlee, 1981; Kuntz, 1999).

Financial capital and foreign investment

During the *Porfiriato* the Mexican economy finally began to escape from the financial underdevelopment trap in which it had been stuck for most of the century. A crucial element for this process was the State-orchestrated merge in 1884 of the two largest banks to create the Banco Nacional de México (Banamex). Banamex was granted a privileged market position in Mexico's financial system, in particular by being exempted of the 5% tax that all other banks had to pay on the quantity of paper money they printed. In addition, it was allowed to have an outstanding ratio of money bills to reserves three times higher than the ratio allowed to other banks. In turn, Banamex gave Diaz sufficient resources to finance public spending and, thus, it allowed his regime to proceed at a slow pace in launching a tax reform that would strengthen fiscal revenues in the long run. This room for maneuver was important given that in its early

years of his regime a drastic tax reform was unviable and most likely risked political stability (Haber, 2006). The changes introduced in the tax codes on mining, oil and commerce led to persistent increases in fiscal revenues and later allowed to have balanced budgets and surpluses (Haber, 2006, Carmagnani, 1994) (see figure 3.2).

Figure 3.2. Public finances during the *Porfiriato*, 1877-1911



Source: Aguilar (1947)

By modifying the commercial codes (1884,1889), as well as the national banking law (1897), the government allowed a regulated increase in the number of banks. However this did not alter the highly concentrated nature of the banking sector. Indeed 35 banks were created between 1864 and 1908, but by 1911 Banamex and Banco de Londres y México held more than 60% of the total assets of the domestic banking system (Haber, 2006). The high concentration of the banking system, and the lack of an effective regulation to oversee its practices, allowed a vast expansion of “auto-préstamos”, i.e. long-term loans and credits to bank directors, their relatives and their business groups. This practice was legal and well known. Most important, given Mexico’s incipient financial development at that time, auto-préstamos reduced the transaction costs of channeling funds from savers to investors, and thus provided vast financial resources to large,

established, well known firms and businessmen connected to the banking sector. However, given the legal barriers that constrained the creation of new banks under the *Porfiriato*, credit was severely restricted for small, medium firms as well as for new firms whose management was not related or closely associated to the banking elite (Haber, 1991, 2006, Maurer and Haber, 2004)[32].

Thus, lack of finance became a major obstacle for the expansion of new manufacturing activities and a force to increase its overall concentration. The acute duality of the credit market — with a few selected well connected firms having unbounded access to bank loans and a vast majority of firms with no such access — took place notwithstanding that the monetary means of payments expanded and brought about a fall in interest rates from 10-12% circa 1880 to 6-8% in 1888 (Solís, 2000). The Bolsa, an embryo of a formal stock market, was created in 1895 and by the first decade of the XXth century the local press published regular quotations for an average of 80 mining companies and around 20 industrial firms and 20 banks (Marichal, 1997).

Foreign investment in mining, the oil sector and agroexports was a key element of the regime's development strategy, and was actively sought after through various incentives, including subsidies and tax exemptions (Solís, 2000, Haber 2006). These inducements and the profitable investment opportunities led to a vast inflow of foreign capital. From 1880, US and European capital flowed in. This flow increased continuously for the next 15 years, and boomed in the first decade of the 1900s (King, 1970). From 1884 to 1911, foreign investments increased by over 30 times. Their main destinations were railways construction, mining and public debt, followed by public utilities (electricity), agriculture and banking (Rosenzweig, 1965). In addition, an important category of investments was associated to immigrants and went into the development of industries serving the internal market. As described by Vernon (1963, p. 44): "Most of the major cotton textile plants that came into being during this period claimed a Frenchman as a major partner, usually a dominant one. The new large breweries of the period, such as those of Toluca, Monterrey, Guadalajara, and Orizaba, usually reported a German group among their founders. And in paper, cement, explosives, and steel, French, British, United States, or Spanish entrepreneurs were prominent". US and British capital controlled most of the railways and the mining sector. German, French and Spanish merchants dominated wholesale commerce and

[32] At the time, the creation of any new bank had to be formally approved by the federal government, congress, and the ministry of finance. Most important, local or state governments did not have the legal power to authorize the creation of banks (Haber 2006) and thus, they could not break the highly oligopolistic position of Banamex and a few other large banks.

played a major role in the first banks[33]. By 1911, European capital represented 62 percent of total foreign capital and US capital the remaining 38 percent, and Mexico represented over 45 percent of total US foreign investments (while being of secondary importance as a destination for European capital) (Cosío Villegas, 1965).

Institutional modernization and the international environment

More generally, state policies were geared to promote private investment and guarantee the best conditions for its operation. The legal framework for the conduct of private business was soon transformed. In 1884 new legal codes for trade and mining were adopted to improve conditions for foreign investment. Regional tariffs on domestic trade (*alcabalas*) were finally abolished in 1896[34]. New patent laws aimed at strengthening intellectual property rights provided the institutional framework to encourage technology transfer and occasionally to foster domestic inventions, resulting in dramatic increases after 1890 in patenting activity and technology transfer (patenting, for example, increased at annual rates of 17 percent between 1893 and 1910; see Beatty, 2001). Foreign trade policy was far from being exclusively export oriented. It combined focused high tariff protection, consistent with supporting import substitution in consumer goods industries, and declining *average* tariffs to enhance manufacturers' access to low-cost capital and intermediate goods (Beatty, 2002; Kuntz Ficker, 2002). In addition, it put in place a rationalization of import tariffs to ensure that the import tax rate on final goods was higher than on its inputs (Tenorio and Gómez, 2006). The ratio of tariffs to the value of dutiable imports was of the order of 60% (Beatty, 2002, Paz, 2000). In the early 1880s, government revenues from trade taxes represented over 60 percent of total government revenue. The view that the *Porfiriato* gradually and successfully negotiated tariff policy with political actors in order to gear it (after 1893) to promote manufacturing runs against the previously held conventional view (i.e. Rosenzweig in Cosío Villegas, 1965) that its aim was to provide tax revenues. In sum, an industrial policy partly based on selective trade protection and other policy instruments appears to have been gradually established to promote rapid industrialization.

Accompanying these policy changes was a more propitious external economic environment. By 1870 the second industrial revolution in the industrialized countries had spurred demand for minerals and other raw materials. Technological innovation in freight shipping and the expansion

[33] Marichal and Topik (2003) estimate the foreign capital's share of total capital to possibly be greater than one third. Navarrete (1963) states that during the Porfiriato more than half of new investments were foreign (cited by Paz, 2000).
[34] The 1857 Constitution had abolished the alcabalas but the civil war and the French intervention prevented the application of the measure.

of railways in the United States drastically brought down the costs of international transportation (Haber, 2006). In addition, there was a notable flow of international investment to several less developed countries: between 1870 and 1900 this flow doubled the value of the outstanding capital stock held by foreign investors (Maddison, 1989). Combined with the end of political instability, the new environment helped to restore Mexico's international creditworthiness. Having defaulted on its external debt on six different occasions between 1824 and 1880, as attempts to renegotiate and reinitiate debt payments were frustrated by recurrent fiscal crises associated to the outbreak of civil and international wars (Marichal, 1989), in 1889 the Mexican government finally reached an agreement with foreign bankers on rescheduling Mexico's foreign debt. By the early 1890s, the country's access to international capital markets was restored. From then until 1911, Mexico's external debt increased fourfold, mostly to finance public works in infrastructure (Marichal, 1989).

Before turning to discuss the results of the strategy and the new international environment, it is worth noting that the modernization of the institutional framework for industry, banking and trade was absent in labor relations. Except for the laws of supply and demand there were no laws that governed the labor market (Bortz and Haber, 2002).

Modernization with inequality

What was the overall development outcome of this strategy? Economic growth and modernization were felt in many areas, reversing several decades of decline, and from 1877 to 1910 Mexico's GDP increased by a multiple of 3.5 in real terms, achieving an annual average growth rate of 2.5 per cent in per capita terms (Coatsworth, 1989). More recent estimates put this annual average growth figure somewhat lower, 2.1 per cent (Bortz and Haber, 2002) and 2.3 per cent (Maddison, 2006, for the period 1870-1910). This relatively high rate of expansion will not be experienced again until after 1940, except perhaps for briefs periods of recovery after the revolution and the great depression (Reynolds, 1970). Industrial and agricultural development together with increasing regional specialization modified the urban landscape. The main urban centers (locations of more than 20,000 inhabitants) expanded in number (from 22 to 29) from 1895 to 1910 and their urban population grew at a rate of 2.5 percent per year, well above the average growth of population (1.2 percent) (Rosenzweig, 1965).

As argued by Beatty (2001), economic growth went through two distinct phases. In the first phase, which in fact starts before the *Porfiriato* in the late 1860s, the expansion was export-led and characterized by the construction of railroads and the recovery of silver mining and other

traditional activities. GDP per capita, according to Maddison (2006), grows in this period at an annual rate of 2.1% (1870-1895). Then from the early 1890s, still with a dynamic performance of exports, economic expansion accelerates and GDP per capita grows annually at 2.7% (Maddison, 2006, for the period 1895-1910)[35]. This second phase is characterized by a diversification of investments and production into new activities both for export and inward oriented manufacturing. Indicators of this diversification are the fact that manufacturing nearly doubled its rate of growth after 1893, the fall in the share of consumer goods imports to just 43 per cent of all imports in 1911 (compared to 75 per cent in 1876), and the decline in silver's share of total exports to 20 per cent in 1910 (compared to over 60 per cent in the 1870s) (Beatty, 2001). While the first phase is driven by international economic conditions, the second is conditioned by domestic institutional reforms (in the areas of tariff policy, intellectual property and fiscal incentives to industry). Each phase is also linked to different economic teams: the one led by Matías Romero during the first half of the Porfiriato with a liberal, free trade perspective and the one associated to José Ives Limantour and the cientificos who advocated a greater role for industry, protection and industrial policy (Beatty, 2001)[36]. In any case, and notwithstanding these differences, it is important to point out that the combination of strong export growth and import substitution during these years led to the sustained improvement in the trade balance. Indeed, after showing large deficits in the first two decades of the Porfiriato, it gradually improved in the 1890s, and began to show small surpluses by 1905-10 (Kuntz 2002, Tenorio and Gómez, 2006).

Foreign investment meant access to world markets, and between the 1890s and 1910 Mexico's foreign trade as a share of GDP increased by more than ten percentage points, helping also to increase government funds, as taxes on foreign trade provided more than half of public revenues. Towards the end of the *Porfiriato*, foreign trade as a proportion of GDP had reached more than 30 percent, compared to close to 10 percent before the 1870s (Coatsworth, 1990). The export sector became an engine of growth, as it had done to a lesser extent previously in colonial times. From 1877 to 1911, exports multiplied more than six fold (and imports grew by nearly 3.5 times) (Rosenzweig, 1965). This time the export basket became considerably diversified (table 3.2) as it included, besides silver, other minerals – industrial metals such as copper, lead and zinc whose demand from the industrial centers of the world economy was expanding rapidly – as well as a number of agricultural products (coffee, livestock, garbanzo beans and others which were added

[35] Coatsworth figures (see table 3.1) yield yearly growth rates of GDP per capita of 2.3% for 1877-1895 and 2.6% for 1895-1910.

[36] But even Matías Romero, in the early 1890s, declared himself in favor of an "enlightened protectionism" defined as one that protects national industry without preventing the healthy competition of imported commodities (Paz, 2000).

to those already with some importance in the composition of exports such as henequen, furs and wood)[37].

Table 3.2. Composition of exports, 1821-1910
(percentages of total exports)

Year	Metals and minerals 1/	Agriculture	Livestock	Other
1821-24 2/	68.4	31.1	0.3	0.3
1825-28	78.6	19.3	1.3	0.8
1856	91.7	6.8	1.1	0.3
1872-73	80.0	12.5	6.4	1.1
1873-74	76.1	15.8	7.3	0.8
1874-75	74.3	16.0	8.0	1.8
1879-80	72.2	19.1	5.7	3.0
1884-85	74.0	19.5	5.8	0.6
1889-90	64.8	29.4	4.3	1.5
1894-95	68.1	26.1	4.2	1.6
1899-1900	60.7	30.7	6.4	2.1
1904-05	59.4	32.7	4.3	3.6
1909-10	61.0	29.2	7.6	2.1

1/ Includes gold and silver

2/ Only for the port of Veracruz

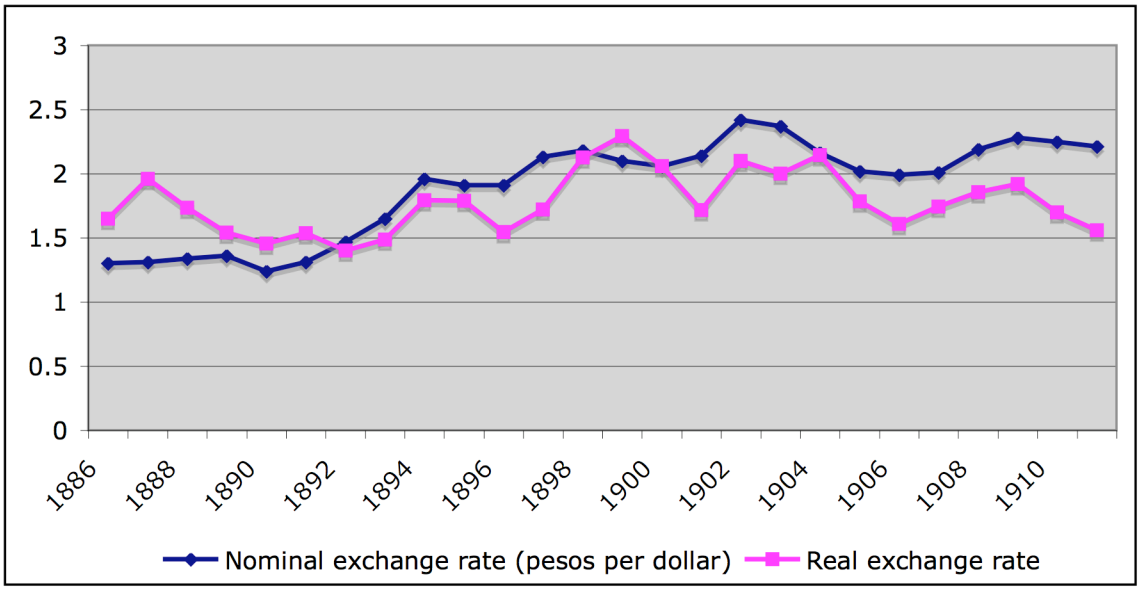
Sources: Herrera (1977) for 1821-1875, El Colegio de México (1960) for 1879-1910

The export boom appears to have been greatly helped by the depreciation of silver at the end of the XIX century, provoked by the adoption of the gold standard towards 1870 in the advanced countries (Cárdenas and Manns, 1987) and the expansion of silver production in the United States and in Mexico after 1884 (Pletcher, 1958). The depreciation of silver amounted to a continuous real devaluation of the Mexican peso of 26 percent throughout the 1890s. Zabludovsky (1984) assesses the view, held by Rosenzweig (1965) and Nugent (1973), that devaluation promoted export led growth and the purchasing power parity view of Limantour, Porfirio Diaz´s minister of finance, according to which the silver depreciation was ultimately reflected in the price level. Zabludovsky´s evaluation of the evidence supports the first view. The

[37] Manufacturing exports lagged well behind minerals and precious metals and by 1910-1911 represented only 1.3 percent of total exports (Paz, 2000, citing Estadísticas Económicas del Porfiriato).

timing of the depreciation, concentrated in the 1890s (see figure 3.3 and Beatty, 2000, on the subject), suggests also that it may have been an important factor behind the economic diversification that takes place during the second half of the *Porfiriato*[38].

Figure 3.3. Nominal and real exchange rates
during the *Porfiriato*



Source: Based on El Colegio de México, Estadísticas Históricas del Porfiriato

Underlying this modernization was also Mexico's first wave of large-scale industrialization. Through import substitution in textiles, beer, papermaking, cement and steel, manufacturing output increased at an average rate of 3.6 per cent per annum from 1877 to 1910 (Coatsworth, 1989; Cárdenas (1999) puts this figure a bit higher, 4.1 per cent per year). As already mentioned, the expansion of manufacturing appears to have accelerated in the second half of the *Porfiriato* during the diversification phase of the process of economic growth. Catao (1991) estimates that in the last decade of the XIX century import substitution accounted for more than 30 per cent, a major contribution, to the growth of manufacturing industries, especially the textile industry.

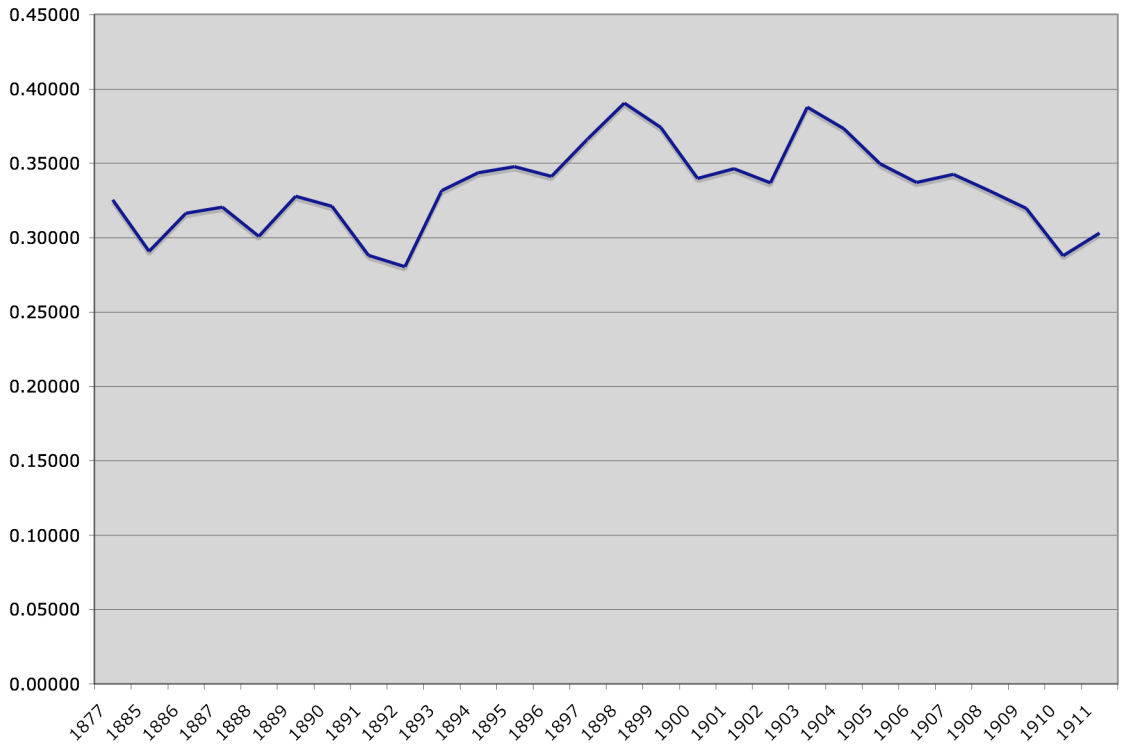
Manufacturing changed from being an artisans' activity, carried out in small handicraft firms, to a productive process done in large-scale plants. In fact, before 1890, the large-scale factory system had been present only in the cotton textile industry (Haber, 1989) and the production of cigarettes (Beatty, 2001). By 1900 factory production could be found in a wide array of industrial activities

[38] Empirical studies suggest that the real depreciation gave a strong impulse to import substitution (Catao, 1991).

including paper, beer, cement, and glass among others (Beatty, 2001). This phase of industrialization, as Haber points out, was accompanied by changes in business management methods and industrial organization. Joint-stock corporations increasingly replaced family-managed enterprises giving origin to large, vertically integrated firms in a diverse array of manufacturing activities.

The effects of manufacturing growth on employment and wages went in two different directions: a decline in employment in artisan production together with an expansion of employment in machine manufacturing production. From 1895 to 1900, the second (positive) effect outweighed the first (negative) one and real wages appear to have increased together with the manufacturing employment share. By contrast, from 1900 to 1910 the growth of machine manufacturing tended to displace artisans at a faster rate than labor was absorbed into the new plants; real wages declined and the manufacturing employment share fell (while the share of services as well as agriculture increased) (Reynolds, 1970, see figure 3.4).

Figure 3.4. Real minimum wages during the *Porfiriato*
(Minimum daily wage, 1900 pesos)



Source, Based on El Colegio de México. Estadísticas Económicas del Porfiriato

The size of the Mexican market was, nevertheless, rather small given modern technologies. This favored high degrees of market concentration, as only oligopolies could survive. Moreover, market concentration was strengthened by the highly concentrated nature of the banking system that, as explained earlier, severely restricted credit to businesses not related or associated with the banking elite. Even then, dependence on foreign technology designed for bigger markets led to high operation costs and the insufficient exploitation of economies of scale (Reynolds, 1970). Collusion among producers probably inhibited efforts to innovate production methods and was often aimed at manipulating the state and the market to hinder competition. These problems were aggravated by a scarcity of skilled workers and, more generally, by a predominantly rural labor force whose working practices were still very much alien to the proletariat. All these factors hindered labor productivity and, as a result, international competitiveness was weak: even though wages in Mexico were less than half that of workers in Britain or New England, costs of production in Mexico were 10 to 20 per cent higher (Haber, 1989). Certainly such aggregate picture is not valid for each industry or region. In particular, somewhat recent research on the cotton textile industry points to the opposite conclusion. It shows that during the two last decades of the *Porfiriato*, there was a rapid expansion of its labor and its total factor productivity (Razo and Haber, 1998). This improvement was most likely associated to investment and the expansion of the domestic market.

The *Porfiriato's* impact was not restrained to mining, industry and the banking system. The rural areas were also deeply transformed in their social and economic structure. The expansion of agricultural output was concentrated in exportable raw materials, by far its most dynamic segment (Solís, 2000). At the same time, production of agricultural goods for domestic consumption tended to decline. As a result from 1877 to 1907 total agricultural output grew at an annual average rate of only 0.7%, scarcely half the growth of population (Solís, 2000). Based on a diagnosis of the rural sector as unproductive, with most agricultural output distributed through non-market channels, the Diaz administration pushed an accelerated redistribution of federal and communal land to private development companies and wealthy individuals[39]. As noted by Reynolds (1970, p.136): "As a result the government supported what amounted to an enclosure movement, in which federal land and peasant communal holdings, as well as other private properties with clouded titles, were redistributed to land development companies and to individuals successful in gaining favor with the administration". In this process, no attention was given to potential privatization revenues from the sale of federal land (part of it being the previously large

[39] In exchange for their services, the government would concede up to one third of the built-up land to the land development companies (companías deslindadoras) (Paz, 2000).

landholdings of the Church); rather, the aim was to extend private property in order to free idle resources and favor its more efficient use. The displacement of communal land was also stimulated by railroad construction.

Privatization promoted the concentration of land in large-scale properties (*latifundios*) for commercial cultivation. In fact, between 1878 and 1908 the Diaz government transferred 30 million hectares to the private sector, either selling them or giving them away as compensation payments to the "deslindadoras" (Holden 1994, cited by Tenorio and Gómez, 2006). Not surprisingly, by the early 1900s 95 per cent of all arable land was in the hands of 835 families (Manzanilla Schaffer, 1963). According to the 1910 census, the agricultural sector amounted to 850 proprietors who owned 8,431 haciendas (Newell and Rubio, 1984, citing González Navarro, 1957).

By the early 1900s, this pattern of development started to show symptoms of exhaustion. From 1903, real wages began to decrease in a systematic and persistent way (see figure 3.3). Droughts in 1907 reduced output of food products, and furthermore increased their prices. By 1911, the cumulative decline in average real wages was 26 per cent relative to 1898. Miners were perhaps the only group whose wages did not decline in real terms, but in contrast the collapse was severe in agriculture (Hansen, 1971). Indeed, debt peonage kept rural workers in extreme poverty as landowners used their monopsonistic and monopolistic powers (the infamous *tienda de raya*) to push wages below subsistence levels. If hunger was not evident, poverty was most common, especially in the rural areas. As noted by Haber (1989), the extent of poverty was such that the increase in the price of corn due to any bad harvest would reduce workers´ consumption of manufactures by enough to provoke a crisis in the cotton garment industry. At the same time, recourse to force to repress labor and suppress political opposition became more frequent. By 1910, the system's unequal distribution of benefits and access to power reached its limit. The emerging middle classes excluded from political decisions, and the workers and peasants marginalized from the benefits of economic growth, were successful in developing a triumphant coalition under the banners of political democracy, agrarian reform and labor rights.

Limits and downfall

What had gone wrong? Clearly, the *Porfiriato's* 'primary contradiction' was in its results: the growing imbalance between rapid economic growth, on the one hand, and the slow pace of political and social progress on the other. Porfirio Diaz had set out to make of Mexico a modern industrial nation. But, despite some progress in the educational front with the establishment of

compulsory primary education in 1892 and the creation of the National University in 1910 (Paz, 2000)[40], by 1910 less than 30% of Mexicans could read and write (INEGI, 1994). Life expectancy at birth was probably not much above 30 years (table A.3) and some estimates even suggest that average life expectancy fell between 1895 and 1910 (Rosenzweig, 1965). In turn, between 1895 and 1910 infant mortality increased from 160 to 216 per thousand (Paz, 2000, citing Estadisticas sociales del Porfiriato). In the context of ample labor reserves, augmented over time by the displacement of artisans by modern industrial undertakings in addition to the natural increase in population, modernization did little to improve the living conditions of the poor and the real minimum wage in 1911 had fallen by 7 percent below its level in 1877 (Rosenzweig, 1965).[41]

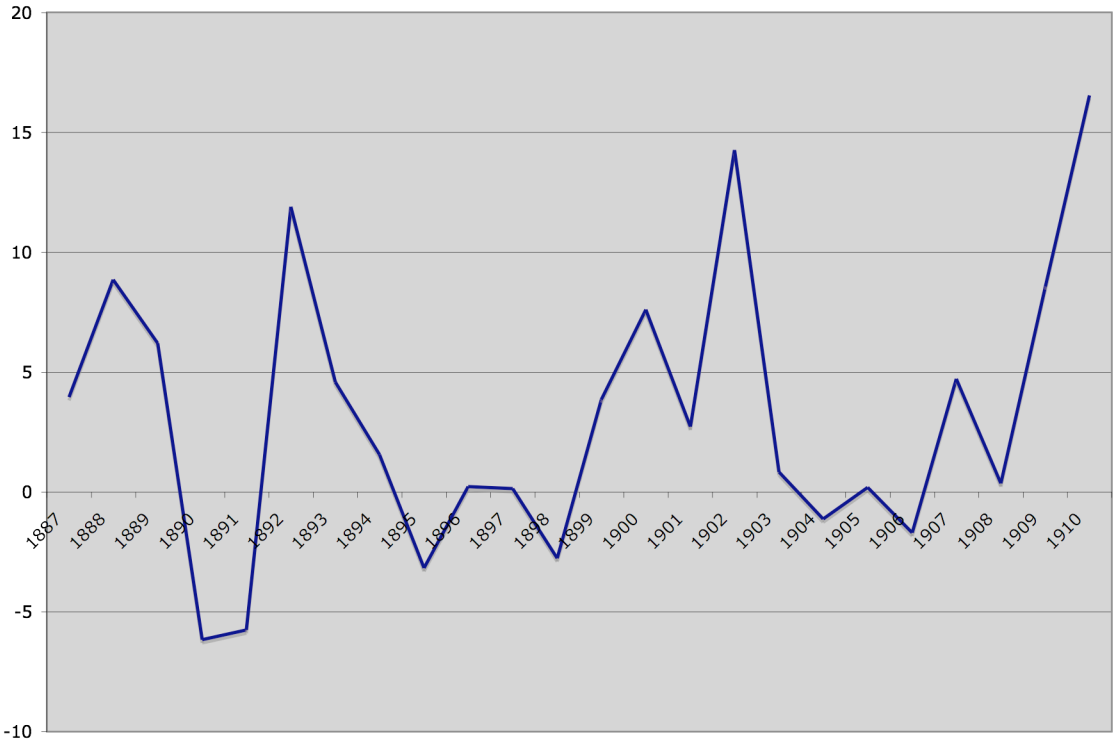
Moreover, as a result of the adoption of the gold standard in 1905 and the associated monetary devaluation, as well as of droughts in the last three years of the *Porfiriato*, inflation surged: while the price level had increased at an annual rate of 2.1 percent between 1894 and 1904, it increased by nearly 5 percent per year between 1904 and 1910 (Gomez and Mussachio, 2000, see figure 3.4). The last decade of the *Porfiriato* was marked by a slowdown in population growth and increased net emigration of Mexicans to the United States that Reynolds (1970) has taken as evidence that during the late *Porfiriato* economic conditions deteriorated for large segments of the population. With two-thirds of its population still living in rural areas and two thirds of its labor force employed in agricultural activities in 1895 (Keesing, 1969), Mexico was still a fundamentally backward economy and, overall, a backward society.

Perhaps the aspect that best illustrates the explosive potential of modernization in the midst of poverty and inequality is the process of agrarian commercialization and its effects on the peasant economy. Unlike what happened in Argentina and Brazil, the process of agricultural modernization and integration of agriculture into the international division of labor tended in Mexico to destroy a peasant economy. And unlike what happened in Peru, Bolivia or Guatemala, the erosion of the peasant communities was very rapid because agricultural commercialization was more vigorous and affected the densely populated highland zones. In contrast, in Peru cotton thrived in the coast while in Guatemala coffee grew in the temperate zones far removed from the peasant heartland (Knight, 1992). As argued by Knight (1992), a peculiarity of Porfirian Mexico was that it experienced a "process of 'Brazilian' or 'Argentine' agrarian commercialization which

[40] Public spending in education increased from 3.2 percent to 6.8 percent of total public spending between 1877-78 and 1910-11 and enrollment in primary school jumped from 142 thousand to 658 thousand from 1878 to 1907 (Paz, 2000).
[41] According to Bulnes (1952) the wage of a peon de hacienda measured in corn was a fourth of its level at the end of the colonial era.

impinged upon a 'Peruvian or 'Bolivian' peasantry". And it is this peculiar combination that planted the seeds of Mexico's popular revolution.

Figure 3.4. Changes in the price level, 1887-1910



Source: Based on Gómez and Mussachio (2000).

There were also shortcomings in the design of the development strategy. Three of these turned out to be particularly relevant. First, rather than increasing labor mobility, the enclosure system implemented in the *Porfiriato* strengthened labor's links of dependency with the rural areas. Deprived of land plots, the great majority of the population was forced to work permanently as indebted labor in the haciendas. Thus, at the same time that the expansion of the railway system was creating a national market, huge contingents of the population did not have the possibility to enter it. This was reflected in the very unequal development of agricultural production: while export products grew at a rate of over 6 percent per year from 1877 to 1907, foodstuffs and raw materials for domestic consumption stagnated during the period (Cosío Villegas, 1965).

A second aspect concerns the sources of finance for development. The existing banking system had a dual nature that was incompatible with the financing needs of an economy undergoing a

process of structural change. By 1897 no bank had legal authorization to give loans for a period longer than a year. By 1910, some banks were legally allowed to give such loans, but the great majority of them were provided for investments in real estate[42]. Moreover, bank credit was channeled to large, well known firms whose managers were closely associated or related to the banking elite. The rest, and vast majority of firms had practically no access to finance capital. Their growth potential was restricted by their own resources and capacity to reinvest profits. The relatively more available supply of short-term loans was, at most, suitable to fit purely commercial needs (Bortz and Haber, 2000). Besides foreign investors, Mexico's first wave of industrialization was mainly carried out by the merchant elite who financed it through the reinvestment of their accumulated profits[43]. At the end of the *Porfiriato,* Mexico still faced the urgent need to create modern banking institutions capable of financing long-term investment needs of firms other than those associated with the banking elite. To achieve this, competition had to be allowed in order to change the highly concentrated nature of the banking sector.

The third is related to the role of the state in the quest for development in backward economies. For the *Porfiriato's* elite, the role of the state, besides ensuring social peace and participating in infrastructure projects, was to guarantee the best conditions for private investment without intervening directly in the productive sphere. Just between 6 and 10 percent of public spending was directed to capital formation (Rosenzweing, 1965) and public investment probably never amounted to more than 5 per cent of total investment. This was partly explained by a tradition of violence that diverted a large amount of resources to the military[44]. Moreover, government spending was constrained by an archaic fiscal structure, so that public revenues did not keep pace with the growth of the economy and in particular with the need for a social policy required to meet the growing social problems that accompanied economic growth (Coatsworth, 1990). In 1910, total government expenditure at all levels was only 7.2 percent of GDP and federal expenditure was 4.4 percent, similar to the level of the colonial government in 1800 (Coatsworth, 1985). These are lower levels than those prevailing in Europe or even in Brazil where the central government spent 13.4% of GDP (Coatsworth, 1985, citing Topik, 1983). While the achievement of political stability and the emergence of a national market had broken through some of the

[42] Out of 47 banks in 1911, only 10 were legally allowed to lend for terms of more than one year (Haber, 1997).
[43] For accounts of finance, banking and industry during the *Porfiriato,* see Batiz and Canudas (1980) and Haber (1989).
[44] Over half of the lower ranking public employees were members of the armed forces and 38 percent of the 1888 federal budget was consumed by the armed forces. Compare, for example, with Brazil's 18 percent share and the fact that in absolute numbers Mexico's soldiers and sailors were twice Brazil's military contingent (Marichal and Topik, 2003).

barriers of stagnation, this limited role of the state proved insufficient to overcome in a sustained way the still enormous obstacles to economic development.

The *Porfiriato*'s growth performance in the international context

Overall, Mexico's growth performance from 1870 to 1910 was outstanding in the international context (see table 3.3). In Latin America, although it fell short of Argentina's golden age, it was superior to that of Uruguay and much better than that of Brazil. It also implied a process of catching up with respect to the advanced regions of the world economy. As a fraction of US GDP per capita, Mexico's incomes per capita moved from below 28 percent to over one third and with respect to Western Europe relative GDP per capita increased from about one third to one half. Performance compared to Spain's was particularly impressive. By 1910, Mexico's GDP per capita was nearly 90 percent the Spanish level (compared to 56 percent in 1870).

Table 3.3. Mexico's GDP per capita as a percentage of GDP per capita in:

	1870	1890	1910
Brazil	94.5	127.3	220.3
Spain	55.8	62.3	89.4
Uruguay	30.9	47.1	54.0
Argentina	51.4	47.0	44.3
Western Europe [1/]	32.3	38.3	50.1
United States	27.6	29.8	34.1

1/ 12 countries
GDP levels are in 1990 international Geary-Khamis dollars

Source: Based on Maddison (2003), The World Economy: Historical Statistics, OECD Development Centre, Paris 2003

4. Revolution, the 1930s and the consolidation of a developmental state

In 1910 the Pax Porfiriana drew to a dramatic close with the Mexican Revolution. Once more, the absence of social consensus — amidst widespread poverty and acute disparities in the distribution of income and wealth — became a fundamental obstacle for Mexico's development. The construction of a stable social pact would be fully achieved only three decades later. In the process, the economy was subject to political shocks (the armed struggle itself followed by a period of political instability) and economic turbulence (the crash from 1926 to 1932) but in the meanwhile the Mexican state would develop the policy instruments and institutions that eventually will permit a recovery of economic development at a faster pace than in the past.

Revolution and the emergence of a new social pact

The nearly two decades between the beginning of the revolution and the start of the great depression were a period of great political instability. The period witnessed the initial insurrection led by Madero against Díaz (1910-1911), a reaction led by Huerta in 1913, a counter-reaction by the revolutionaries (1913-14) and a civil war between revolutionary factions (1914-17). While the scale of armed struggle diminished significantly afterwards, political unrest continued for the next ten years, marked by the killings of important figures such as Zapata (1919), Carranza (1920), Villa (1923) and Obregón (1928), military uprisings in 1923, 1927 and 1929 and a three-year long local civil war in center-west Mexico (1926-1929) over the anticlerical character of the new Constitution (the war of the *Cristeros*).

The most violent stages of the Mexican Revolution ended with the adoption of a new Constitution in 1917. Taking the liberal constitution of 1857 as a starting point, the new constitution strengthened the executive by granting the president the rights of veto, to initiate legislation and issue personal decrees in special circumstances while, at the same time, preventing him from perpetuating himself in power through the provision of no-reelection (the rallying cry of Madero against Porfirio Diaz). It also restricted the role of foreigners both in politics (article 33) and in the economy[45]. More fundamental from an economic point of view, the 1917 Constitution redefined the legal framework for land property (article 27) and labor relations (article 123). Article 27 placed the nation over and above private property on matters regarding land, water and subsoil resources. This article had two main aspects. First, it provided the juridical basis for an agrarian

[45] By, for example, prohibiting the acquisition of any surface or subsurface rights to Mexican land unless foreigners gave up their claim to protection by their home governments as well as the acquisition of any rights in border and seaside areas.

reform through the expropriation of large land holdings and its allocation to *'ejidos'*, a land tenure system combining collective ownership with private exploitation of the land ("Ownership of lands and waters…..is vested originally in the Nation"). Second, it increased the scope for state intervention over mining and oil resources (thus repealing the Porfirian mining code of 1884) ("In the Nation is vested direct ownership of all minerals…such as….petroleum and all solid, liquid, or gaseous hydrocarbons"). On the other hand, article 123 is considered one of the most progressive labor legislations of the time establishing the right to form trade unions, a system of minimum wages, eight-hour workdays within a six-day workweek, and equal pay for equal work.

A fundamental move towards the consolidation of social peace and political stability was the creation of the Partido Nacional Revolucionario (PNR) in 1929[46]. Encompassing all relevant social forces of the Mexican Revolution, the PNR soon became a functional vehicle for political control and the only legitimate arena in which to settle political differences. Complete hegemony would be achieved during the Cárdenas presidency (1934-40). Under the institutional framework established then, which remained in place for more than half a century, the ruling president was the most powerful political force, with no relevant opposition in presidential elections and in Congress. The official party — renamed Partido de la Revolución Mexicana (PRM) in 1938 and Partido Revolucionario Institucional (PRI) in 1946 — was the central instrument of corporatist control through a mixture of co-optation, negotiation and repression. This mixture proved most successful in retaining power control; until 1988, the PRI was acknowledged ample-margin victory in all presidential elections and, with recent but increasing exceptions, in all state governor elections too.

By 1940, the government party had formed solid alliances with labor through the *Confederación de Trabajadores Mexicanos* (CTM) and the *Federación de Sindicatos de Trabajadores al Servicio del Estado* (FSTSE), and controlled peasants' organizations through the *Confederación Nacional Campesina* (CNC). The private sector, although not formally included in the official party, was recognized and taken into account by the political system through a number of business organizations and chambers such as the manufacturers' CONCAMIN and CANACINTRA and the merchants' CONCANACO. In addition, by the 1940s the military had been professionalized, divested of its political role. The age of Caudillos was over, and Mexico's particular form of institutionalized authoritarian control had begun.

[46] For detailed accounts of the creation of the PNR and its role in long-term political stability, see Córdova (1972, 1973), Garay (2003), and Newell and Rubio (1984).

The revolution and its aftermath: demographic consequences and economic changes

The revolution brought profound demographic changes. From 1910 to 1921, population fell by almost one million people from 15.2 to 14.3 million (INEGI, 1994). In this decline factors other than the casualties caused by the civil war had an impact, such as migration to the United States, famine and diseases such as an epidemic of influenza in 1918-19. According to recent (and comparatively high) estimates, the total demographic cost of the revolution was nearly 2.1 million (comparable to that of the Spanish civil war) of which two thirds are accounted for by excess deaths, one fourth by lost births, and less than one tenth by emigration (see McCaa, 2003, which includes also a review of previous studies).

The revolution also had deep economic consequences. The monetary system was severely disrupted. The war effort on the part of the Huerta government[47] and the monetary emissions by the different revolutionary factions, starting in April 1913, led to an almost five fold increase of the money stock from 1910 to 1915 (Cárdenas and Manns, 1987). This was followed by a rapid depreciation of the exchange rate of the various monies, hyperinflation and a distrust of paper money by the public[48]. Monetary chaos and the intervention of the banks in 1916-17 led to the collapse of the Porfirian banking system. Indeed, during the revolution banks were subject to many adverse pressures (Fujigaki, 2005). Huerta imposed on them the practice of forced lending while the revolutionaries were hostile to banks, and eventually the government ordered their intervention.

Production and investment were greatly affected in several areas[49]. In addition to bringing monetary chaos, the years of armed conflict disrupted the railways system and brought production in certain areas to a standstill. Agricultural activities were, in general, most severely affected with the production of corn declining by about 40 percent from 1910 to 1920 (Vernon 1963, citing Loredo, 1960). Manufacturing activity may have declined by about a quarter during the same decade (INEGI 1994, based on Robles, 1960). Both consumer goods industries (textiles, beer, tobacco) and intermediate goods production (cement, steel) were adversely affected, with the effects on the latter being stronger. Many intermediate goods industries were actually shut down, given the disruption of the transport and communications network and the

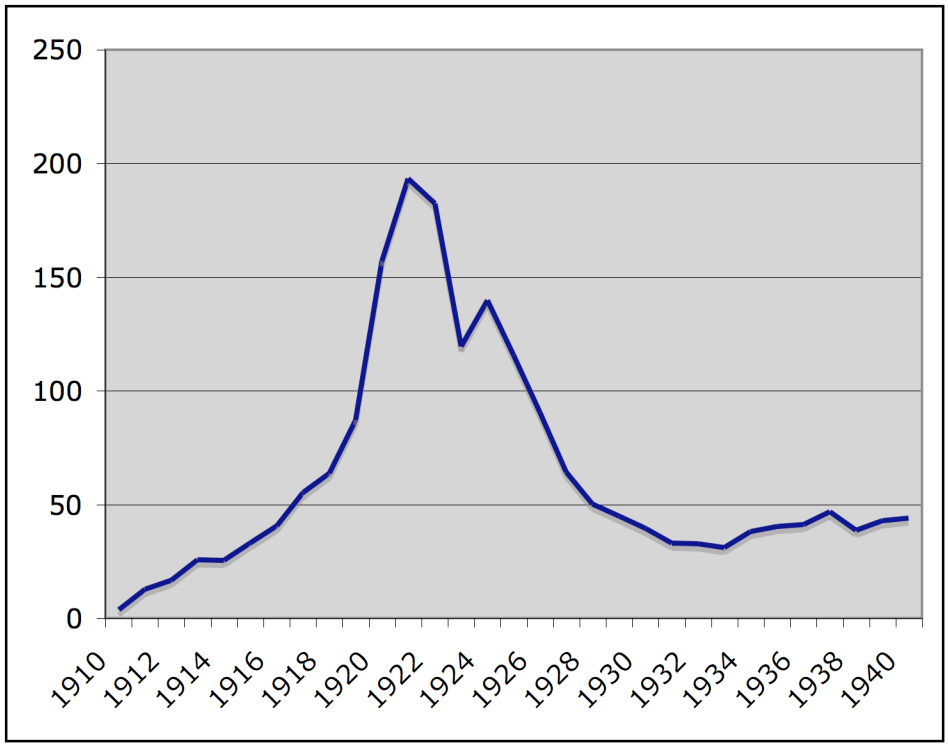
[47] The federal army of fifty thousand troops under Madero grew to more than two hundred thousand under Huerta (Brown, 1993).
[48] By April 1916 there were 21 different types of paper money in circulation (Cavazos, 1976).
[49] The effects of the revolution on economic activity have been an object of controversy. Womack (1978) is an early criticism of the conventional picture of disruption and decline. For a recent criticism of Womack's theses, see Paz (2006).

breakdown of the monetary system. Haber and Razo (2000) document the decline in manufacturing output and productivity and the collapse in investor confidence (as indicated by the evolution of a real, inflation adjusted, stock price index). The collapse of the established social and legal order, the breakdown of the national market and the domestic monetary system, and the uncertainty this brought about, proved lethal for investment. Even though productive capacity was not physically destroyed, it deteriorated massively as no investment or maintenance was undertaken except in a few areas.

Oil in the Gulf coast, on the other hand, as well as the production of henequen in Yucatan and a few manufacturing activities oriented to the production of army supplies, actually expanded their production. The first Mexican oil boom, carried out by British and American oil companies in the Gulf coast, reached a production peak in the early 1920s (see figure 4.1). While Mexico produced

Figure 4.1. Oil production 1910-1940

(Millions of barrels)



Source: INEGI (1994)

barely 1 percent of world's oil in 1910 (Hall, 1995, p. 13), by 1921 the share in world oil output had reached 25 per cent, second only to the US (Haber, Maurer and Razo, 2003). By that year, it

was producing more than six times as much as Russia, the third largest producer (see table 3.1), and had accounted for over 40 percent of the increase in world's oil production between 1910 and 1921. By the end of the 1910s, Mexico satisfied 14 percent of the vast American consumption of petroleum products (compared to a mere 1 percent in 1911), and well over 80 percent of Mexican oil was being exported to the US (Brown, 1993). At about the same time, American companies produced 73 percent of the total oil generated in Mexico, British, 21 percent, Dutch, 4 percent and Spanish-Mexican, 2 percent (US Department of Commerce, cited by Brown, 1993, p. 123). Interestingly, the oil boom actually began in the midst of the armed struggle with output climbing every year throughout the revolution from 3.6 million barrels at the beginning of the decade to more than 40 million in 1916 and more than 157 million in 1920 (see figure 4.1). Besides the attractive profit opportunities provided by recent oil discoveries, a major factor was probably that contenders in the Revolution avoided harming industrial plants, machinery and equipment.

Table 4.1. World's leading producers of oil (millions of barrels)

	1910	1916	1921	1927
United States	209.6	300.8	472.2	903.8
Mexico	**3.6**	**40.5**	**193.4**	**64.1**
Russia	70.3	65.8	29.0	72.4
Dutch colonies	11.0	12.5	17.0	21.4
Persia	---	4.5	16.7	36.8
Venezuela	---	---	1.4	64.4
Colombia	---	---	---	14.6

Source: Sterret and Davis (1928), cited by Meyer (1991)

The expansion of exports that took place during the revolution (from around 1915 to 1920) went beyond the oil boom, encompassing mineral products (silver, copper, lead) and agricultural and animal products (henequen, ixtle, coffee, livestock)[50]. The reasons for continuity with the export expansion of the *Porfiriato*, interrupted only in 1913 and 1914, have to do with the location of some of the export activities in areas relatively unaffected by warfare and near the ocean (so that they were less dependent on the affected railway network). This is the case of oil and coffee in the Gulf coast, and henequen in the Yucatan. It is worth noting that the growth of export revenues actually accelerated between 1915 and 1920 beyond the rates of growth recorded during the *Porfiriato* with a good part of this acceleration being attributable to rising prices (Kuntz Ficker,

[50] On the export boom, see Kuntz Ficker, 2004).

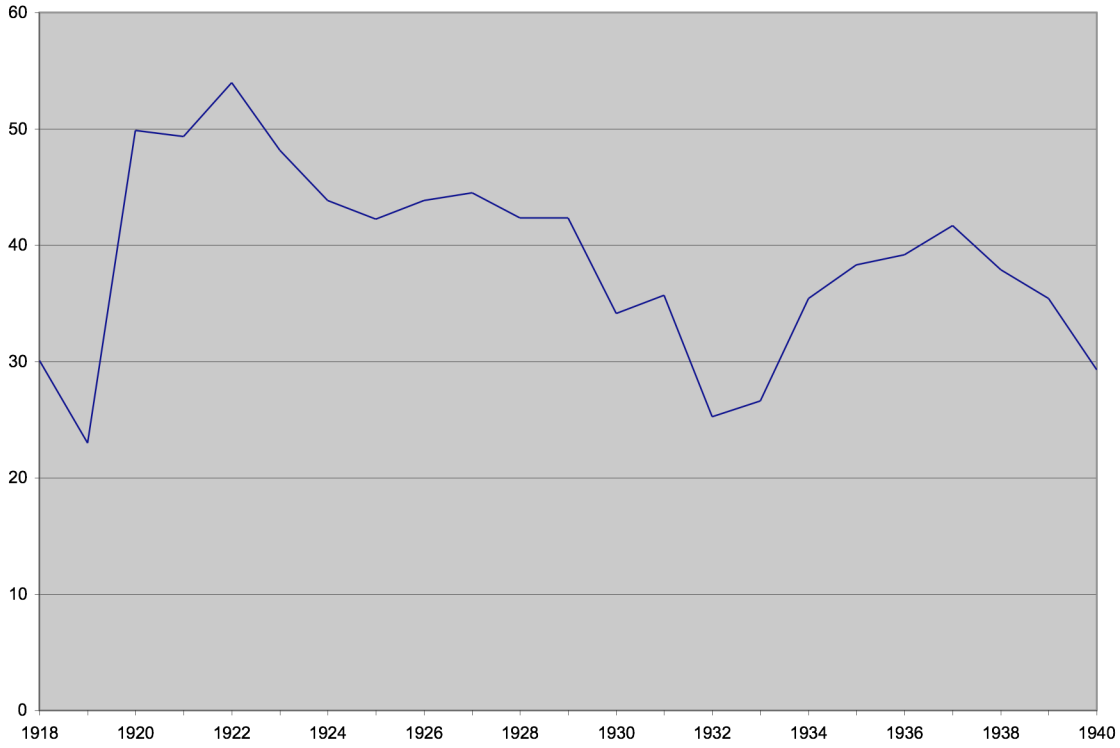
2004). The upward trend in exports continued until 1925 when the export age that began in the mid 1880s came to an end.

As soon as the most turbulent stages of the Revolution were over, the economy began to recover. The recovery was preceded by the end of hyperinflation. The return to the gold standard in 1916 provided the basis for a rapid stabilization of the price level. Two factors were behind the monetary stabilization. Cárdenas and Manns (1987), following Kemmerer (1940), argue that, as notes in circulation progressively lost the functions of money, a reversion of Gresham`s Law took place with notes ("bad money") being replaced by gold and silver ("good money") which had been pushed out of circulation by the emission of notes by the Huerta government and the revolutionary factions. The substitution of currencies occurred in a matter of a few days. As Kemmerer (1940, pp. 114-15, cited by Cárdenas and Manns, 1987) puts it: "At this juncture there occurred a remarkable monetary phenomenon, one of the outstanding facts of recent monetary history. It was the sudden and unexpected return from hoards into active circulation of an enormous volume of gold and silver coin, driving out of circulation practically all the paper money and placing the country squarely back upon the gold standard — and all within the surprisingly short period of a few days". Crucial in this process was a second factor: the decision by the Carranza government to collect taxes in gold and silver. This has been seen as acting as a 'fiscal reform' that, as in a rational expectations and other interpretations, is always behind the abrupt end of high inflation (Cárdenas and Manns, 1987). In any case, the government's decision meant that notes would not even function as a means of payments, thus acting as a monetary reform that stabilized the price level in terms of the newly circulating coins. Paper money would not circulate in large amounts until the end of 1931.

The economic recovery was stimulated by the resumption of mineral exports (silver, lead, zinc, and copper) and a world boom in henequen (Vernon, 1963) even though the total export quantum began to decline after 1922 as the oil boom came to an end (see figure 4.2). Manufacturing activity began to grow in 1919, driven probably by the movement of capital and labor out of agriculture (Vernon, 1963), reaching by 1926 a level 44 percent higher than in 1910 (Robles, 1960, cited by INEGI, 1994). This rapid recovery was made possible by the fact that the manufacturing plant remained undamaged by the violent fight (FCE, 1963, Haber, 1989). Revolutionaries viewed large firms and businesses as important sources of finance, compulsory or voluntary (Haber, 1989). According to Cárdenas (1990), the two main reasons why the revolutionaries did not destroy manufacturing capital were, in the case of foreign-owned enterprises, the fear of retaliation by the United States, which supplied most of their weapons and, in the case of domestic firms, to protect a source of income that through confiscation could

contribute to the revolution. Thus, no large firm had been destroyed and neither the productive nor the organizational structure or manufacturing had been changed by the revolution. Its high concentration had even, perhaps, increased, and commanding oligopolistic positions were held by the same entrepreneurs as before (Haber, 1989). Nevertheless, the cut-down of investment had lowered its productivity and competitiveness, intensifying its need of trade protection. In fact, in 1917, the First National Conference of Industrial Entrepreneurs — organized by the Ministry of Trade and Industry — agreed on the necessity of trade protection and the creation of a bank dedicated to financing industrial activities (FCE, 1963).

Figure 4.2. Export volume, 1918-1940 (index 1970 = 100)



Source: Oxford Latin American Economic History Database (OxLAD)

The rapid recovery of the economy, and manufacturing in particular, after 1917, when the most violent phase of the revolution was over and monetary stability had been restored, may seem puzzling since political instability was going to last for another decade or so. This has led Haber and Razo (2000) to question the conventional analysis of the links between political instability and economic growth which argues that an unstable political environment makes property rights less secure and government policies less certain thus depressing growth. They tend to deny, based on the Mexican experience, that a necessary connection between political instability and the

security of property rights exists and suggest that entrepreneurs may be less sensitive to institutional change than stated by the existing literature (Haber and Razo, 2000, p. 108).

The revolution also brought with it important social transformations. Although there was little redistribution of land before the mid 1930s (see table 4.5), the *peonaje* was considerably weakened and in some regions (Center-South) disappeared altogether. With respect to industry, Bortz (2000) and Gómez-Galvarriato (2002) have documented the change in capital-labor relations in the textile industry during the revolution and its aftermath: the increase in union density and strength, the improvement in working conditions — including the reduction in the working shift from 12 to 8 hours — and the substantial increase in real wages from 1920 to 1929 (despite stagnating productivity levels) after the ups and downs during the armed phase of the revolution[51].

Recession and depression from 1926 to 1932

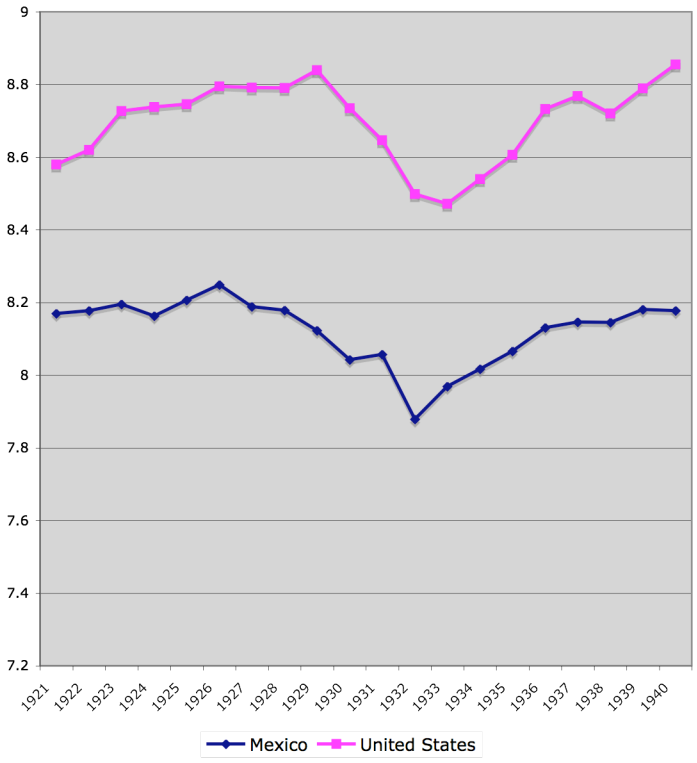
The Mexican economy had its own crash from 1926 to 1932 which started earlier (and ended sooner) than in the United States and Western Europe (see figure 4.3). Balance of payments difficulties started in mid 1926 as a result of the US recession and the reduction of mineral and oil exports (Cárdenas, 1994). The rate of investment (as a fraction of GDP) began falling in 1926 and between 1925 and 1932 declined from 12.1% to 4.5% (OxLAD). In 1932, GDP was 24 percent below its previous peak in 1926 (INEGI, 1994). Over the same period, manufacturing production fell by almost 9 percent (INEGI, 1994, based on Robles, 1960) and agricultural output by 14.8 per cent (OxLAD). After stabilizing in the early 1920s following a deflation, the price level started falling again in 1926 and by 1932, at the trough of the deflation, it had declined by 25 percent (see figure 4.4). Bank credit contracted from 342 million pesos in 1925 to 245 million in 1932, a 28% decline (Solís, 2000).

A first important factor in these developments was the decline in oil exports driven by the fall in production. After its peak in 1921, over the next eleven years oil production fell almost continuously and sharply reaching in 1933 only 16 per cent of what it had been in 1921 (see figure 4.1). The peak level of oil production will not be reached again until the mid 1970s (INEGI, 1994). There is some debate about the causes of the decline, that is on whether it was due to geological or institutional reasons. The evidence seems to favor the hypothesis that Mexico simply ran out of oil deposits that could be exploited at a competitive cost (Haber, Maurer, and

[51] Different waves of industrial strikes during the revolution that demanded wage increases and improvement in working conditions are described by Cárdenas (2003).

Razo, 2003) but the controversy between the oil companies and the Mexican government over the property rights on subsoil resources (article 27) and the attractiveness of recent oil discoveries in Venezuela must also have contributed to the oil companies shifting their operations out of Mexico (Haber, 1989)[52].

Figure 4.3. GDP per capita in Mexico and the United States, 1921-1940

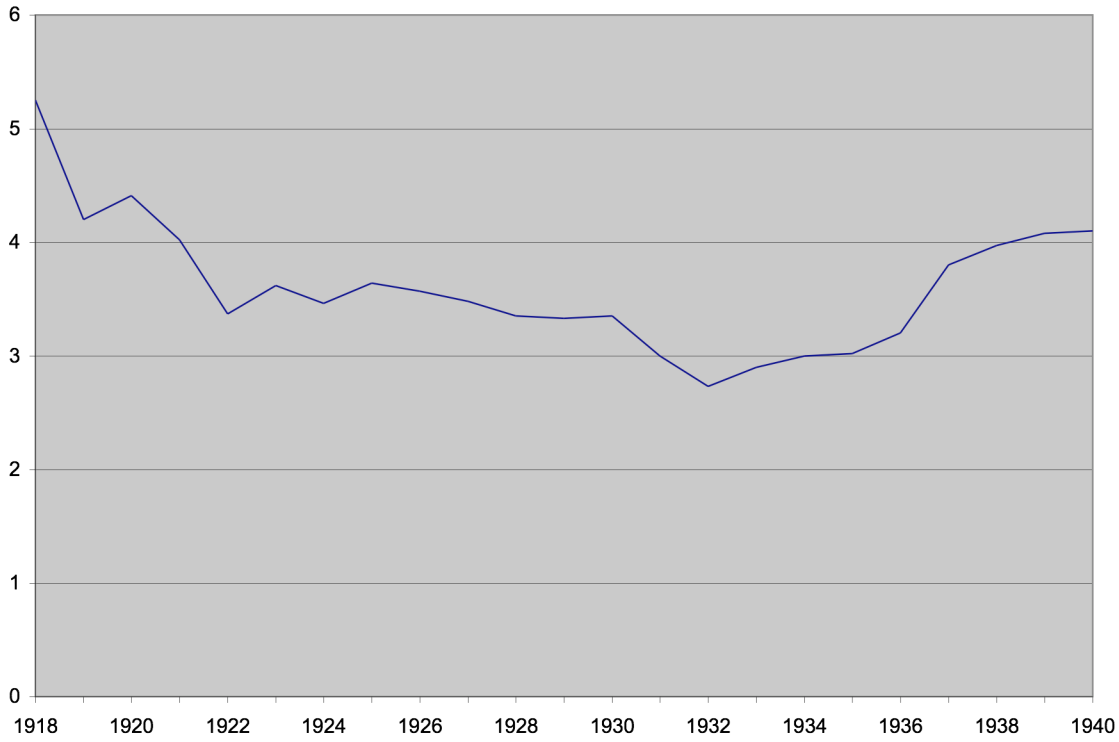


Natural log of GDP per capita
Mexico's GDP per capita is at 1970 constant prices
US GDP per capita is in 1990 international Geary-Khamis dollars

Source: INEGI (1994) and Maddison (2006)

[52] For an economic and political analysis of the oil industry and the oil controversy during this period, see Meyer (1968).

Figure 4.4. Wholesale price index in Mexico City, 1918-1940

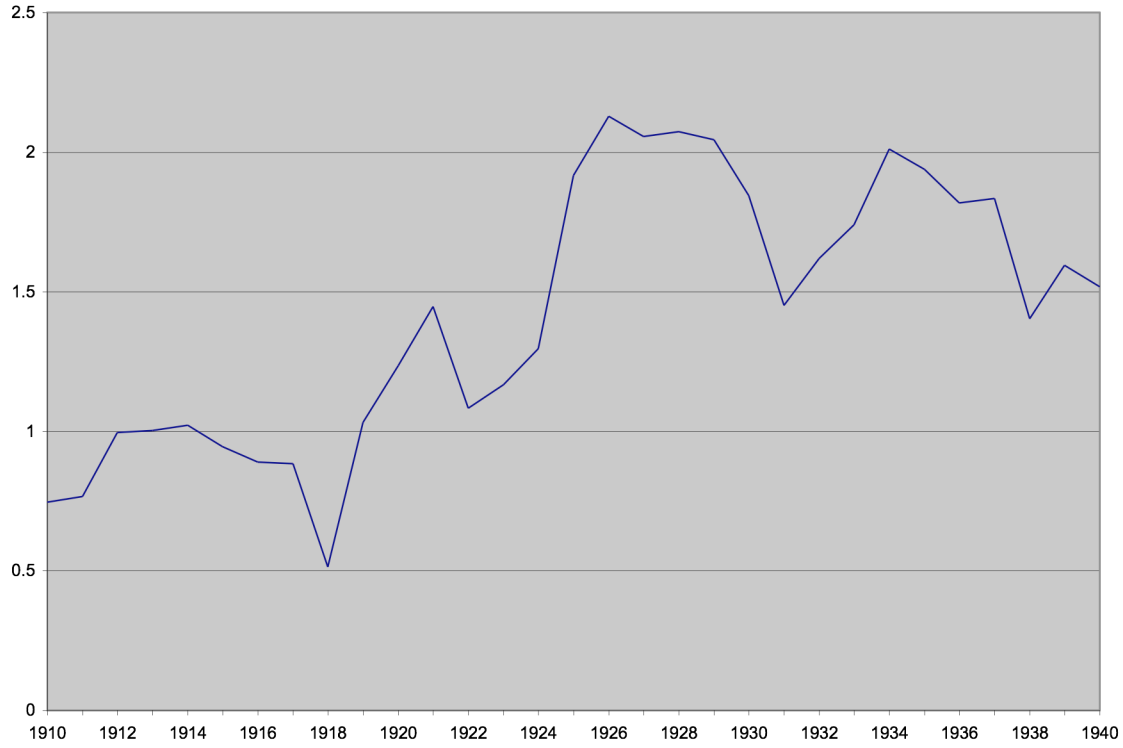


Annual averages. Index 1978 = 100

Source: INEGI (1994)

The impact of declining oil exports was aggravated by falling terms of trade (see figure 4.5) that affected particularly the revenues from silver and other metals (copper, lead, zinc). A collapse in internal expenditure followed as fiscal revenues from oil production and exports represented at the beginning of the 1920s a third of total government revenues (a share that fell to only 12 per cent by 1927) and the government actively pursued a balanced budget while its revenue had dropped sharply (in fact the federal government generated large fiscal surpluses from 1928 to 1931) (see figure 4.6). Fiscal tightening was concentrated in current expenditure together with an increase in taxes. While public employees were being dismissed and wages of government workers lowered, public spending was maintained in refurbishing the railway and the highway system, two important capital-formation ventures. Whether intended or not, this pattern of response avoided further deterioration in the economy's productive potential and explains why consumer good industries suffered much more from the crash than intermediate goods industries (Haber, 1989).

Figure 4.5. Terms of trade 1910-1940 (index 1970 = 1.0)



Source: OxLAD

Monetary policy was also pro-cyclical as the government actively sought to prevent a depreciation of the peso by minting less currency. Thus, the minting of silver and gold coin fell from 29.4 and 30 million pesos respectively in 1926 to 1.3 and 26.9 million pesos in 1928 (Haber, 1989, citing Cárdenas, 1982). This decreased the money stock and depressed further aggregate demand.

The economic difficulties that started in 1926 were suddenly aggravated by the impact of the Great Depression in the US economy. The mechanisms and the initial policy response were similar to those of the period 1926-29 but the external shock was far more devastating and the fiscal and monetary policies more draconian. The depression was felt through a sharp decline in the volume of exports (40 per cent during 1929-1932) and in the terms trade (22 per cent decline) (OxLAD, see figures 4.2 and 4.5). The decline in the purchasing power of exports was the second most severe (after Chile) among 15 Latin American countries (Bulmer-Thomas, 2003). The fall in exports had an initial direct impact on aggregate demand which was moderated by the fact that, except for the fiscal link, oil and (to a lesser extent) mining had little linkages with the rest of the

economy, including backward, forward and final demand linkages. With around 65% of total exports, these sectors employed only 3 per cent of the non rural labor force (Cárdenas, 1984).

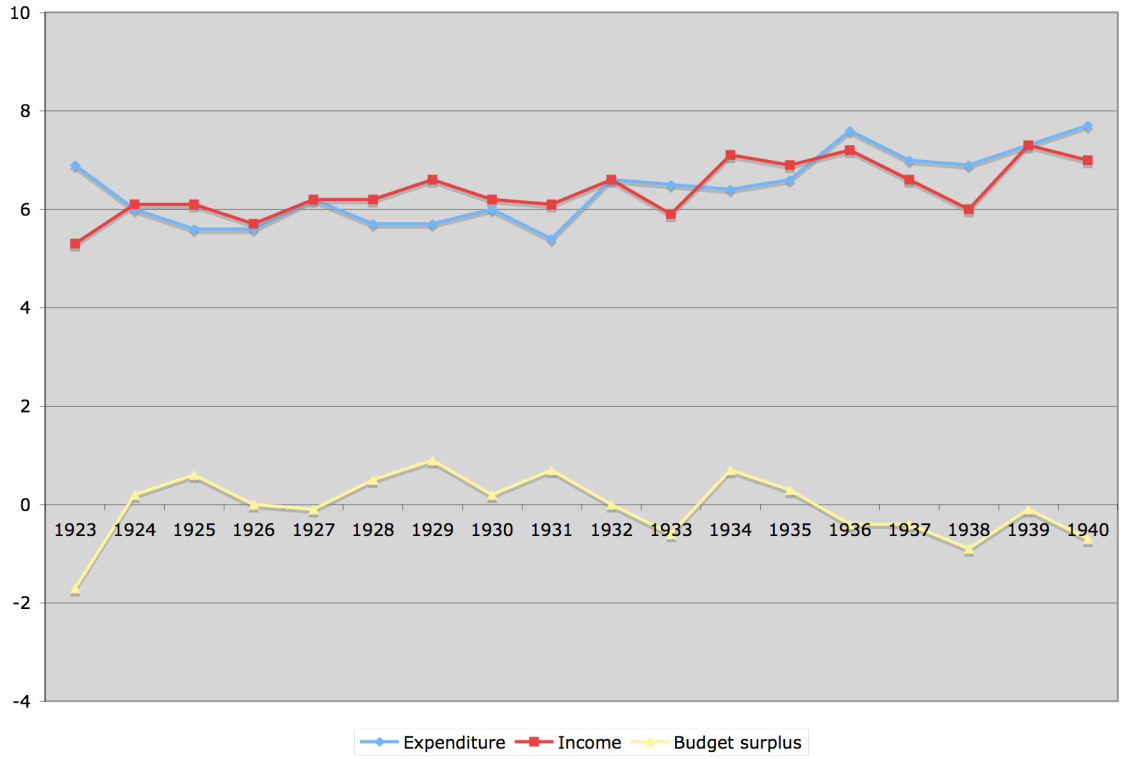
More important, the depressive effects of the fall in export revenues were transmitted to the rest of the economy through two mechanisms (see Cárdenas, 2000). The first was the classical price specie flow mechanism. The trade deficit generated by the fall in export revenues triggered an outward flow of silver and mainly gold that brought about a contraction of the money supply by 60.2 per cent between 1929 and 1931 (Cárdenas, 1984), a decrease much larger than in the US itself (26.5 per cent) and, in fact, the steepest decline among a group of 12 Latin American countries (Bulmer-Thomas, 2003)[53]. Coupled with the deflationary process brought about by the decline in aggregate demand (the wholesale price index fell by 19 percent during 1929-32, see figure 4.4), the nominal and real contraction of the means of payments brought in turn an increase in real interest rates and a decline of private spending (Cárdenas, 1984).

The second mechanism operated, as in the previous period, through the decline in government revenues and expenditures as 50 per cent of fiscal revenues originated in foreign trade (Cárdenas, 1984). The collapse of the external sector reduced government revenues by 34 percent from 1929 to 1932 (INEGI, 1994) despite efforts to increase tax collection. With no access to foreign credit (Mexico had fallen into debt default since the revolution) or to domestic credit (given the public distrust of paper money and despite the existence of a Central Bank since 1925), the government had little option in a first stage but to curtail expenditures in conjunction with the fall of revenues. Thus, government spending (particularly investment) declined 23 per cent between 1929 and 1932 (INEGI, 1994). This followed an 11 percent decline that had taken place between 1927 and 1929.

The overall result was a 21 per cent decline in GDP from 1928 to 1932 (INEGI, 1994) that was felt in a sharp reduction of industrial output, larger than in agriculture, and an increase in unemployment. A bad harvest in 1929, determined by weather conditions, further aggravated the effects of the great depression on aggregate demand, as a majority of the population relied on agriculture for their livelihood (Cárdenas, 1984; Fitzgerald, 1984). The increase in unemployment was exacerbated by the deportation of over 310,000 Mexican workers living in the United States between 1930 and 1933. These workers represented almost 6 percent of the labor force employed in 1930 (Carreras de Velasco, 1974).

[53] Bulmer-Thomas's data (based on the Statistical Yearbook of the League of Nations) refers only to commercial bank time and demand deposits.

Figure 4.6. Federal government finance (percent of GDP)



Source: INEGI (1994)

Economic recovery and industry-led growth from 1933 to 1940

The crash came as a blow on the mild recovery of investment that had begun in the late 1910s. However, with hindsight, the crash brought about important positive changes in economic policy. As we have seen, from the mid 1920s and until March 1932, the government had followed a very orthodox monetary and exchange rate policy, trying to keep a stable exchange rate for the silver peso by letting the money supply contract while officially remaining under the gold standard. Fiscal policy was equally pro-cyclical pursuing a balanced budget (and even budget surpluses) through the reduction of government employment, cuts in the salaries of government employees and the increase in extraordinary taxes. However, after this initial phase of the depression, Mexico became a reactive country (in the words of Diaz Alejandro, 1984), abandoning orthodoxy in macroeconomic, trade and debt policies. Monetary policy turned expansionary and under the action of the government the money supply increased by 31% in 1932 and 15% in 1933 while interest rates fell from 12 percent in 1931 to 8 percent in 1932 (Cárdenas, 1984). Eventually, in March 1932, the government let the peso float vis a vis the US dollar leading to a depreciation of the peso from 2.67 pesos per US dollar to 3.60 pesos per dollar at the end of 1933 when the

exchange rate was again fixed. This implied a depreciation of 35 percent with respect to February 1932. Even with the nominal exchange rate fixed, the real exchange rate continued to depreciate (by almost 20 percent) between 1933 and 1935 on account of US inflation combined with price stability in Mexico (Cárdenas, 1984). The stimulus to the tradable goods sectors of the economy given by the sharp devaluation in 1932-33 was reinforced in March 1938 by a new devaluation so that from 1929 to 1939 the relative price of consumer goods imports (relative to domestic prices of similar goods) increased by over 91 per cent (Cárdenas, 2000). Such real depreciation of the exchange rate helped trigger a process of import substitution as demand for foreign goods shifted to local ones. Moreover, with Alberto J. Pani at the head of the Ministry of Finance, the government relaxed fiscal policy and from 1931 to 1933 a fiscal surplus of 0.7 per cent of GDP turned into a deficit of 0.6 per cent (see figure 4.6)[54].

During the Cárdenas government (1934-1940), with Eduardo Suárez as minister of finance, fiscal policy became clearly countercyclical and budget deficits were run to boost productive and social investment[55]. One example of countercyclical policy management was the reaction to the 1938 balance of payments crisis brought about by the US recession of 1937 and capital flight in 1938, the year of the nationalization of the oil industry. The fiscal deficit reached then 13 per cent of public spending while the money supply increased by almost 11 per cent. The peso was devalued from 3.6 pesos per dollar to 4.5 pesos in 1938 and 5.2 pesos in 1939 (averages for the year). Despite the fact that the external shock was similar in size to those of the years of the Great Depression, GDP increased by 1.6 per cent (and industrial output by 4 per cent) compared to annual reductions of 6.3 per cent (and 10.5 per cent for industrial output) from 1929 to 1932 (see table 4.2).

Trade and debt policies were also far from orthodox. The general level of specific tariffs increased throughout the 1930s (even though the implicit tariff fell after 1932 due to the increase in import prices, Cárdenas, 1987)[56]. Thus, the stimulus to industrialization came largely from exchange rate depreciation, constituting a case of market led import substitution. In the area of debt policy, Mexico remained in complete default of its external debt throughout the 1930s. This was to a large extent a continuation of developments during the 1910s and 1920s. Mexico defaulted on its

[54] It is doubtful, however, that this change can be interpreted as a move towards an expansionary fiscal policy as Cárdenas (1984) asserts. Given the collapse of output, and thus of government revenues, in 1932 (a 15% decline in GDP), the structural budget balance, the appropriate indicator of the fiscal policy stance, must have changed little if at all.

[55] For the opposite view that public expenditure could not be used as an instrument of demand management at the time, see Fitzgerald (1984).

[56] Fitzgerald (1984), citing Villarreal (1976), mentions that *ad valorem* rates fell from 29 percent on average for 1930-34 to 22 percent in 1935-39 as prices recovered.

external debt in 1914, as the government ran out of funds during the revolution, and then went through a series of debt renegotiations followed by defaults during the 1920s, from the renegotiation of 1922 between De la Huerta and Lamont to the breakdown of the short lived Montes de Oca-Lamont agreement signed in July 1930 (Marichal, 1989)[57].

Table 4.2. Comparison of the Great Depression with the 1938 recession (percentages)

	1929-1932 depression [1/]	1938 recession [2/]
Exports	-29.5	-25.2
Terms of trade	-7.5 [3/]	-23.5
Purchasing power of exports	-22.8	-22.2
International reserves	-8.6 [3/]	-56.3
Money supply (M1)	-18.4 [3/]	10.8
Output (GDP)	-6.3	1.6
Industrial Value Added	-10.5	4.0

1/ 1929-32 yearly average rate of change
2/ 1937-38 rate of change
3/ These variables reached a bottom in 1931. The 1929-31 figures are -15.8% for the terms of trade, -31.7% for reserves, and -25.4% for M1.

Source: Cárdenas (1982)

The international context also eventually changed, bringing about a recovery in the terms of trade for Mexico's two main exports, oil and silver, at a faster pace than other commodity prices in the 1930s (Haber, 1989)[58]. The increase in export revenues contributed to the reversal of the depressive cycle involving declining money stock, fiscal revenues and expenditures and total output. In this, Mexico was helped by a relatively diversified export structure — including foodstuffs, tropical fruits and minerals besides oil and precious metals — that contrasts with the experience of countries such as Chile and Colombia that depended almost completely on a single export good (copper and coffee respectively) whose prices remained depressed throughout the 1930s (Cárdenas, 1984).

With the shift in the conduct of government policies and the extraordinary recovery in the terms of trade of silver and oil, Mexico resumed economic growth in 1933 and from 1932 to 1940 GDP

[57] Adolfo de la Huerta and Luis Montes de Oca were the Finance ministers at the time. Thomas Lamont was the head of the International Committee of Bankers on Mexico.
[58] Out of the total increase in exports between 1932 and 1934, over three fourths was due to the recovery of gold, silver and oil exports.

grew at an annual rate of 5.6 per cent (INEGI, 1994). Under the stimulus of exchange rate protection, the first new round of investment since the *Porfiriato* began in manufacturing and concentrated in new textile activities[59]. Other stimuli to manufacturing investment came from the 86 percent shift in urban-rural relative prices between 1929 and 1940 and the likely decline in expected profit rates in agriculture as a result of the agrarian reform program (Cárdenas, 1984). A new group of industrialists, predominantly European Jews, Lebanese and Syrians that arrived in Mexico in the 1920s escaping from religious persecution, had a leading role in the process (Haber, 1989). Manufacturing became the most dynamic sector of the economy. Manufacturing production increased at an average annual rate of 8.1 per cent from 1932 to 1940 (INEGI, 1994, based on Robles, 1960), increasing its share of GDP up to 18 per cent by the end of the period (see table 4.6). Within industry, intermediate goods sectors led the growth process under the effects of government's spending in infrastructure. From 1929 to 1939, import substitution (stimulated by the changes in relative prices brought by devaluations and concentrated in consumer and intermediate goods) contributed almost 37 per cent to industrial growth with domestic demand contributing 56 per cent (Cárdenas, 2000, see table A.6). It is thus interesting to observe that contrary to what has often been asserted (see, for example, Villarreal, 1976; Hansen, 1971), import substitution industrialization did play an important role in the recovery from the great depression. In fact, the contribution of import substitution to industrial growth is comparable to that of Brazil which is generally considered to have been high during the 1930s (Cárdenas, 1984). For the economy *as a whole* and for the period 1929-1939, the contribution to the increase in GDP of the fall in import coefficient appears to have been even greater than in Brazil and among the highest in a group of 12 Latin American countries (similar to Venezuela and Costa Rica and behind Argentina) (Bulmer-Thomas, 2003).

The consolidation of a developmental state under Cárdenas

Besides the role of external factors, the process of recovery and growth was made possible by the turnaround in macroeconomic policies which was part of a greater focus of government policies on economic development. Indeed, the depression convinced the government that rapid development would require a much more active economic role by the public sector (Cárdenas, 1990). When Lázaro Cárdenas was named the official party's presidential candidate, he put forward a *Plan Sexenal* (1934-40) in which, for the first time, the government explicitly presented a plan of actions for the next six years and committed itself to active development policies involving unprecedented investments in agriculture, industry and infrastructure, as well as in

[59] Total investment increased from 5 per cent of GDP in 1925-26 to almost 8 per cent in 1939-40 (Cárdenas, 2000). According to OXLAD, it increased from 4.5% of GDP in 1932 to 9.3% in 1940.

social development.

The process of consolidation of political power after the Revolution had been accompanied by the creation of new institutions and an expansion in policy instruments available to the government. The Bank of Mexico was established in 1925, and started to operate as a central bank in the early 1930s as a response to the Depression. By then, the Public Agricultural Credit Bank (1926) had

Table 4.3. Financial institutions at the end of the 1930s

Banking system institutions	
National a/	Private b/
Banco de México (Central Bank) (1925)	Deposit Banks (61)
Banco Nacional de Crédito Agrícola (National Agricultural Credit Bank) (1926)	Savings Banks (6) c/
Banco Nacional Hipotecario Urbano y de Obras Públicas (National Urban Mortgage and Public Works Bank) (1933)	Trust Institutions (8) c/
Nacional Financiera (1934)	Financial societies (29)d/
Banco Nacional de Crédito Ejidal (National Ejido Credit bank) (1935)	
Banco Nacional de Comercio Exterior (National Foreign Commerce Bank) (1937)	Capitalization Banks (8)
Banco Nacional Obrero de Fomento Industrial (National Worker's Bank for Industrial Promotion (1937) e/	Mortgage Loan Banks(2)
Other institutions	
Nacional Monte de Piedad (National Pawnshop and Savings Institution (1775) f/	Stock Exchange (1)
Dirección de Pensiones civiles (Governing Board of Civilian Pensions (1925) g/	General Deposit Warehouses (13)
Almacenes Nacionales de Depósito (National Deposit Warehouses) (1936)	Clearing House Associations (5)
Unión Nacional de Productores de Azúcar National Union of Sugar Producers (1938) h/	Credit Unions (9)

a/ Figures in parentheses indicate the date institutions were originally established; b/ Figures in parentheses indicate number of institutions operating in 1940. Branches and agencies are excluded; c/ Includes departments of deposit banks; d/ Officially classified as banking system institutions in 1941; e/ Incorporated into the National Cooperative Promotion Bank when this institution was established in 1944; f/ Nationalized in 1949; g/ Replaced in 1959 by Institute of Security and Social Services for Public Employees; h/ Nationalized in 1953.

Source: Brothers and Solis (1966)

been established, and the creation of other banks, such as the Banco Nacional Hipotecario y de Obras Públicas (1933), followed. In 1933, the Budget Ministry created the National Finance Entity, which was soon to become Nacional Financiera, the first fully fledged development bank and the financial pivot for industrial and other long-term investment. Under the Cárdenas presidency (1934-1940), the public sector expanded further with several development or financial entities. Nineteen state enterprises were established (Newel and Rubio, 1984). The Banco Nacional de Crédito Ejidal was created in 1935 to support the ejido sector and the Banco Nacional de Comercio Exterior was established in 1937 to support the export sector. The private banking system also expanded at a brisk pace. By the end of the 1930s there were seven public financial institutions (all created between 1925 and 1937) and 114 private banks (see table 4.3).

Agrarian reform began to be implemented on a massive scale, encompassing the North (the cotton growing Laguna region, the Mexicali Valley and the restitution of land to the Yaqui and Mayo Indians in Sonora), the center (Michoacán) and the south (Yucatán). In the twenty years before Cárdenas took office, 11.6 million hectares of land had been distributed to peasants.

Table 4.4. Land distribution since Carranza decree of 1915

Period	Land distributed per period (Millions of hectares)	Cumulative
1915-1934	11.6	11.6
1935-1940	18.8	30.4
1941-1946	7.3	37.7
1947-1952	4.6	42.3
1953-1958	6.1	48.4
1959-1964	8.9	57.3
1965-1970	24.7	82.0
1971-1976	12.8	94.8
1977-1982	6.4	101.2
1983-1988	5.6	106.8
1989-1992 1/	0.6	107.4

1/ Up to February 21 1992

Source: INEGI (1994), based on Secretaría de la Reforma Agraria. Dirección General de Información y Documentación Agraria.

During his six-year term, Cárdenas distributed 18.8 million hectares (see table 4.4) benefiting over 700,000 recipients (INEGI, 1994). When he left office he had accounted for over 60 per cent of the land distribution program until then. Land reform was supported by credit from the Banco Nacional de Crédito Ejidal and programs of technical assistance in all phases of farming operations. Special importance was given to the development of collectivized *ejidos* in which the lands belonging to the village were owned and cultivated in common to take advantage of economies of scale. By 1940 *ejidos* of one sort or another represented about half of the crop land and half the rural population (while in 1930 they represented only 13 percent of aggregate Mexican cropland; Hansen, 1971), and the population on the haciendas had fallen from about 3 million in 1910 to 800,000 in 1940 (Vernon, 1963). This process of land reform laid the foundations of political stability in subsequent decades.

The oil industry was nationalized in 1938 after successive confrontations (to be repeated later in other oil producing developing countries such as Venezuela, Iran or Iraq) between the government and foreign companies concerning the distribution of the oil rent and labor disputes. The confrontations between the government and the foreign oil companies had as a focal point the applicability of Article 27 of the Constitution, culminating in the Calles-Morrow accord of 1928 that preserved the companies position. The labor disputes centered on a series of worker's claims for the Mexicanization of the workforce, the partial substitution of union members for "confidential" (non union) workers, an increase in wages and social benefits, and the demand for a forty-hour working week. The case was eventually taken to the Supreme Court which ruled against the oil companies. The intransigency of the companies triggered the expropriation of the industry. The railways were also nationalized (in 1937), culminating a process started thirty years earlier during the *Porfiriato*.

At the same time, during the Cárdenas government public expenditure per capita increased 41 percent over the average of the previous six years. It was also reoriented away from military and administrative spending whose share in public spending fell from nearly 60 percent to around 44 percent, thus falling below 50 percent for the first time in Mexico's republican history (Wilkie, 1970, p. 77). In turn, public social expenditures (such as spending on health and education) increased from 15 to 18 percent of the total and, most notably, economic expenditure (on, for example, infrastructure) went from 25 to nearly 38 percent of the total (see table 4.5). From 1930 to 1940 the roadway system increased sevenfold, covering over 9,900 km by 1940 (INEGI, 1994, table 15.11). As percent of GNP, federal expenditure increased from 6.7 to 8.6 percent while the public sector capital investment expenditure rose from 2.6 to 4.3 percent (Wilkie, 1970).

In sum, the Cárdenas period saw the consolidation of a developmental state, in the sense of putting in place a state with the aim of raising social welfare and with sufficient autonomy and resources to pursue a coherent economic policy (Lal and Myint, 1996). The Cárdenas government was also characterized by a prudent management of public finances, very far from the populist experiments elsewhere in Latin America such as those of Perón in Argentina and Vargas in Brazil (see on the subject Cárdenas, 1993).

Table 4.5. Level and composition of federal budgetary expenditure

		Pesos of 1950 per capita		
	Total	Economic	Social	Administrative
1929-1934	58.3	14.6	8.8	34.9
1935-1940	82.2	30.9	15.0	36.3
			Percent	
1929-1934	100.0	25.2	15.2	59.7
1935-1940	100.0	37.6	18.3	44.1

Source: Wilkie (1970), Tables 2.1 and 2.2

Overall performance (1910-1940) and a comparative perspective

Overall, the economic and social performance in the thirty-year period after the beginning of the revolution was characterized by the following trends. Despite a significant increase in manufacturing output (at an average yearly rate of 3.0 percent, INEGI, 1994, based on Robles, 1960), the expansion of total GDP and GDP per capita proceeded at a slow pace of around 1.3 and 0.5 per cent per year respectively (INEGI, 1994). At the same time, significant changes took place in the structure of production with manufacturing increasing its output share from around 14 percent in 1910 to 18 percent in 1940 (see table 4.6).

Even though the labor force remained predominantly rural by 1940[60], increasing urbanization took place as the population of urban areas grew by 58 percent between 1910 and 1940, twice the pace of overall demographic change (INEGI, 1994), and the population living in communities under 2,500 persons fell from around 71 percent to about 65 percent (Wilkie, 1970, see table A.3). Mexico City tripled in population, Monterrey more than doubled and Guadalajara doubled

[60] As can be seen in table A.5, about two thirds of the economically active population was in the primary sector, most of which was composed by agriculture.

(Vernon, 1963). Illiteracy (among the population age 10 or above) fell from about 78 percent to 58 percent (table A.3), a 20-percentage points decline, as a result in part of the sharp increase in

Table 4.6. Structure of production 1910, 1930 and 1940 (percentages)

	1910	1930	1940
Agriculture [1/]	24.2	23.7	24.3
Mining and oil	9.1	13.5	8.5
Manufacturing	13.7	16.7	18.0
Electricity	--	--	1.0
Construction	--	--	3.6
Transportation	2.8	5.3	4.5
Commerce	--	15.8	24.0
Government	--	3.6	3.1
Unclassified activities	50.3	21.4	13.0
Total GDP	100.0	100.0	100.0

1/ Includes crop production, livestock, forestry and fishing.

Source: Reynolds (1970), table 2.2

rural-school teachers (from practically nil in 1910 to close to 20,000 in 1940) (Vernon, 1963). The percentage of population speaking only an Indian language fell by almost half, from 13 percent in 1910 to 7.4 percent in 1940 (Wilkie, 1970). Mortality rates fell from 32.9 per thousand in 1910 to 23.5 per thousand in 1940 (Collver, 1965, cited by Reynolds, 1970) and life expectancy increased from 27.6 to 38.8 years (OxLAD). Wilkie's poverty index suggests that social deprivation fell at a rate of 0.7 percent per year during the thirty-year period despite the slow progress in per capita GDP growth[61] (see table 4.7).

[61] Wilkie's poverty index is based on the unweighted average percent of the population reporting itself (1) illiterate, (2) speaking only Indian languages, (3) dwelling in communities of under 2,500 inhabitants.

Table 4.7. Wilkie's poverty index and its components (percentages)

	1910	1921	1930	1940
Illiteracy [1/]	76.9	71.2	66.6	58.0
Population speaking only an Indian language [2/]	13.0	10.2	8.5	7.4
Population in communities under 2,500	71.3	69.0	66.5	64.9
Poverty index (1940 = 100)	123.7	115.4	108.7	100.0

1/ Over six years old
2/ Over five years old

Source: Based on Wilkie (1970), tables 9-1, 9-2, 9-4, 9-9

Despite favorable social trends and the economic recovery after 1932, for Mexico this period was one of relative economic decline in the international context. The ratio of US GDP per capita to Mexico's GDP per capita which had steadily declined from 3.6 in 1870 to 2.9 in 1910, swelled again to 3.8 in 1930 and remained constant thereafter until 1940 (Maddison, 2003). The process of retrogression is also evident with respect to the major Latin American economies: Mexico's GDP per capita fell as a fraction of GDP per capita of each of the larger economies of Latin America between 1910 and 1940 with the exception of Argentina (see table 4.8).

Table 4.8. Mexico's GDP per capita as a percentage of GDP per capita in:

	1910	1926	1940
Brazil	220.3	197.5	148.2
Venezuela	191.2	80.1	45.8
Peru	173.7	156.5	101.6
Colombia	145.8	148.6	97.7
Chile	68.5	72.0	56.8
Uruguay	54.0	58.6	50.6
Argentina	44.3	49.8	44.5
United States	34.1	30.2	26.4

GDP levels are in 1990 international Geary-Khamis dollars
Source: Based on Maddison (2003)

The Mexican revolution in the Latin American context

The Mexican revolution was a unique event in Latin America in the early twentieth century. Why was Mexico the first Latin American nation to undergo a social revolution in the twentieth century? Why did oligarchic rule end with radical political mobilization and a peasant rebellion rather than through gradual and peaceful political and social reform?

We have already alluded to in chapter 3 to the key to answer these questions, which has to do with the economic roots of the peasant insurrection. As argued by Knight (1986, 1992), what is distinctive about Mexico is the nature of its process of agrarian commercialization. Like Argentina and Brazil, Mexico experienced a period of capitalist agricultural expansion that came about as a result of the rapid growth of the railways network and the emergence of new export opportunities. In Argentina and Brazil this process did not lead to the dispossession of a large indigenous peasantry. In Argentina it involved the colonization of the pampas by a large immigrant population while Brazil pushed its coffee frontier south by relying first on a large slave labor force and later on immigrant *colono* labor. In regions with an important native peasantry, such as the Brazilian north-east or the Peruvian and Bolivian highlands, the process of agrarian commercialization did not proceed at sufficiently fast pace to threaten the disappearance of the traditional peasantry (in the Brazilian north-east the sugar industry was actually in decline while in Peru the cotton export boom took place in the coast, removed from the peasant heartland). As Knight puts it: "Porfirian Mexico experienced a process of "Brazilian' or 'Argentine' agrarian commercialization which impinged upon a 'Peruvian' or 'Bolivian' peasantry. It was this combination, unique, certainly in terms of scale, in Latin America, which made possible Mexico's popular revolution and precocious agrarian reform" (Knight, 1992, p. 112). What was distinctive and what generated the peasant rebellion was "the close, antagonistic juxtaposition of commercial haciendas/*ranchos* and a populous, established peasantry, typified by Morelos, much of the central plateau, and certain key regions of the remainder of Mexico" (Knight, 1986, p. 157).

So, does the Mexican revolution, that unique event in the Latin American context, explain the relative decline of the Mexican economy during the period 1910-1940 that we documented in the previous section? Perhaps surprisingly, given all that has been written on the economic costs of the revolution[62], the answer to this question seems to be negative. As table 4.9 makes clear, the relative decline of the Mexican economy with respect to other large Latin American economies is

[62] See, for example, Romero (1999).

a feature of the 1927-1940 period, when GDP per capita fell at a rate of 0.5 percent per year. For the years 1910-1926 Mexico's GDP per capita grew at a rate of 1.3 percent per year and as percent of the average of the eight Latin American economies considered it remained practically unchanged (107.1 percent in 1926 compared to 110.5 in 1910). In fact, during this early period Mexico outperforms four countries (Argentina, Chile, Colombia and Uruguay) out of the seven in the table[63]. What this suggests is that the relative decline of Mexico over the *whole period* 1910-

Table 4.9. GDP in eight Latin American countries (index 1926 = 100)

	Venezuela	Colombia	Peru	Brazil	Chile	Argentina	Uruguay	**Mexico**
1926	100.0	100.0	100.0	100.0	100.0	100.0	100.0	**100.0**
1927	112.2	109.0	112.1	107.3	95.9	107.1	114.4	**95.6**
1928	125.6	117.0	120.5	119.6	116.3	114.1	120.4	**96.2**
1929	142.5	121.2	133.0	119.9	127.7	119.0	121.4	**92.5**
1930	145.0	120.2	118.2	112.7	119.9	114.1	138.0	**86.7**
1931	117.2	119.4	104.0	110.2	90.3	106.1	114.2	**89.6**
1932	112.3	126.1	98.7	114.1	89.3	102.7	106.0	**76.2**
1933	122.8	133.2	133.0	123.0	105.7	107.4	92.7	**84.8**
1934	131.1	130.4	155.5	133.2	120.4	116.0	110.4	**90.5**
1935	140.6	145.0	159.7	136.9	122.6	121.1	116.9	**97.3**
1936	154.4	152.7	166.8	150.0	127.3	121.9	122.4	**105.0**
1937	177.2	155.1	170.5	154.9	137.0	130.8	124.6	**108.5**
1938	191.5	165.2	166.1	161.4	134.7	131.4	134.4	**110.3**
1939	103.2	175.3	181.1	163.0	138.8	136.3	134.5	**116.2**
1940	195.3	179.1	178.2	164.6	144.9	138.6	134.8	**117.8**
Annual growth rates (%)								
1926-32	2.0	3.9	-0.2	2.2	-1.9	0.4	1.0	**-4.4**
1932-40	7.2	4.5	7.7	4.7	6.2	3.8	3.1	**5.6**

GDP levels in 1990 international Geary-Khamis dollars were converted into an index 1926 = 100
Source: Based on Maddison (2003).

1940 must be attributed to the early recessionary trends after 1926 and the severity of the impact

[63] It is worth noting also that Mexico's position relative to the average in 1926 is pulled down by Venezuela which recorded an extraordinary oil boom in the latter part of the 1910-26 period.

of the great depression in the United States documented in this chapter[64]. This conclusion is confirmed by table 4.9 which shows that, among eight large Latin American economies, the Mexican economy is the one that suffered most from 1926 to 1932 and as a result had the worst growth performance from 1926 to 1940. All this is consistent with the continuity up to 1926 of the export boom initiated during the *Porfiriato*, the fact that the revolution left the industrial plant largely undamaged, and the argument, put forward by a number of authors on which we have relied here, that the negative effects of the revolution on economic activity were largely limited to its most violent phase (1914-1917), a phase that was followed by a rapid economic recovery.

[64] This conclusion is consistent with Reynolds's estimates of the opportunity cost of the Mexican revolution which find no evidence that per capita output would have increased more in the absence of the revolution during the period 1910-1925 (Reynolds, 1970, p. 34 and Appendix B).

5. The golden age of industrialization

In the process of achieving hegemony, the Mexican state arrived at a strong conviction that it should play an active role in investment and production if Mexico was to develop. By the late 1930s, it controlled fundamental resources and had increased the number of its policy instruments significantly. Whether it would succeed in transforming the economic recovery of the second half of the 1930s into a drive for growth on a permanent basis remained to be seen.

Not for long, however, as a complete overhaul of the economy and society was in its beginnings. For the next thirty years, Mexico's economy grew at a sustained annual pace of 6.4 in real terms and GDP per capita at 3.2 per cent per year (INEGI, 1994). Manufacturing was the engine of growth, with rates of growth of production of 8.2 per cent per annum (INEGI, 1994, based on Robles, 1960 and NAFINSA) and, for most of the period, the dynamic domestic market as its major source of demand. The country was transformed from an agrarian society into an urban, semi-industrial one. The share of the population living in urban areas soared from 35 per cent to 58 per cent at a time when the total population increased from 20 to 48 million people (table A.3) and the output share of manufacturing climbed from 15.4 per cent to 23.3 per cent (table 5.1).

Table 5.1. Structure of GDP (per cent)

	1940	1945	1955	1970
Agriculture [1/]	19.4	17.9	18.7	11.6
Oil and mining	6.4	5.1	4.8	4.8
Manufacturing	15.4	15.9	17.5	23.3
Construction	2.5	3.4	3.7	4.6
Electricity	0.8	0.7	0.9	1.8
Services [2/]	55.5	56.9	54.4	53.9

Based on 1960 constant prices
1/ Includes livestock, forestry and fishing
2/ Includes residual

Source: INEGI (1985)

The rate of investment soared from 8.6 to 20 percent of GDP and private investment as a fraction of GDP increased from less than 5 percent to over 13 percent (table 5.2). Literacy rates nearly doubled, reaching 76 per cent in 1970 (table A.3). The average number of years of schooling of the population (age 15 or above) increased from 2.6 to 3.4, and life expectancy at birth increased 22 years to about 61 (table A.3). Infant mortality rates nearly halved falling from 139 per thousand

to about 77 per thousand (table A.3). In sum, during this truly "trente glorieuses" [65], the economy and society were radically transformed.

Table 5.2. Fixed investment as percent of GDP

	Private	Public	Total
1940	4.4	4.2	8.6
1945	6.1	6.0	12.1
1950	6.7	6.7	13.5
1955	10.1	4.7	14.8
1960	10.2	5.0	15.2
1965	10.3	6.0	16.4
1970	13.4	6.6	20.0

Investment and GDP are measured at constant 1970 prices

Source: INEGI (1994)

The development policy framework

When Manuel Avila Camacho took the presidential office in December 1940, industrialization became a central goal of Mexico's economic policy. The industrialization drive came hand in hand with a deepening of trade protection which became a key policy instrument in development strategy[66]. To be sure, at the time of the War, in 1943, Mexico and the US signed a bilateral trade agreement committing both sides to freezing tariffs on various products (Cárdenas, 1994[67]). However, in 1944, the Mexican government announced a system of direct import controls with a view to protect domestic industries from foreign competition. Initially, the system was justified officially as merely a defensive measure against dumping and to insure effective use of accumulated foreign exchange reserves (Mosk, 1950, King, 1970). But by 1947, when the system of import controls actually started to be applied, protectionism had been officially adopted as a key government intermediate objective in development policy (Mosk, 1950). Also that year specific tariffs were replaced with ad valorem tariffs in order to protect tariff revenues from inflation (Cárdenas, 1994). Through the 1950s trade protectionism enlarged its scope eventually generalizing the imposition of license requirements to stimulate practically any new industry that

[65] We use here Hirschman's expression to refer to the period 1940-1970 rather than, as he does, to the period 1950-1980.

[66] For a description of industrial policy in the early post war period, see Mosk (1950) and King (1970).

[67] Because specific tariffs were frozen and import prices increased, the implicit import tariffs fell from 17.1 percent in 1939 to 7.5 percent in 1945 (Cárdenas, 1994).

substituted imports.

As import substitution was completed in most non-durable consumer goods and light intermediates by the early 1960s, industrial and trade policies focused on the local development of the durable consumer, heavy intermediate and capital goods industries[68]. To do so, the protectionist regime relied largely and increasingly on import licenses — granted essentially on criteria of availability of close domestic substitutes[69] — and tariff protection became thus less important than it had been previously[70]. Thus, industrial protection was maintained, and even increased, as the share of imports subject to licenses rose from 17.7 per cent in 1956 to 68.3 per cent in 1970 (Gil Diaz, 1984). This instrument was combined with a number of other policies to promote local industrial integration, including the establishment of domestic content requirements (DCRs) in the automobile industry (1962), the yearly publication of lists of industrial products with potential for import substitution, and "fabrication programs" in the heavy intermediates and capital goods sectors, comprising sector- or firm-specific fiscal incentives and import licenses. These programs were generally subject to an agreed schedule and a maximum domestic to import price differential. They included in some cases the meeting of export or foreign exchange targets. The number of these programs increased throughout the 1960s (and most of the 1970s), especially in the heavy intermediates and capital goods industries. They turned in effect into the major industrial policy instrument during the second and more difficult stage of import substitution industrialization.

The structure of protection was such that protection levels escalated significantly with the degree of manufacturing, especially among consumer durables, and did so increasingly over time both between the manufacturing and the primary sectors and within the industrial sector itself, where the relative position of non-durable consumer goods worsened and that of consumer durables improved. The main bias against primary activities was not suffered by agriculture — due to the

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[68] For a description of industrial policy during this period, see King (1970), CEPAL-NAFINSA (1971), Villarreal (1976), Solís (1981), and Ros (1994).

[69] King (1970) describes the procedure for granting import licenses as follows: "If the product is already produced in Mexico, and delivery dates are reasonably satisfactory and if local financial arrangements are not very inferior, then permission to import will not be granted. If there is no domestic substitute that seems to the committee close enough to the required article, then a licence will be recommended….Price differences may be mentioned, particularly in an appeal against a decision, but it seems that in practice the domestic price has usually to be at least 100 percent higher than the imported price before price differences start to justify import licences, and on many items price differences are much higher and still licences are not given." (King, 1970, pp. 78-79, see also, on the subject, Izquierdo, 1964).

[70] Even in the earlier period tariff protection was rather limited. King (1970, p. 76) estimates the proportion of import duties to the value of imports as having varied between 8 and 13 percent during the period 1940 to 1964.

offsetting influence of input subsidies and guaranteed prices on key staple crops[71] — except from the mid-1960s to the mid 1970s when effective protection turned from positive to negative in this sector and apparently contributed to its economic slowdown. Rather, it was the mining and especially the oil sector which subsidized heavily, through low energy prices, the rest of the Mexican economy (table 5.3).

Table 5.3. Effective protection rates, 1960 and 1970 (percent)

	1960	1970
Agriculture	3.0	-1.4
Mining	-0.2	-12.3
Oil	- 7.9	5.3
Manufacturing	46.6	36.9
Consumer goods	40.1	28.4
Light intermediates	42.7	15.1
Heavy intermediates	38.1	41.4
Consumer durables and capital goods	85.2	77.1
Average nominal protection (all tradables)	15.1	13.1

Figures refer to implicit rates without exchange rate adjustment. Treatment of non-tradables follows Balassa's modified method (value added of non-tradables is assumed not to change).

Sources: Bueno (1971) for 1960; Ten Kate and Wallace (1980) for 1970

Export promotion policies, on the other hand, although certainly of lesser importance, were not completely absent in these thirty years, especially in the last decade (see on the subject, King, 1970, and Ros, 1994). The mid 1960s saw the establishment of the "*maquiladora*" or border industrialization program (1965), a special free trade and investment regime for export processing plants along the northern border region. This program allowed firms to import to Mexico raw materials free of tariffs provided that their entire production is re-exported and the United States charges import duties only on the amount of value added in Mexico. Export financing was also extended over time. In 1960, banks and other financial institutions (*financieras*) were allowed to use part of their legal minimum reserves to supply export credit to manufacturing firms. In 1963 a Fund for the Exports of Manufactured Products (*Fondo para la exportación de productos manufacturados*, Fomex) — administered by the Bank of Mexico and financed by the revenues

[71] Agricultural support prices were administered through CONASUPO (*Compañía Nacional de Subsistencias Populares*), a government agency created in 1961 to, in addition, purchase agricultural goods and regulate their trading.

from import tariffs — was created to provide export credit at low interest rates to manufacturing exporters. At the same time, manufacturing exports were exempt from export duties and export taxes as a proportion of exports fell from a high of 15.1 percent in 1955 (when such taxes were increased to reduce windfall profits from the 1954 devaluation) to less than 5 percent by 1966.

Government involvement in industrial investment financing was pursued actively through Nacional Financiera, a major state development bank. Nacional Financiera had an important role in financing investments in manufacturing industries facing wartime shortages (such as steel, cement and other construction materials, and petroleum refining) (King, 1970). For example, in 1942 Nacional Financiera took a minority interest in Altos Hornos de México, S. A. which was to become Mexico's largest steel enterprise (Vernon, 1963). Later in the period there was a reduction of the state's promotion action in the field of industrial financing and public enterprises — except for the nationalization of the electricity industry in the early 1960s — both of which had been decisive in the earlier industrialization phase. These roles were increasingly taken over by domestic private banks in long term financing and by direct foreign investment in the fastest growing manufacturing industries. Thus, following a trend started in the 1950s, Nacional Financiera shifted its investment away from manufacturing industries and into infrastructure which by 1965 represented two thirds of total accumulated investment (King, 1970, p. 73).

Industrial policies encompassed also fiscal incentives, although their role was a relatively minor one and secondary to that of trade protection. These incentives were intended to diversify the industrial structure and stimulate capital formation in manufacturing. In 1941, a new law of manufacturing industries was passed to provide tax concessions for five years to new industries and industries deemed necessary for the development of manufacturing[72]. The tax-free period was then lengthened by the 1946 law of manufacturing development (Ley de Fomento de Industrias de Transformación) (Cárdenas, 1994). General fiscal incentives, provided in the framework of the 1955 Law for the development of new and necessary Industries, included tax rebates on corporate income and elimination of import duties on machinery, equipment and raw materials (under the so-called Rule XIV). In exchange for these tax concessions, firms agreed to conditions regarding price and quality control as well as workers training. In 1961, a reform of the corporate income tax allowed the deduction of depreciation charges from taxable profits to foster the renewal of the fixed capital stock and the reinvestment of profits.

[72] New industries referred to all those goods that were not produced within the country and necessary industries to those that supplied less than 80 percent of the internal market (Solís, 2000, p. 114).

The shift in public spending priorities towards economic and social expenditures, initiated during the Cárdenas administration, continued and deepened. Economic expenditures rose to represent 55 percent of total public expenditure over the last six years of the period (up from 38 percent during the Cárdenas government) with particular emphasis given to these types of spending by the Alemán, Ruiz Cortines and Díaz Ordaz administrations (table 5.4). Similarly, social spending

Table 5.4. Composition of federal budgetary expenditure (percentages)

	Total	Economic	Social	Administrative
1935-40 (Cárdenas)	100	38	18	44
1941-46 (Avila Camacho)	100	39	17	44
1947-52 (Alemán)	100	52	13	35
1953-58 (Ruiz Cortines)	100	53	14	33
1959-64 (López Mateos)	100	39	19	42
1965-70 (Díaz Ordaz)	100	55	32	13

Source: Wilkie (1970) and INEGI (1994)

Table 5.5. Composition of federal public investment (percentages)

	Total	Agriculture	Industry	T. and C. [1/]	Social	Administration
1935-40 (Cárdenas)	100 (3.0)	17.7	7.4	64.9	9.6	0.4
1941-46 (Avila Camacho)	100 (3.9)	17.4	11.6	58.1	11.0	1.9
1947-52 (Alemán)	100 (5.3)	19.9	23.1	42.1	13.7	1.2
1953-58 (Ruiz Cortines)	100 (4.9)	13.9	34.5	34.4	14.4	2.9
1959-64 (López Mateos)	100 (6.0)	10.6	37.5	24.9	24.2	2.8
1965-70 (Díaz Ordaz)	100 (6.1)	11.0	40.1	21.8	25.2	1.9

Figures in parentheses refer to public investment as percentage of GDP
1/ Transport and Communications

Source: Based on INEGI (1994)

had increased to 32 percent towards the end of the period, up from 18 percent under Cárdenas (table 5.4). Public investment expanded systematically increasing its share in GDP from 3 percent under Cárdenas to over 6 percent under the Diaz Ordaz administration (table 5.5). Its composition reflected the priorities of development strategy so that the allocation of investments to industrial development rose continuously throughout the period and reached towards the end a 40 percent share of total public investment, up from 7.4 percent under Cárdenas. Investments in the social

sectors increased steadily and more than doubled their share in the total throughout the period. Investments for agricultural development held their share in total public investment initially but then started declining towards the second half of the 1950s (table 5.5).

Mention should also be made of a number of actions taken at the beginning of the period to encourage the inflow of foreign capital and access to foreign credit. This included a final settlement, successfully negotiated by the Avila Camacho government, with the expropriated American oil companies by which Mexico agreed to compensate for the surface value and capital equipment but not for the oil in the ground (included in the oil companies much higher estimates of their losses) (Marichal, 1989). It also included the renegotiation of external debt by which holders of Mexican bonds accepted a reduction of approximately 90 percent of the nominal value of the Mexican government securities. This Suárez-Lamont agreement of 1942, made possible by the intervention of the US government seeking the strategic goal of hemispheric cooperation at times of war, has been considered the most favorable debt renegotiation of that era for a Latin American debtor country (Marichal, 1989; on the subject see also Bazant, 1968). A somewhat similar settlement was agreed in 1946 with the shareholders of the National Railway Company of Mexico.

The long period of fast and sustained economic development that was nurtured by the policy framework described can be broken down into three phases: the war boom, the period of growth with inflation from 1946 to the mid-1950s, and from then until 1970 (the stabilizing development phase).

The war boom (1941-45)

From 1940 to 1945 Mexico's GDP grew at an unprecedented average rate of 6 per cent per year in real terms, and GDP per capita at 3.2 per cent. Manufacturing was the engine of growth, with average rates of expansion of its production of 10.2 per cent per year (INEGI, 1994) while agriculture grew at 3.3 percent per year (OxLAD). In this first stage during the Second World War, contrary to what has often been argued, the expansion of external demand, rather than import substitution gave the most important impulse to manufacturing activity[73]. As shown by Cárdenas (1994, 2000), Mexico's industrial expansion during these years, unlike that of many other Latin American countries, was led by exports (see table A.6), which grew rapidly despite a gradual real appreciation of the peso during the war (a consequence of a higher rate of inflation in Mexico than

[73] For the conventional view which attributes industrial growth to import substitution during the war, see Villarreal (1977), Cavazos (1976) and Vernon (1963).

in the US in the context of a fixed exchange rate) (table 5.6). As a result, manufacturing exports increased their share in total exports six-fold from around 7 per cent to almost 40 percent in 1945, a share that will not be reached again until the 1980s. The textile industry was the main beneficiary of the export boom. Textile products, which had represented less than 1 percent of exports in 1939, were up to 20 percent by 1945 (Vernon, 1963). Textile plants went from a one-shift to a three-shift basis. Some stimulus came also from shortages of manufacturing goods in

Table 5.6. Macroeconomic performance, 1941-45

	1941	1942	1943	1944	1945
GDP growth rate	9.7	5.6	3.7	7.4	3.1
Inflation [a/]	7.3	9.1	20.8	22.4	12.7
Nominal exchange rate [b/]	4.85	4.85	4.85	4.85	4.85
Real exchange rate [c/]	93.4	96.4	83.6	68.6	62.1
Balance of payments					
Exports (% of GDP)[d/]	6.9	6.5	7.3	5.5	5.7
Imports (% of GDP) [d/]	9.2	6.7	7.2	9.5	11.0
Terms of trade [c/]	78.9	79.8	86.0	86.4	93.5
Change in int. reserves [e/]	-1.1	46.0	134.2	37.0	93.2
Public finance (% of GDP)					
Expenditure [f/]	7.4	7.8	8.3	7.7	7.6
Income [f/]	7.2	7.0	8.4	6.9	6.8
Budget surplus [f/]	-0.2	-0.9	0.1	-0.8	-0.8

a/ Yearly average increase in the wholesale price index in Mexico City
b/ Pesos per US dollar
c/ Index 1940 = 100
d/ Exports, imports and GDP are measured at 1970 constant prices
e/ Millions of dollars
f/ Federal government

Sources: INEGI (1994), OXLAD (for terms of trade) and Fernández Hurtado (1976) (for change in international reserves). Real exchange rate based on US wholesale prices (Statistical Abstract of the United States, 1971) and wholesale prices in Mexico City (INEGI, 1994).

the domestic market. While imports as a whole expanded rapidly during the war, imports of textiles, chemicals and vehicles lagged behind, generating internal shortages that presented opportunities for private entrepreneurs (Vernon, 1963). The stimuli to industry also included a rapid increase of public investment at rates of 14 percent per year fueling a construction boom and contributing, together with the surge in private investment, to a very significant increase in the rate of investment (table 5.2). Public works led to almost a doubling of the roadway system and

the irrigated land area increased by almost 2.5 million hectares (Cárdenas, 1994, citing Ortiz Mena et al., 1953).

The period saw the surge of a new group of industrialists, that had begun under Cárdenas and was described by Mosk in his classic work on Mexico's industrial revolution (Mosk, 1950). This new group was constituted by owners of small manufacturing plants, using local capital and oriented towards the domestic market with a nationalistic and fiercely protectionist outlook. The response to the business opportunities offered by the war boom in the industrial sector was strengthened by the inflow of refugees to Mexico in the early 1940s with financial capital in some cases and with professional skills in others. In addition, it was pushed forward by the impact of the land reform program of the 1930s that limited the attractiveness of investment in agriculture. This is also the period in which the government began investing in manufacturing industries. This happened in particular as we have seen earlier, through the manufacturing investments of Nacional Financiera. As already mentioned, agricultural development held its share in public investment and, together with large investments in transport and communications, led to a doubling of the all-weather road network and a nearly three-fold increase in the lands assisted by publicly financed irrigation systems (Vernon, 1963).

The war boom brought with it inflationary pressures. The domestic price level (as measured by the wholesale price index in Mexico City) almost doubled from 1940 to 1945 (a rate of increase of over 14 percent per year). This was the result of wartime shortages together with the monetary impact of trade surpluses[74] and capital inflows that led to a rapid increase in bank credit and aggregate demand despite the existence of rather austere, by Latin American standards of the time, fiscal and monetary policies (Vernon, 1963; Cárdenas 1994; see table 5.6). Nominal wages lagged behind the price level and, thus, real wages fell by almost 20 percent between 1940 and 1945 (and by nearly 40 percent in Mexico City according to Bortz, 1988, see table 5.7). At the same time, shifts in the structure of employment from low wage to higher wage occupations may have allowed real average earnings of wage earners to rise slightly (López Rosado and Noyola, 1951). In any case, the functional distribution of income deteriorated with the wage share in GDP falling from 29.1 to 22.6 percent between 1940 and 1945[75]. The investment boom in the context of an elastic supply of labor from the agricultural sector and the lack of independent and strong labor unions help explain the fall in real wages and the wage share.

[74] Note that in table 5.6 exports and imports shares in GDP are expressed at constant 1970 prices. At current prices exports in 1945 were over a third higher than imports and trade surpluses prevailed throughout the war.
[75] See Solís (2000), based on Ortiz Mena et al. (1953).

Table 5.7. Real industrial wages (index 1940 = 100)

	(1)	(2)
1940	100.0	100.0
1945	81.7	60.4
1950	89.2	66.5
1955	90.3	68.6
1960	116.5	77.6
1965	152.0	96.0
1970	174.0	116.4

(1) Average hourly wages in industrial districts deflated by the wholesale price index in Mexico City (Source: based on INEGI, 1994)
(2) Average manufacturing weekly wages in Federal District deflated by Bortz price index (see Bortz, 1988)

Growth with a devaluation-inflation cycle (1946-1955)

In the second stage starting in 1946, the sustained momentum of industrial growth (at an annual rate of 6.3 percent, INEGI, 1994) was determined much more by domestic factors; industrialization, fostered by trade protection, was led more by import substitution and domestic demand than by exports (table A.6). In particular, import substitution in consumer products advanced rapidly during these years. In 1940, consumer and capital goods each accounted for 30 per cent of total imports; by 1955 the consumer goods' share had been halved while that of capital goods had jumped to 40 per cent. This process of import substitution was stimulated by the increase in tariffs during the Miguel Alemán administration (1946-1952) which at the same time avoided placing heavy restrictions on capital goods and raw materials imports that local industry needed for its continued expansion. It also benefited from the first post war wave of foreign investment. This wave involved a new type of investor that was coming to produce manufactures for the domestic market and thus different from the traditional buyer of railroad, utility or government bonds or from the company in search for raw materials for export.

Despite the emphasis on industrialization, agriculture as a whole recorded an impressive growth. Success in agricultural development, in particular crop production, extended in fact to the whole period from 1940 to 1965 when crop production grew at a rate of 5.7 percent per year and livestock production at a rate of 3.7 percent (Yates, 1981). Three factors made possible this “magnificent performance” (to use Yates, 1981, expression). First, an increase in harvest area (at

a rate of 3.2 percent per year) which was partly located in rain-fed areas and partly in new areas opened to cultivation by massive investments in irrigation (the area under irrigation doubled between 1940 and 1960). Land reform also played a role here by bringing into cultivation previously idle land (Solis, 1981). Second, an increase in yields per hectare, made possible by a wider use of improved seeds, fertilizers, pesticides and farm machinery. This rapid rate of technical change offset the effects on profitability of declining average real agricultural prices during the period. Third, and last in importance, changes in the composition of crops also made a contribution to the expansion of total production with the introduction of high value crops especially in the irrigated areas.

However, agriculture evinced a dual structure. A gap, which widened throughout the 1950s, developed between commercial private farms in the north and northwestern regions and the *ejidos* of the central and southern regions. The former were oriented much more towards export markets and were the main beneficiaries from public investment in irrigation and roads as well as from the technological advances of the Green Revolution. The latter continued to use traditional methods of cultivation and remained oriented towards the domestic market with rapid population growth putting an increasing pressure on the land. Nevertheless, each of the three types of landholders — large private farms, ejidos, and minifundistas (private plots under five hectares) — performed satisfactorily and substantially contributed to the record of rapid agricultural growth.

Overall, over this period (1940-1965), agriculture performed outstandingly all the functions that it plays in economic development: 1) increased food production for a rapidly expanding urban population providing it with rising levels of food consumption; 2) the provision to the manufacturing sector of an increased production of raw materials and rapidly expanding foreign exchange earnings that were required to satisfy the import needs of industrialization; 3) a rapidly growing labor supply to satisfy at low wages the labor demand of the expanding industrial and service sectors; 4) savings to be used in infrastructure and industrial investment through the intermediation of the banking system and changing terms of trade between agriculture and industry[76]; and 5) an expanding market for industrial production constituted by a small but growing rural middle class (Hansen, 1971). Perhaps most important is the contribution that rural Mexico made to political stability and thus indirectly to the dynamic response of the private sector to the incentives provided by government policies.

[76] A study in the late sixties found that the combined net transfer from agriculture to the rest of the economy through the fiscal system, the banking sector and internal terms of trade amounted to 2 to 3 percent of total fixed investment over the previous 20 years and a considerably higher proportion of private investment in the industrial and services sector (Eckstein, 1966, cited by Hansen, 1971, p. 61).

The end of World War II witnessed the emergence of new and unforeseen problems. After several years of trade surpluses and rapid real exchange rate appreciation during the war (table 5.6), Mexico's foreign trade accounts began to register red figures with the decline of external demand after the Second World War and latetr with the fall in the terms of trade in the aftermath of the Korean War (table 5.8 and figure 5.1). The strong expansion in economic activity led to higher imports, especially of capital and intermediate goods, over and above the availability of exports. The ensuing pressure on the foreign exchange market was at times worsened by short-term capital outflows, triggering periodic balance-of-payments crises. Devaluation and increased trade protection were the usual responses.

A first crisis took place in July 1948 (with the abandonment of the Central Bank's intervention in the foreign exchange market after an almost 75% decline of international reserves compared to their level in December 1945), followed by an almost continuous depreciation of the peso until June 1949 (when the float is abandoned and the peso is fixed again at 8.65 (compared to 4.85 before the crisis). In this case the triggering factor was the sharp decline in international reserves in 1946-47 that followed from a strong increase in imports caused by the expansion of domestic demand and the catch-up in import demand that was repressed during the war. A strong export and output response followed in 1950 and 1951 (table 5.8) stimulated by the devaluations as well as by the beginning of the war in Korea and the increase in economic activity in the US.

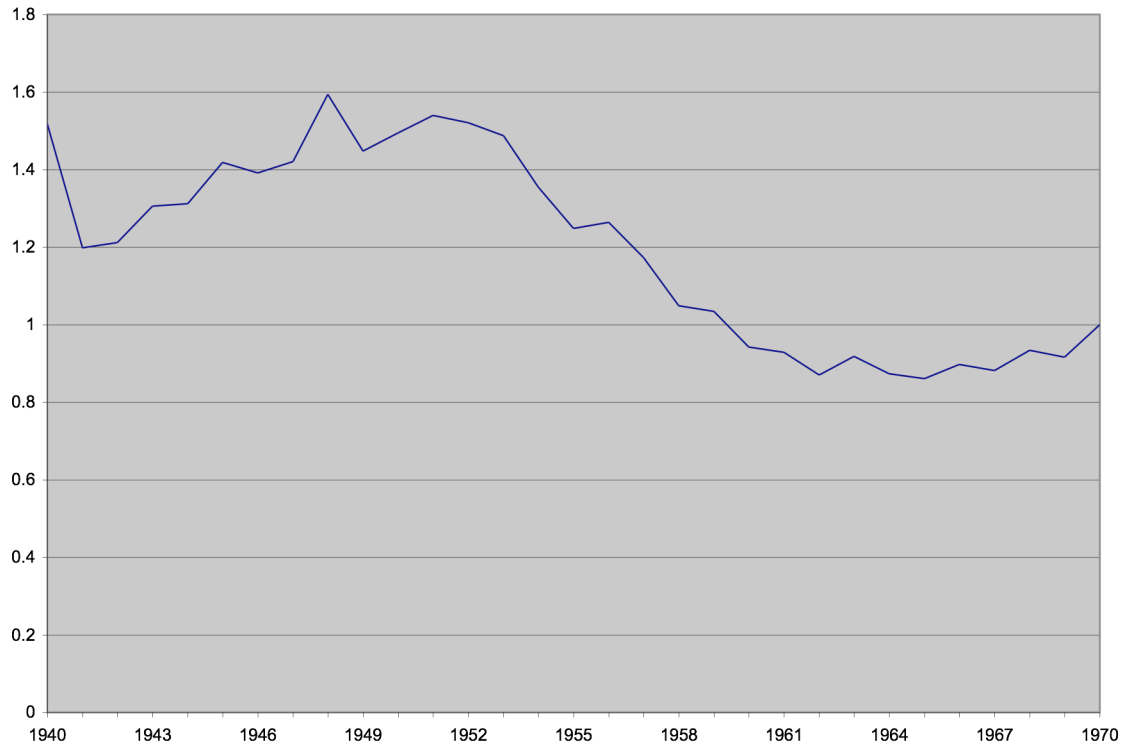
A second crisis took place in April 1954 in response to the external disequilibrium brought about by the post Korean war adjustments and the ensuing US recession[77]. As a result the peso was fixed at a new level of 12.5 pesos per dollar, a level that would prevail until 1976. This time the devaluation was a preventive measure taken well before Banco de Mexico's international reserves were seriously threatened. The external adjustment that followed in 1954-55 was achieved, to an even greater extent than in 1948-50, in the midst of a strong economic recovery — at rates of 10 per cent in 1954 and 8.5 per cent in 1955 — accompanied by significant export expansion and a moderate and transitory increase in inflation.

The differences between the 1954-55 adjustment and subsequent currency crises in the 1970s, 80s and 90s, when external adjustment was accompanied by the collapse of public and private investment, economic recession and a sharp acceleration of inflation, are striking and can be

[77] Interestingly, Mexico's 1948 and 1954 balance of payments crises stimulated IMF thinking on respectively the absorption approach and the monetary approach to the balance of payments (see De Vries, 1987, and Suárez Dávila, 2005).

explained by several factors (Lustig and Ros, 1987). First, the 1954 stabilization was not strictly an orthodox one. Indeed, devaluation was accompanied by an expansionary fiscal policy, which led to a 14.3 per cent increase in real public investment, most of which was directed to industries which, at the time, had significant state participation and a high potential for import substitution[78]. Second, the contractionary effects of devaluation were probably much less important than later on: private dollar-denominated debt was non-existent, the share of wage earners (low savers) in income and consumption was small and the trade deficit was very small at the time of devaluation (which, as mentioned above, had largely a preventive nature). Also, the expansionary effects of the devaluation were strong given that the potential for the substitution of competitive imports was large and the share of exports unresponsive to exchange rate adjustments (such as oil exports) was not important. Finally, the degree of wage indexation was small and considerably lower than in the 1980s (minimum wage settlements took place every two years) and thus the inertial component of inflation was very limited.

Figure 5.1. Terms of trade 1940-1970 (index 1970 = 1.0)



Source: OxLAD

[78] Moreover, in February 1954 import tariffs were increased by 25 per cent and from then onwards direct controls were used more intensely than in the past (Villarreal, 1976).

Table 5.8. Macroeconomic performance, 1946-1955

	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955
GDP growth rate	6.6	3.4	4.1	5.5	9.9	7.7	4.0	2.7	10.0	8.5
Inflation [a/]	15.0	5.4	7.2	9.6	9.6	24.0	3.2	-1.9	9.6	13.4
Nominal exchange rate [b/]	4.85	4.85	5.74	8.01	8.65	8.65	8.65	8.65	11.34	12.50
Real exchange rate [c/]	99.2	115.6	138.1	167.1	171.0	153.6	144.7	145.5	174.5	170.0
Balance of payments										
Exports (% of GDP) [d/]	5.5	5.5	5.0	5.4	5.7	5.5	5.5	4.9	5.4	6.3
Imports (% of GDP) [d/]	13.8	14.3	11.1	9.4	10.1	12.2	11.4	11.1	10.0	9.8
Terms of trade [c/]	98.0	100.1	112.3	102.0	105.3	108.5	107.2	104.8	95.5	88.0
Capital inflows [e/]	--	--	--	--	53.1	55.1	35.4	35.2	28.9	163.2
Public finance (% of GDP)										
Expenditure [f/]	6.3	6.9	8.4	10.3	8.2	8.6	10.6	9.0	10.7	9.9
Income [f/]	7.2	6.6	6.9	10.7	8.6	9.0	10.4	8.3	10.4	10.0
Budget surplus [f/]	0.9	-0.3	-1.5	0.4	0.4	0.4	-0.2	-0.8	-0.3	0.2

a/ Yearly average increase in the wholesale price index in Mexico City
b/ Pesos per US dollar
c/ Index 1945 = 100
d/ Exports, imports and GDP are measured at 1970 constant prices
e/ Millions of dollars
f/ Federal government

Sources: INEGI (1994) and OXLAD (for terms of trade). Real exchange rate based on US wholesale prices (Statistical Abstract of the United States, 1971) and wholesale prices in Mexico City (INEGI, 1994).

Inflation averaged 9.3 percent per year from 1945 to 1955 (as measured by the wholesale price index in Mexico City), fluctuating within a wide range. Inflation was fuelled by the Korean war boom, first, and later by the largely once and for all effects of the 1954 devaluation on the price level, a devaluation which took place as we have seen in response to the adjustments after the end of the Korean war. In addition, the new role of the state implied a restructuring and expansion of expenditures on its part, but no major equivalent reforms had been made on the revenue side of the fiscal accounts. The inflation tax substituted for this during most of this period[79]. Despite the inflationary pressures of the period, and unlike what happened during the war boom, real wages recorded a slow recovery at a pace of around 1 percent per year. As a result, the wage share in GDP rose between 1945 and 1955 from around 23 to nearly 27 percent (Solís, 2000).

Development with macroeconomic stability (1956-1970)

The period that followed, from 1956 to 1970, commonly known as 'stabilizing development'[80], is considered the Golden Age of Mexico's modern economic growth. During this era, real GDP growth accelerated to a rate of 6.7 per year, with an inflation rate of about 3 percent per year, and a fixed exchange rate against the US dollar which lasted for 22 years. Investment increased its share in GDP from 14.8 per cent in 1955 to 20 percent in 1970 and the manufacturing output share went up from 17.5 to 23.3 percent during the same period (tables 5.1 and 5.2). The increase in living standards and the emergence of a middle class is revealed in a number of indicators. Average real wages increased at a rate of 4.5 percent per year from 1955 to 1970 (3.6 percent in the Federal District according to Bortz, 1988, see table 5.7). From 1960 to 1970, the number of televisions increased from 17.5 to 58.5 per thousand, the number of telephones from 14.1 to 29.6 and the number of automobiles from 12.9 to 24.1. Dwellings with gas or electricity increased from 18 per cent of the total to 44 per cent in the same period (Izquierdo, 1995). Different estimates show sharp declines in poverty between the mid 1950s and the late 1960s (van Ginneken, 1980; Szekely, 2005; see table A.7). For example, Szekely (2005) estimates that a nutrition-based poverty rate fell from 64.3 percent in 1956 to 24.3 percent in 1968 (with a corresponding fall in the number of poor from 20.7 to 11.6 million, see table A.7) while van Ginneken (1980) estimates a fall from 45 percent in 1958 to 30 percent in 1969.

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[79] The role during this period of monetary financing of the public deficit may, however, have been exaggerated (see on the subject, Cárdenas, 1994).

[80] Economists and economic historians sometimes refer to stabilizing development as the period from 1956-1970 and sometimes as the period from 1958 to 1970 during which Antonio Ortiz Mena was minister of Finance.

High economic growth rates prevailed with the exception of two brief slowdowns, one in 1959 and the other in 1961-62 (the only three years with growth rates below 5 percent), possibly associated with private sector concerns regarding the impact of the Cuban revolution and the policies of the Lopez Mateos administration (1958-1964). To some analysts of the time, these pauses indicated that the "stagnationist" tendencies characteristic of peripheral development were finally surfacing. For others, they reflected the obstacles to continued growth exerted by what Vernon's (1963) influential book described as a dysfunctional system of public-private relationships, characterized by a too large degree of discretion and particularism in the application of government regulations. The almost immediate resumption of the historical growth rate, however, removed those forebodings.

While development policy continued to be centered on industrialization, with the state as an important agent, price and balance of payments stability was added as a major policy priority, and thus high fiscal deficits and exchange rate nominal depreciation were avoided. Several factors made possible the transition to low inflation in the mid fifties. These include, from the supply side, the outstanding performance of the agricultural sector, the weakness of wage indexation mechanisms (with biannual wage settlements that were a cushion against the propagation of inflationary pressures) and the "bottleneck-breaking" characteristic of public investment. Most important on the demand side were the financial reforms that solved the problem of government deficit financing through recourse to forced savings via the banking system reserve requirements. Indeed, through regulations on reserve requirements and portfolio allocations, the private banking system played an increasing role in the financing of the public sector deficit (Hansen, 1971; Brothers and Solís, 1966, and Solís, 1968, cited by Hansen, 1971, p. 51). Thus, while from 1950 to 1955 the central bank acquired over 33 percent of the increase in the banking sector claims on the government, between 1956 and 1961 the holdings of the central bank fell both relatively and absolutely. At the same time, the share of private financial institutions in the banking system claims on the government sector rose from 23 percent to 63 percent. Later, the problem of deficit financing was solved through the increasing use of external finance. The expansion of public expenditure was continuously subject to considerations on the evolution of the monetary base and its compatibility with predetermined targets. The strategy was thus consistent with the drive for development implemented since 1940, but reflected greater concern for the observance of macroeconomic balances.

Table 5.9. Macroeconomic performance, 1956-1970

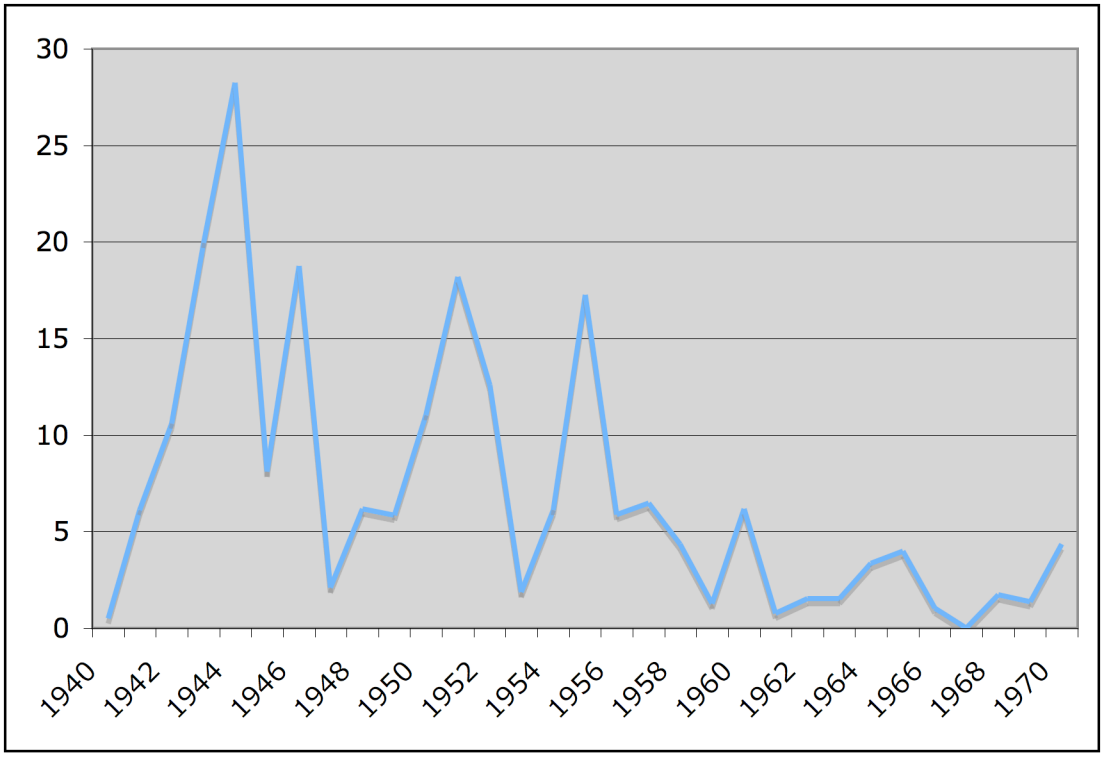
	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
GDP growth rate	6.8	7.6	5.3	3.0	8.1	4.9	4.7	8.0	11.7	6.5	6.9	6.3	8.1	6.3	6.9
Inflation [a/]	5.1	3.9	4.7	0.9	4.9	1.3	1.7	0.4	4.5	2.0	1.2	2.7	2.2	2.5	6.0
Nominal exchange rate [b/]	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Real exchange rate [c/]	98.3	97.3	94.3	93.6	89.4	87.9	86.7	86.1	82.5	82.6	84.3	82.3	82.5	83.6	81.8
Balance of payments															
Exports (% of GDP) [d/]	5.8	5.1	5.4	5.6	5.1	5.0	5.4	5.0	4.6	4.7	4.6	4.1	4.0	4.2	3.6
Imports (% of GDP) [d/]	10.9	10.6	9.6	8.6	8.4	7.4	6.5	6.6	6.6	6.5	6.1	6.1	6.4	6.3	7.0
Terms of trade [c/]	101.2	93.9	84.0	82.8	75.4	74.4	69.7	73.5	70.0	68.9	71.8	70.6	74.8	73.4	80.1
Public finance (% of GDP)															
Expenditure [e/]	10.0	9.6	9.1	10.1	12.6	11.8	10.8	9.8	11.5	23.9	22.2	24.4	23.2	24.6	24.6
Income [e/]	9.9	9.2	10.0	10.1	12.2	11.5	10.9	9.5	11.7	24.0	22.4	24.4	23.7	24.5	24.6
Budget surplus [e/]	-0.1	-0.4	0.9	0.0	-0.4	-0.2	0.1	-0.3	0.2	0.1	0.2	0.0	0.5	-0.1	0.0

a/ Yearly average increase in the wholesale price index in Mexico City
b/ pesos per US dollar
c/ Index 1955 = 100
d/ Exports, imports and GDP are measured at 1970 constant prices
e/ Data from 1965 onwards are not comparable to the previous period.

Sources: INEGI (1994) and OXLAD (for terms of trade). Real exchange rate based on US wholesale prices (Statistical Abstract of the United States, 1971) and wholesale prices in Mexico City (INEGI, 1994).

Another important factor in the transition from the period of growth with inflation to stabilizing development was the relatively more stable external environment and the relative absence of domestic supply shocks. Positive shocks to exports, such as those during World War II and the Korean War, followed by sharp declines in external demand were absent after 1955 and the variability of the terms of trade fell significantly during the period of stabilizing development (figure 5.1). Similarly, negative agricultural supply shocks, which had been quite common during the period 1940-1956 (in 1940, 1943, 1945, 1952, and 1956), practically disappear afterwards (Reynoso, 1989). In fact, Reynoso (1989) goes as far as to attribute between 85 and 90 percent of the improved performance in terms of growth and inflation to the reduction in external and other exogenous shocks with the remaining 10 to 15 percent due to better policy management compared to the period of growth with inflation.

Figure 5.2. Inflation rate, 1940-1970



Annual rate of increase in the wholesale price index of Mexico City

Source: INEGI (1994) based on Banco de México

Fostered by this environment, manufacturing expanded at annual rates close to 9 per cent per year (INEGI, 1994) with the dynamic domestic market as its major source of demand. Indeed, Mexico followed a large country pattern of industrialization (see Chenery et al., 1986), i.e. the

rapid expansion of domestic markets was the major source of industrial growth, and the changing structure of industrial output — showing a rapidly increasing share of heavy intermediates, consumer durables and capital goods — has to be interpreted in this light. In addition, the 1960s also recorded an intense import-substitution process, which significantly contributed to the expansion of those sectors (table A.6). Among them those showing the largest reduction in import coefficients and the highest growth rates were the automobile industry, machinery and electrical appliances, rubber and chemicals. Although export markets made a much smaller contribution and the export-output ratio tended on average to decline, the decade also witnessed the beginning of a process which was to become more important in the first half of the 1970s, that is a substantial increase of export coefficients in the consumer durables and capital goods sectors, and the development of the maquiladora assembly plants in the northern border region. Transnational companies were prominent in the expansion of the leading sectors, particularly in three of the four fastest growing industries (automobiles, non electrical machinery and electrical appliances) and significant and increasing in the fourth one (chemicals). As noted before, the contribution of public enterprises became, in contrast, less important compared to previous decades, even though they participated in some of the fast growing sectors as well as in the rapid development of the fertilizer and heavy petrochemicals industries.

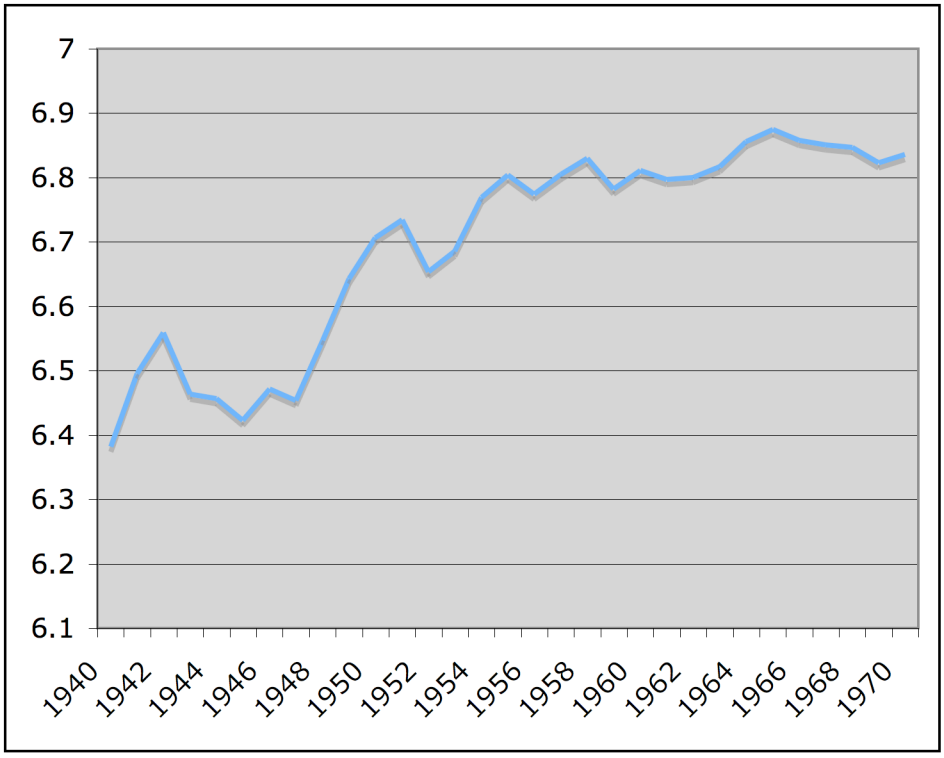
The pace of agricultural output growth slowed down and declined below the growth of population in the last five years of the period (see figure 5.3). Mexico turned from a cereal exporter to a cereal importer. A number of factors contributed to this slowdown. As we have seen, the share of public investment in agricultural development fell considerably starting in the second half of the 1950s (table 5.5). Prices of agricultural goods relative to manufacturing goods faced an adverse trend. For example, in real terms between 1960 and 1971, the prices of corn, beans and wheat fell by 21.4 per cent, 22.0 per cent and 41.5 per cent respectively. Agricultural credit, provided largely by the government, was scarce and falling rapidly as a proportion of total credit[81]. Price and trade policies also discriminated against agriculture while land reform ran into diminishing returns as newly distributed land was of poor quality and productivity.

After the revolution had largely destroyed the *Porfiriato*'s banking system, and the Great Depression together with inflation during the War boom and immediate post war period had delayed the development of the domestic financial system, the period of stabilizing development was associated with the resurgence of financial intermediation. This expansion was fostered by the fast growth of GDP, exchange rate stability and positive real interest rates. Financial savings

[81] Agricultural credit as a proportion of total credit fell from 15 percent in 1960 to 9 percent in 1970 (Solís, 2000).

expanded at a rate of over 17 percent per year between 1958 and 1969, a rate well above that of GDP at current prices, and as a result the ratio of financial liabilities to GDP increased from 24.7 percent in 1958 to 42.6 percent in 1968 (Solís, 2000). Along with these changes the structure of financial liabilities was modified with a decline in the share of monetary liabilities and dollar denominated deposits and the increase in non-monetary liabilities such as bonds issued by financial institutions and time deposits which recorded the fastest growth rates (Solis, 1981). The boom in financial intermediation and monetary stability became mutually reinforcing processes. The increase in the financial savings/GDP ratio, stimulated by monetary stability, made the financing of fiscal deficits more manageable, thus eliminating inflationary pressures from the demand side and reinforcing price stability.

Figure 5.3. Agriculture GDP per capita, 1940-1970



Natural log of agriculture GDP per capita

Source: Based on OxLAD

Keeping in mind that the household surveys are not strictly comparable, the available evidence on income distribution suggests the following trends (table 5.10). First, after an initial reduction from 1950 to 1957, the share of the poorest 40 percent (of the order of 10 to 11 percent)

stagnated from 1957 to 1968. Second, the share of the middle class (deciles 5 to 9) rose at the expense of the richest 10 percent[82]. This was the result of a rapid expansion of employment opportunities for white-collar workers and professionals whose share in the labor force[83] increased from 27 to 40 percent between 1950 and 1960 (having been around 15 percent in 1940) (Hansen, 1971, citing Cline, 1962, p. 180). The rapid increase in real wages, the development of a middle class and the relative expansion of the formal sector of the economy were also reflected in the functional distribution of income. Thus, the wage share in GDP increased between 1955 and 1970 from around 27 to over 35 percent (Solís, 2000).

Table 5.10. Personal income distribution, 1950, 1957, 1963 and 1968

(in percent by deciles of families)

Deciles	1950	1957	1963	1968
1	2.7	1.7	1.3	1.0
2	3.4	2.7	2.2	2.2
3	3.8	3.1	3.1	3.1
4	4.4	3.8	3.7	4.3
1-4	**14.3**	**11.3**	**10.3**	**10.6**
5	4.8	4.3	4.9	5.3
6	5.5	5.6	6.1	6.0
7	7.0	7.4	8.0	8.2
8	8.6	10.0	11.8	11.6
9	10.8	14.7	17.0	15.8
5-9	**36.7**	**42.0**	**47.8**	**46.9**
10	49.0	46.7	41.9	42.4

Source: For 1950 and 1957, Navarrete, 1960 (as reported by Hansen, 1971, p.75). For 1963 and 1968, Solís, 2000, based on Banco de México, Oficina de Estudios sobre Proyecciones Agrícolas y Encuestas sobre Ingreso y Gasto de las Familias en México.

Long-term productivity performance and the pattern of growth

We now look at the growth process from the perspective of sources of supply expansion, summarizing the available evidence on factor inputs and total factor productivity (TFP) growth.

[82] The data on the Gini concentration coefficient shows a slight increase from 0.52 to 0.54 between 1956 and 1968 (see table A.7).

[83] This is the share of upper and middle class occupations (professionals, managers, technicians, office workers, small tradesmen and artisans) according to Cline (1962).

Estimates of long-term trends in TFP growth per year fall in the 2.0-2.6 per cent range, thus "explaining" around 35 per cent of the increase in total output (table 5.11). This performance could suggest a rather extensive pattern of growth, largely based on a high rate of capital accumulation (of the order of 6.2-6.7 per cent per year). This may well be the case when Mexico's record is compared to those of developed economies or to the Korean experience (although this has been debated[84]), where over 40 per cent of output expansion is attributable to TFP growth. But the growth pattern also appears to be significantly more intensive than the rest of Latin America (with a 25 per cent contribution of TFP growth), and compares favorably with other fast growing developing economies such as Brazil, in terms of productivity performance, or Turkey, in terms of employment absorption.

The productivity performance of the manufacturing sector appears, however, to have been less satisfactory. Overall, the estimates suggest that for manufacturing as a whole (including large and small firms) and for the two decades since 1960, the Mexican industrial sector showed a slow rate of TFP growth (of the order of 1 per cent per year) with divergent trends in productivity growth between small scale and large scale establishments, whose high productivity performance compares favorably with other developing and developed country experiences (Samaniego, 1984). These features — the slow TFP growth in manufacturing as a whole and the more satisfactory performance of large-scale manufacturing and the whole economy — suggest, taken together, that the main contribution of manufacturing expansion to aggregate productivity performance must have taken place through the reallocation effects of industrial growth rather than through rapid increases of factor productivity in manufacturing itself[85]. The overall positive impact of industrial growth qualifies again the notion of an extensive growth pattern. For, given the initially very large labor surpluses in traditional agriculture and services and the very fast rate of demographic expansion during the period (of the order of 3.0-3.3 per cent per year, INEGI, 1994) — which tended to moderate the overall productivity effects of resource reallocation towards manufacturing[86] — it is hard to see how, given the actual rate of capital accumulation, the growth pattern could have been much more intensive. The reason is that the slow productivity growth in manufacturing can be largely attributed to the lack of productivity increases in the small-scale sector, a feature which in turn reflects a high rate of employment absorption from other

[84] See, on the subject, Krugman (1994) and Young (1995).
[85] The importance of these reallocation effects in Mexico's development experience and productivity performance is examined and highlighted in Reynolds (1980) and Syrquin (1986).
[86] We mean here the direct effects of resource reallocation towards higher productivity industries as well as the indirect effects on agriculture and services productivity levels occurring as a result of the reduction of labor surpluses and the induced reorganization of methods of production. The latter may be no less important than the former as the post war development experience of developed countries clearly suggests (see Cripps and Tarling, 1973, and Syrquin, 1986).

sectors. There is thus a trade off between the reallocation effects of industrial growth and the productivity increases within industry; a trade off which was aggravated by the very fast rates of population growth and could not be easily overcome except by means of higher rates of capital accumulation.

Table 5.11. Growth of output, inputs and total factor productivity in various countries

(Average annual growth rates, whole economy)

Country	Years	Output	Capital	Labor	TFP
Mexico	**1950-75** [1/]	**6.2**			**2.2** [a/]
	1960-74 [2/]	**6.8**	**6.7**	**3.3**	**2.0**
	1960-75 [3/]	**6.4**	**6.2**	**2.4**	**2.6**
Developing					
Argentina	1960-74 [2/]	4.1	3.8	2.2	0.7
Brazil	1960-74 [2/]	7.3	7.5	3.3	1.6
Colombia	1960-74 [2/]	5.6	3.9	2.8	2.1
Latin America [b/]	1960-74 [2/]	5.3	4.7	2.7	1.3
Turkey	1963-75 [4/]	6.4	6.8	1.0	2.1
Korea, Rep.	1960-73 [5/]	9.7	6.6	5.0	4.1
Developed [c/]	1960-73 [5/]	5.7	6.3	0.8	2.7
US	1960-73 [5/]	4.3	4.0	2.2	1.3
Germany	1960-73 [5/]	5.4	7.0	-0.7	3.0
Japan	1960-73 [5/]	10.9	11.5	2.7	4.5

a/ Derived from the rates of change of output per worker and capital-labor ratio assuming a capital elasticity of 0.48
b/ Average of six Latin American countries (excluding Mexico) (see Elías, 1978)
c/ Average of eight developed countries (see Christensen et al., 1980)

1/ Syrquin (1986)
2/ Elías (1978)
3/ Reynolds (1980)
4/ Krueger and Tuncer (1980)
5/ Christensen et al. (1980)

Source: Ros (1994)

Table 5.12. Growth of TFP and labor productivity in manufacturing

(Average annual growth rates)

Years	TFP	Labor productivity
1960-80 [1/ 2/]	1.1	3.4/6.6 [a/]
1960-73 [1/ 2/]	0.8	3.4/7.8 [a/]
1973-80 [1/ 2/]	1.5	3.3/4.5 [a/]
1970-80 [b/ 3/]	0.9	3.8
1950-75 [4/]	2.0	3.0
1963-81 [c/ 5/]	3.6	6.0

a/ Value added per man-hour in manufacturing firms with more than 100 employees
b/ Mean growth rates of 20 two-digit manufacturing industries
c/ Mean growth rate of 17 four-digit manufacturing industries
1/ Velasco (1985)
2/ Hernandez Laos and Velasco (1990)
3/ World Bank (1986)
4/ Syrquin (1986)
5/ Samaniego (1984)

Source: Ros (1994)

Modernization with inequality revisited

To sum up, Mexico's industrial development during the golden age was nurtured in a rather typical import-substitution cum state-led industrialization policy regime which provided, however, incentives to manufacturing exporters starting in the early 1960s and moderate levels of effective protection to manufacturing with a limited, albeit increasing through time, dispersion of protection rates across industries. The policy regime also included a number of sector-specific programs in infant industries which gave increasing emphasis to export targets and price competitiveness. Manufacturing, especially its heavy intermediates, consumer durables and capital goods sectors, benefited from three main mechanisms of resource transfer: i) high prices for their products arising from protection of domestic industrial markets; ii) lower input costs resulting from energy subsidies, export taxes and licenses on some agricultural raw materials and minerals; and iii) low prices for imported capital goods as a consequence of appreciated real exchange rates and high tariff exemptions on imports of machinery and equipment which facilitated the financing of industrial investments.

The industrial response to these incentives was highly dynamic in terms of output growth and its resource allocation effects generated a rather good productivity performance in the economy as a

whole. More generally, the macroeconomic performance from 1940 to 1970 was impressive. The strategy on which it was based tackled important obstacles on the road to Mexico's development. However, it ignored or underestimated the magnitude of other obstacles.

A first observation is that despite these improvements, the benefits of growth were far from being evenly distributed. Towards the end of the period (1968), the poorest 40 percent of the population accrued less than 11 percent of total income while the richest 10 percent received nearly four times more (over 42 percent, see table 5.10). The Gini coefficient was very high at around 0.54 and income distribution had not improved compared to 1950 (table A.7). In spite of the sustained government efforts to provide social services to the population and several decades of continuous economic growth, most people, according to the least conservative estimates, were still poor (Székely, 2005). At the end of the 1970s, ten years after the end of the Golden Age, out of a total population of 68 million, around 19 million people suffered from malnutrition and infant mortality rates were still high compared with other countries with lower per capita income (50 per 1,000 children born alive); around 45 per cent of the population did not have access to free health care, and 22.3 per cent of dwellings were estimated to have no services at all, while 50 per cent had no access to water or sewage systems; about 22 million persons of 14 years of age or more were either illiterate or had not finished primary school (Lustig and Ros, 1987). Regional disparities were also pronounced. Mexico City, Monterrey and Guadalajara with 25 percent of the total population accounted for more than 60 per cent of manufacturing industry while approximately 40 per cent of the population lived in towns of less than 2,500 inhabitants, depending on a low rural income (Solís, 2000). Thus, despite the enormous economic and social progress made, poverty and inequality were still major problems to be solved.

The neglect of agriculture, which, as we have seen, faced serious difficulties in expanding production after 1965, became the source of important problems. Agricultural output had been growing between the mid 1940s to the mid sixties at an impressive rate, under the stimuli of infrastructure investments and the expansion of cultivated area caused by large scale irrigation projects and agrarian reform, but this source of growth eventually become exhausted and the sector’s rate of growth in the second half of the 1960s fell below the pace of demographic expansion. As we have seen, among the factors behind this decline are the negative effective protection from the mid 1960s to mid 1970s, the adverse trend in the prices of agricultural goods relative to manufacturing goods, and the continuous decline of its share in public investment after the mid 1950s as well as in total credit. All these elements would contribute to a contraction of agricultural exports and foreign exchange, an increase in rural poverty, and a loss of social cohesion that led to emergent social instability.

Trade protection proved a valuable instrument in promoting import substitution and growth in many sectors, and some industries such as fertilizers and steel — with falling marginal costs driven by the vigorous expansion of the domestic market — even achieved international competitiveness (Solis, 1981). However, for most of the period there was no explicit policy aimed at strengthening over time the economy's export potential. After reaching a peak of 7.3 percent during the war, the export share in output fell throughout the rest of the 1940s, 1950s and 1960s reaching a low of 3.6 percent in 1970 (see tables 5.6 and 5.9). Trade protection and progressive real appreciation of the exchange rate (table 5.9) contributed to this erosion of the export share. Neither was it clear whether trade policy as it then stood would be able to complete the most difficult phase of import substitution involving high-technology capital goods. Indeed, by the end of the 'stabilization development' period, import substitution in the capital goods sector had yet to be accomplished. As the NAFINSA-ONUDI (1985) study found, Mexico's production of capital goods lagged considerably behind other semi-industrial economies: over 90 percent of Mexico's market for machine tools was supplied from abroad, compared to only 20 per cent in Brazil and 44 per cent in Korea, countries which in addition exported 27 per cent and 20 per cent respectively of their local production of machine tools. Moreover, while based on the infant industry protection argument, protection was far from being consistently applied. Rather than being temporary, to allow for the initial development of new firms and industries, protection tended to become permanent. Indeed, despite the fact that in principle import licenses could only be granted for three to five years, once imposed they were never removed (Solis, 1981).

Finally, tax reforms systematically aborted in 1961 and 1964 leaving the tax burden at 12.3 per cent in 1970, compared with 10.3 per cent in 1960 and to an original target of close to 20 per cent (Izquierdo, 1995). Mexico had, and continues to have, one of the lowest tax burdens in Latin America (Hansen, 1971, ECLAC, 2006). Moreover, the few changes that took place in fiscal matters had regressive effects by increasing the tax burden on labor incomes and reducing it on property incomes (Solís, 1981)[87]. The lack of fiscal reform, together with a de facto freeze on the prices of public sector goods and services (electricity, gasoline, railways), restricted social expenditures by the public sector at a time when rapid population growth generated a growing need for expanded programs in education and health. It also increased fiscal vulnerability by making public finances increasingly dependent on external debt[88]. So too did the balance of

[87] Revenue from labor income as a fraction of individual income tax increased from 58.1 percent in 1960 to 77.9 percent in 1966 while revenue from property income decreased from 40.5 percent of personal income tax to 10.7 percent over the same period (Solis, 1981).

[88] By 1970, the external public debt-GDP ratio reached 12 per cent (compared to 1 per cent in

payments, which became more and more vulnerable to short term capital flows, with their potentially destabilizing influence. As long as the Golden Age of world economic growth continued, misperceptions regarding the potential relevance of these issues for Mexico's development could and would remain. Unfortunately, this Golden Age was coming to an end.

The previous list of problems is also significant for what it omits. For example, the stabilizing development strategy has been blamed for an inadequate employment growth resulting from policies, including trade protection, that stimulated the use of capital-intensive technologies (see, among others, Reynolds, 1970, Solis, 1981, and Clavijo and Valdivieso, 1983). However, industrial employment growth was vigorous during the period and there is no clear-cut indication that underemployment increased (see Buffie, 1989). Similarly, while Mexico was certainly a highly unequal society by the end of the period, as we have stressed above, there is no compelling evidence that income distribution significantly deteriorated as has often been claimed (see among others Solis, 1981, Villarreal, 1983 or Aspe and Beristain, 1984). Nor is there convincing proof that the strategy was accompanied by a progressive lack of fiscal control (as argued by Camacho, 1977, and Solis, 1981; see, on the subject, Buffie, 1989) despite an inadequate tax burden and an increasing dependence of public finances on external debt.

The golden age in international perspective

The period from 1940 to 1970 was truly a golden age. Although smaller than the rates recorded in the East Asian NICs from 1950 to 1970, the rate of expansion of the Mexican economy (measured by total GDP) was the fastest among the large Latin American countries and, perhaps more surprisingly, higher than that of the fast growing economies in Southern Europe (table 5.13). The rate of growth of its real GDP per capita was less outstanding but one must take into account the very fast growth of population during the period, the fastest among the group of countries in table 5.13 (with the exception of Singapore). This demographic explosion caused population to grow at a faster pace than the labor force (which expanded at a rate of 2.7 percent per year, INEGI, 1994), leading to a sharp increase in the dependency ratio from 79 percent in 1940 to 83 percent in 1950, 92 percent in 1960 and 108 percent in 1970 (INEGI, 1994, see table A.3). Over the period 1950-1970, for which data on labor productivity growth is available, the growth of output per worker, at 4.1 percent per year, far outstripped the growth of per capita GDP (3.1

1946, INEGI, 1994) and (in 1968) amortization and interest payments on medium and long-term external public debt represented close to 30 percent of exports (Hansen, 1971). While these magnitudes did not yet imply a serious macroeconomic imbalance, they reflect the dynamic evolution of foreign indebtedness during the period.

percent) as well as the growth of output per worker in the larger Latin American economies (Brazil included, with a growth rate of 3.3 percent per year) (GGDC, Total Economy Database 2006).

Clearly, this was a period of catching up both with respect to the United States as well as to the larger Latin American economies. Unlike what happened in the previous thirty year period (see previous chapter) Mexico's GDP per capita increases as a fraction of US GDP per capita as well as the GDP per capita of each of the larger Latin American economies with the exception of Brazil and oil-rich Venezuela (table 5.14). What factors accounted for this comparatively fast pace of economic development?

A first set of factors explains three interrelated aspects: the comparative absence of foreign exchange constraints and domestic bottlenecks together with a stable macroeconomic framework. There is first the impressive performance of agriculture, in the first part of the period, which contributed to reconcile a fast rate of GDP growth with balance of payments stability and the absence of domestic inflationary pressures. As noted by Hansen (1971), Mexico's rate of growth of agricultural production was outstanding during this period: it was twice the rate of Argentina and Chile and considerably faster than that of all other Latin American countries with the exception of Costa Rica. This allowed the agricultural sector to make a substantial contribution to overall development, not least by enhancing the capacity of the economy to generate foreign exchange. This fast pace of agricultural output growth was made possible, as we have seen, by several factors including the land reform of the 1930s together with considerable public investments in irrigation and other infrastructure, especially during the administration of Miguel Alemán. Mexico's irrigation program, one of the largest in the world, reclaimed and irrigated more land than any other Latin American country (Hansen, 1971). More generally, and this is the second factor, the structure of public expenditure was heavily biased towards developmental investments that made possible the removal of domestic bottlenecks. Federal expenditures on economic development rose almost continuously from 38 percent of the total budget in 1935-40 to 55 percent in 1965-1970 (table 5.4) and from 1940 to 1970, the Mexican public sector accounted for between one third and one half of capital formation (table 5.2). This was made possible by squeezing defense and administrative expenditures. By contrast, of all Latin American countries only Costa Rica and Panama spent less than Mexico on defense (as a ratio of total government expenditure). Third, together with rapid agricultural growth and economic development public spending, a diminished role of the central bank, from 1955 onwards, in the financing of public sector deficits produced macroeconomic stability as epitomized by low inflation after 1955 and a stable exchange rate that lasted for 22 years. Such a stable macroeconomic framework, which contrasts with the experience of Argentina, Brazil or Chile, must have had an

important feedback effect in the process of economic growth.

Table 5.13. Annual growth rates of GDP, GDP per capita and population, 1940-1970

	GDP	GDP per capita	Population
Latin America			
Mexico	**6.2**	**2.9**	**3.2**
Brazil	6.0	3.0	2.9
Colombia	4.6	1.6	2.9
Argentina	3.7	1.9	1.8
Chile	3.7	1.6	2.1
Southern Europe			
Portugal	4.7	4.2	0.5
Spain	4.7	3.8	0.9
Greece	4.1	3.5	0.6
Italy	4.1	3.5	0.6
East Asia			
Taiwan 1/	9.3	6.0	3.0
Hong Kong 1/	7.9	4.8	2.9
Singapore 1/	7.3	3.5	3.6
South Korea 1/	7.1	4.8	2.2

1/ 1950-1970

Source: Based on Maddison (2003).

Table 5.14. Mexico's GDP per capita as a percentage of GDP per capita in:

	1940	1970
Brazil	148.2	141.3
Peru	101.6	113.5
Colombia	97.7	139.6
Chile	56.8	81.6
Uruguay	50.6	83.3
Venezuela	45.8	40.5
Argentina	44.5	59.2
United States	26.4	28.7

Source: Based on Maddison (2003).

A second set of factors has to do with the costs of protection. While protectionist policies effectively stimulated industrialization, the costs of protection, both static and dynamic[89], were less burdensome than in other Latin American countries and perhaps even than in some East Asian countries during this period. A first reason is that Mexico's protection rates were rather moderate compared to other developing countries. As it has often been noted, Mexico's protection rates were relatively moderate when compared to most Latin American countries as well as other developing economies (see Little et al., 1970; Balassa et al., 1971; Ten Kate and Wallace, 1980). This feature has been attributed to the fact that, in spite of an extensive use of quantitative restrictions, a degree of domestic price discipline was enforced by the threat of smuggling and potential competition — given the long border with the US economy —, as well as by the role of price controls in manufacturing.

A second reason has to do with the relatively large domestic market. Mexico is the second most populated country in Latin America with a population in 1970 similar to that of Italy and larger than the rest of Southern Europe or the East Asian NICs. Despite the low level of income per capita and its unequal distribution, the size of the domestic market was sufficient for industrial sectors with high fixed costs (associated to their capital intensity) and, as a result, strong economies of scale to be established. It also attracted the foreign investment required to set up these capital and technology intensive industries. In other countries, as the opportunities for easy import substitution were exhausted the pace of industrial development slowed down, and attempts to go into the "difficult phase" of import substitution would result in highly inefficient industrial sectors. All this is consistent with the rather low estimates of the static costs of Mexico's protectionist policies. Bergsman (1974) estimated the costs of protection in 1960 at 2.5 percent of GDP, with only 0.3 percentage points having its origin in resource misallocation effects (the rest, 2.2 percentage points, being attributed to 'X-inefficiency' plus monopolistic rents).

Third, unlike Argentina's relatively mature economy and like Brazil's, Mexico had a dualistic, Lewis-type economy featuring a surplus of labor that generates a relatively elastic supply of labor to the modern sector of the economy[90]. This was important for the process of reallocation of labor. The expansion of the industrial sector meant that the process of industrialization caused labor to move from low productivity to high productivity sectors. These productivity gains were behind the rapid increases in GDP per capita. By contrast, in mature economies such as Argentina's, most

[89] That is, the static effects of protection on the allocation of resources, technical efficiency and market structure, and the dynamic effects on productivity growth performance.
[90] Diaz Alejandro (1988) has emphasized the nature of the domestic economy in the comparison of the growth performance of Argentina and Brazil.

sectors are modern and there is no large subsistence sector. Productivity levels are similar across sectors and, as a result, the economy couldn't benefit from the reallocation of labor from low to high productivity sectors. Rather, the expansion of the industrial sector caused labor to be taken away from the modern export sector. Because industrialization crowded out labor from the export sector, the anti-export bias was higher.

Finally, geography may have had a role to play. More than by encouraging exports to the largest market in the world or through the facilitation of the flow of technology (as suggested by Hansen, 1971), the presence of a great power (a superpower from the early post war period) on its borders may have constituted an extraordinary challenge that triggered a dynamic response similar to that of Japan when faced up to the West after the mid XIX century (Hansen, 1971).

6. The loss of macroeconomic stability, the oil boom and the debt crisis

The 1970s witnessed a transformation of the international economic environment and the attempt to change development strategy as Mexico's political leaders and policy makers became increasingly aware of the need to address the inequities that accompanied the process of economic growth and the obstacles to sustained economic development. A push for redistribution was seen as a way to relieve social tensions that became openly manifest in the students movement of 1968, which ended in bloody repression on the part of the Diaz Ordaz government, and guerrilla activity, both rural and urban, throughout the 1960s and early 1970s. To the extent that the administrations of the 1970s were unable to address successfully these problems, new obstacles would arise, as the loss of macroeconomic stability became the casualty of this failure.

From shared development to two-digit inflation and the 1976 currency crisis

The new Echeverría administration taking office in late 1970 had as a central point of its political platform the claim that the 'stabilizing development' strategy of the period 1956-70 had failed to address the fundamental problem of inequality. A new strategy of 'shared development' was thus proposed in which the benefits of economic growth would be more evenly distributed. At the same time, the strategy was meant to address the problems of sluggish agricultural development, tax reform and lagging industrial competitiveness in export markets. Indeed, as originally conceived, "shared development" was going to achieve an improvement in the distribution of income by reorienting public investment and finance towards the agricultural sector, and reforming what was perceived to be an inequitable tax system.

The allocation of public investment to agricultural development increased substantially to 15.6 percent of the total over the period 1971-76 (compared to 11 percent under the Diaz Ordaz administration) (table 6.1). Other government initiatives in the agricultural front were the increase in guaranteed prices for basic products (under complaints, however, that they were not high enough to reflect increases in costs), and a rapid expansion of agricultural credit and extension services (see on the subject, Yates, 1981), including the creation of the *Programa Integral de Desarrollo Rural* (PIDER) which, like its predecessor in the 1960s (the *Programa Coordinado de Inversiones Públicas en el Medio Rural)*, was launched to give technical and financial support to rural communities in the design and execution of infrastructure projects.

Plans for tax reform included, most importantly, the accumulation of earnings for income tax, an increased tax on interest from financial assets, a wealth tax, an increase in the highest personal

income tax rate (from 35 to 42 percent) and the elimination of anonymity on different forms of holding wealth with a view to reduce tax evasion[91]. However, by 1972, private sector opposition (and, according to Solis, 1981, and Newell and Rubio, 1984, pressure from the Central Bank which feared capital flight) had forced the government to abandon any ambitious plan of tax reform. Changes in this area were limited to the imposition of a 15 percent tax on purchase of luxury goods and a small increase in the sales tax. Other government revenues lagged behind as real public sector prices continued to decline during 1970-73 (Clavijo, 1980). Their correction in 1974 left them only 7 percent above their 1970 level.

Table 6.1. Composition of federal public investment (percentages)

	Total	Agriculture	Industry	T. and C. 1/	Social	Other 2/
1965-70 (Díaz Ordaz)	100 (6.1)	11.0	40.1	21.8	25.2	1.9
1971-76 (Echeverría)	100 (7.3)	15.6	40.1	21.7	18.8	3.8
1977-82 (López Portillo)	100 (10.9)	15.7	50.1	14.4	13.9	5.8

Figures in parentheses refer to public investment as percentage of GDP
1/ Transport and Communications
2/ Includes administration, commerce and Tourism and “convenios de coordinación”

Source: Based on INEGI (1994)

Industrial policy diversified its objectives to give more emphasis to export promotion, the development of capital goods industries, regional decentralization of industrial activities and foreign investment regulation (see in particular, CEPAL, 1979, Solís, 1980, and the Plan Nacional de Desarrollo Industrial 1979-82). The new priorities were reflected in a number of policy reforms. Export promotion policies included the establishment of export subsidies (Certificados de Devolución de Impuestos, CEDIS) in 1971, and of tariff rebates on imported inputs of exporting firms, the expansion of short term credits provided by Fondo para el Fomento de las Exportaciones de Productos Manufacturados (FOMEX), and the creation in 1972 of Fondo de Equipamiento Industrial (FONEI) for the financing of export oriented investments, as well as of the Instituto Mexicano de Comercio Exterior (IMCE) in 1970 to strengthen export promotion efforts

[91] The plan was inspired in the failed 1964 tax package which was based on proposals by the Cambridge economist Nicholas Kaldor (for a detailed discussion of the 1964 and 1972 attempts at tax reform, see Solis, 1981).

and facilitate access to international markets. The concern for promoting a domestic capital goods industry inspired the 1973 tariff reforms, which increased the level of protection for that industry, and led to the replacement in 1975 of Rule XIV of the tariff legislation — which had traditionally provided subsidies on imported machinery and equipment — with subsidies on imported machinery for the production of new capital goods. Fiscal incentives were also revised and, through a unified framework (Certificados de Promocion Fiscal, CEPROFIS), afforded preferential treatment to the production and purchase of domestic capital goods, as well as to small firms and regionally decentralized activities. The period also witnessed a reactivation of the role of development banks in industrial financing. The 1973 law on Foreign Investment redefined the rules for the participation of foreign investors, including a general 49 per cent restriction on foreign ownership.

Temporarily, the strategy did have success in a number of fronts. After an initial slowdown triggered by a significant fall in public investment in 1971, in 1972 and 1973 GDP growth was above 8 percent per year (table 6.2) and recorded an average rate of 6.2 percent over the whole period 1970-1976. Private investment, after a slump in 1971, reacted positively to the recovery of public investment. Manufacturing exports responded to fiscal incentives and expanded at rates of around 14-15 percent in 1972 and 1973, well above the average rate of 5.4 percent per year in the 1960s (INEGI, SCN). Real wages increased by over 40 percent between 1970 and 1976 and the wage share soared from 35.5 to 40.3 percent over the same period (table 6.2). The evidence on personal income distribution, available for 1968 and 1977, shows a significant decline in the Gini coefficient from 0.54 to 0.49 (table A.7) Only in the agricultural front did the strategy fail to accelerate the growth of agricultural production which remained at about the same rate as that of the second half of the 1960s. This has been attributed to weather conditions, the slow start of agricultural development programs and their delayed impact, and the threat of land redistribution prompting larger farmers to switch towards more mechanized and lower value added crops (Solis, 1981).

Unfortunately, these achievements were accompanied by the emergence of severe macroeconomic imbalances. As changes in the level and structure of public revenue stalled, the burden of achieving a more equitable distribution of income was shifted to public expenditure. In five years, its share of GDP increased by more than ten percentage points (table 6.3), growing at nearly 12 percent per year during the whole Echeverría administration, almost twice the rate of growth of the economy (Bazdresch and Levy, 1991). The size of the public sector expanded rapidly — through both the increase in public expenditure and the rapidly expanding public

enterprise sector[92] —, even though by international standards it was not exceptionally large by the end of the administration[93]. To the extent that tax reform was not addressed, public revenues lagged behind despite an increased effort at tax collection which contributed to higher non-oil revenues (table 6.3). Thus, the primary fiscal deficit climbed from 0.5 per cent of GDP to 6.4 per cent between 1971 and 1975 (table 6.3). The financial deficit of the consolidated public sector soared from 2.5 to 10 percent of GDP (table 6.3) and was increasingly covered through monetary expansion and external debt. Foreign debt, mostly public, jumped from 7.5 billion US dollars in 1971 to 24 billion US dollars in 1976 (figure 6.1). In practice, foreign debt substituted temporarily for the lack of tax reform[94].

Inflation climbed to a two-digit rate in 1973 and was over 20 percent in 1974. Inflation was fuelled by the rapid expansion of public spending, the effects of the external oil shock in 1973, and also by negative agricultural supply shocks that turned the terms of trade in favor of agriculture. Moreover, by 1973 minimum wage settlements (and most likely other wage contracts) turned from biannual to annual tending to reinforce the inflation momentum. A consequence of the resurgence of inflation was that the boom in financial intermediation of the stabilizing development period went into reverse (Solis, 1981)

As domestic inflation accelerated above the foreign rate of inflation in the context of a fixed nominal exchange rate, the real exchange rate suffered a continuous and substantial appreciation (table 6.2). Together with the expansion of the fiscal deficit and aggregate demand this led to a six-fold increase in the deficit in trade in goods and services and to an over four-fold increase in the current account deficit from 1972 to 1975 (table 6.4). The deterioration of the international environment also had a role in these developments as the collapse of the world's Golden Age had its toll on the Mexican economy. The first oil price shock found Mexico as a net importer of oil and, together with the decline in external demand, contributed to the increase in the external sector disequilibrium while tightening the balance of payments constraints on growth. In fact, according to Zedillo (1986), external factors — terms of trade, foreign interest rates and world

[92] One hundred and eight public enterprises were created in the period 1971-76, many of which were small and included numerous funds and special trusts. By contrast, 83 public enterprises were created between 1952 and 1970 (Aspe and Beristain, 1984).

[93] For example, in comparison to Italy or France, Mexico's public sector was still relatively small (Newell and Rubio, 1984).

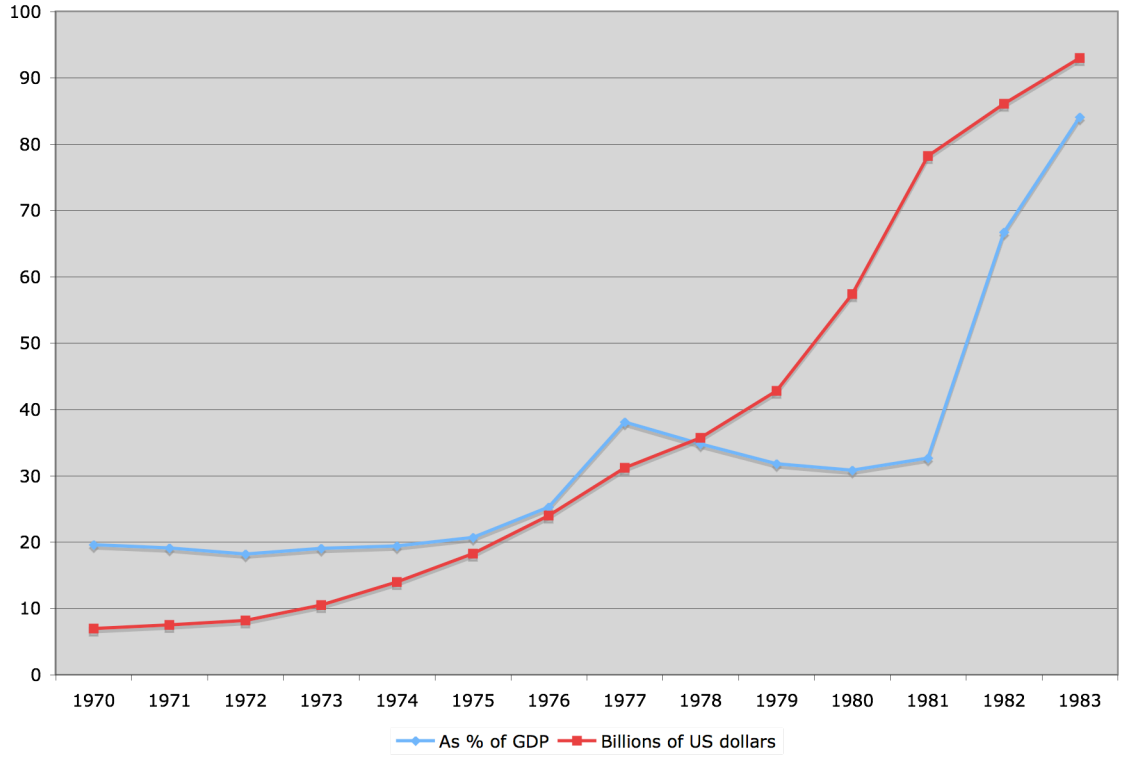
[94] The belief that development, especially social development, could be accelerated while sacrificing fiscal discipline was rightly criticized by orthodox economists at the time. See Solis (1977) for a forceful statement. With an additional objective, income redistribution, and no fiscal reform, the policy strategy was left with fewer instruments than targets, thus generating an explosive growth in foreign public debt which acted for a while as the additional instrument.

recession shocks — explained two thirds of the deterioration in the current account of the balance of payments between 1972 and 1975.

In addition, private enterprise did not find a fertile ground in the 'shared development' rhetoric and fixed private investment recorded a fall as a fraction of GDP (table 6.2). By 1975, the economy's expansion was being driven largely by public spending with the shares in GDP of public consumption and especially public investment well above its 1971 levels (table 6.2). As the macroeconomic environment became highly unstable, and in particular the reemergence of inflation led to an appreciated and volatile exchange rate, it destroyed the incentives provided by industrial policy. Manufacturing exports stagnated in 1974 and fell 15 percent in 1975 (INEGI, SCN) while the agricultural trade balance continued to decline. Without a competitive exchange rate, the strategy failed to deepen import substitution in the capital goods sector. The limitations of capital goods manufacturing were evident, for example, in the fact that during 1974-75 they accounted for less than 8 per cent of manufacturing output, while at the same time they represented more than 50 per cent of total imports. The share of imports in the domestic market started to climb as the investment process failed to diversify into new activities. Thus, the contribution of import substitution to industrial growth declined sharply and became even negative (see table A.6). GDP growth slowed down gradually starting in 1974.

Eventually, the situation worsened significantly as a result of capital flight driven by investors' anticipations of an unavoidable change in policy. Notwithstanding the increase in import controls and tariffs, balance of payments pressures forced the government to devalue the peso by nearly 100 per cent in August 1976, thus abandoning the exchange rate parity that had remained fixed for more than 20 years. For the first time since the 1950s, the government turned to the IMF for financial assistance and an extended fund facility was signed in late 1976. The contractionary effects of the devaluation — which led in particular to a fall in real wages and private investment in 1977 — together with the contraction in public investment in 1976 and 1977 further slowed down GDP growth which fell below 4 percent in 1977.

Figure 6.1. Total foreign debt, 1970-83



Source: OxLAD

Table 6.2. Macroeconomic performance, 1971-1983

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
GDP growth rate	4.2	8.5	8.4	6.1	5.6	4.2	3.4	8.2	9.2	8.3	7.9	-0.5	-5.3
Inflation [a/]	5.3	5.0	12.0	23.8	15.2	15.8	28.9	17.5	18.2	26.2	28.1	58.9	101.9
Nominal exchange rate [b/]	12.50	12.50	12.50	12.50	12.50	15.69	22.69	22.76	22.82	22.95	24.51	57.18	150.29
Real exchange rate [c/]	99.2	97.5	92.4	82.9	78.6	90.1	107.6	98.8	93.3	84.4	77.6	121.0	162.7
Terms of trade [d/]	98.6	98.3	101.1	98.2	106.6	136.9	222.5	214.4	239.0	296.9	288.6	262.3	236.4
Real wage [e/]	100.7	111.8	112.5	119.5	126.0	141.0	136.4	137.9	145.2	144.2	150.2	146.6	107.8
Wage share in GDP (%)	35.5	36.9	35.9	36.7	38.1	40.3	38.9	37.9	37.7	36.1	37.4	35.8	28.8
Composition of GDP (%)													
Private consumption	72.6	71.5	70.3	69.7	69.7	69.9	69.0	68.9	68.7	68.2	67.9	69.0	67.3
Public consumption	7.7	8.1	8.2	8.2	8.9	9.0	8.6	8.8	8.8	8.9	9.1	9.3	9.7
Fixed private investment	14.0	13.2	12.5	13.2	12.7	12.9	11.7	11.3	12.7	13.4	14.1	11.7	9.4
Fixed public investment	4.9	6.3	8.1	7.8	9.0	8.0	7.2	8.7	9.4	10.1	10.8	9.3	6.6
Change in inventories	1.9	1.7	1.9	3.9	3.0	2.3	3.5	3.0	2.8	4.6	5.1	0.5	1.0
Exports	7.7	8.3	8.7	8.2	7.1	7.9	8.8	9.1	9.3	9.1	9.0	10.2	12.1
Imports	8.8	9.0	9.7	11.0	10.4	10.1	8.8	9.9	11.7	14.3	15.9	10.1	6.2

a/ Consumer price index (yearly average)
b/ Pesos per dollar
c/ Using consumer price index in US and Mexico. Index 1970 = 100.
d/ Index 1970 = 100
e/ Yearly average wage (whole economy) deflated by consumer price index (INEGI, SCN and INEGI, 1994). Index 1970 = 100.
GDP and its components are at 1970 prices (INEGI, SCN)
Sources: INEGI, Sistema de Cuentas Nacionales; INEGI (1994); OxLAD (for terms of trade); Economic Report of the President (for US consumer prices).

Table 6.3. Public finance (% of GDP). Consolidated public sector.

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Revenues	18.4	18.7	20.2	21.1	23.2	23.8	24.6	25.9	26.7	26.9	26.7	28.9	32.9
Oil revenues	3.0	2.8	2.6	3.4	3.3	3.3	3.8	4.5	5.6	7.3	7.3	9.9	14.2
Non oil revenues	15.4	15.9	17.6	17.7	19.9	20.5	20.8	21.4	21.1	19.6	19.4	19.0	18.7
Expenditures	20.5	22.9	25.8	27.0	31.9	32.0	30.0	31.4	33.0	33.5	39.7	44.5	41.0
Current [a/]	14.6	15.4	17.0	17.9	21.0	20.7	19.3	19.5	19.5	19.8	21.4	25.1	20.7
Capital	4.3	5.7	7.0	7.2	8.6	8.0	7.6	8.7	9.8	9.6	12.9	10.2	7.5
Interest	1.6	1.8	1.8	1.9	2.3	3.3	3.1	3.2	3.7	4.1	5.4	9.2	12.8
Primary deficit	0.5	2.4	3.8	4.0	6.4	4.9	2.3	2.3	2.6	2.5	7.6	6.4	-4.7
Financial deficit [b/]	2.5	4.9	6.9	7.2	10.0	9.9	6.7	6.7	7.6	7.5	14.1	16.9	8.6

a/ Excluding interest payments
b/ Includes financial intermediation expenditures so that it is not equal to the difference between total expenditures and total revenues

Source: Bazdresch and Levy (1991), based on Dirección General de Planeación Hacendaria, SHCP (for 1971-76) and Indicadores Económicos, Banco de México (for 1977-83).

Table 6.4. Trade and the balance of payments, 1971-1983 (billion dollars)

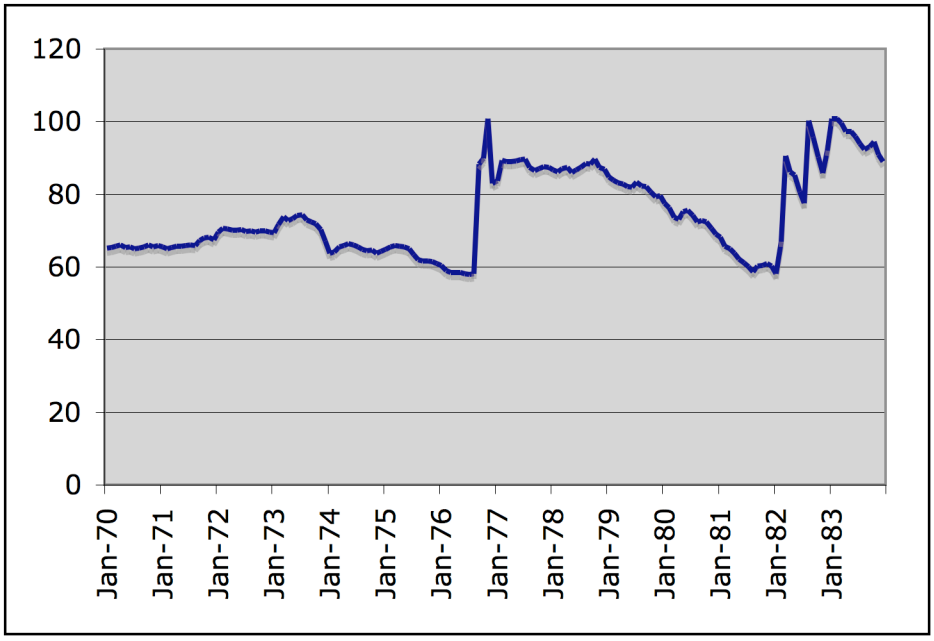
	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Exports (goods and ser.)	3.4	4.2	5.2	6.5	6.8	8.0	8.7	11.2	15.3	23.6	29.1	27.2	27.2
Goods	1.4	1.7	2.1	2.9	3.1	3.7	4.6	6.1	8.8	15.1	19.4	21.2	22.3
Services [a/]	2.0	2.5	3.1	3.6	3.7	4.3	4.1	5.1	6.5	8.5	9.7	6.0	4.9
Imports (goods and ser.)	3.9	4.7	6.1	8.8	9.9	9.9	8.6	11.5	17.1	26.2	34.3	21.8	12.8
Goods	2.3	2.8	3.9	6.1	6.7	6.3	5.7	7.9	12.0	18.8	23.9	14.4	8.6
Services [b/]	1.6	1.9	2.2	2.7	3.2	3.6	2.9	3.6	5.1	7.4	10.4	7.4	4.2
Trade balance	-0.5	-0.5	-0.9	-2.3	-3.1	-1.9	0.1	-0.3	-1.8	-2.6	-5.2	5.4	14.4
Income from abroad	-0.5	-0.5	-0.6	-0.8	-1.3	-1.7	-1.8	-2.2	-3.1	-4.6	-7.3	-10.3	-9.1
Current account balance	-0.9	-1.0	-1.5	-3.2	-4.4	-3.7	-1.6	-2.7	-4.9	-7.2	-12.5	-4.9	5.3
Long term capital balance	0.7	0.8	1.9	2.8	4.4	4.7	4.3	4.7	4.6	6.8	11.7	10.4	7.3
Short term capital balance	0.2	-0.4	0.2	1.0	1.1	0.4	-2.0	-1.4	-0.1	5.1	10.2	-1.8	-8.4
Errors and omissions	0.2	0.8	-0.4	-0.6	-0.9	-2.4	0.0	-0.1	0.7	-3.6	-8.4	-8.4	-0.9
Bank of Mexico [c/]	0.2	0.3	0.1	0.0	0.2	-1.0	0.6	0.4	0.5	1.3	1.1	-4.7	3.3

a/ Includes non monetary gold and silver
b/ Includes non monetary gold
c/ Includes SDRs

Source: INEGI (1994)

Figure 6.2 Multilateral real exchange rate, 1970-1983

(1990=100)



Source: Banco de México

The oil boom, 1978-1981

Despite the severity of the 1976 crisis, in a year or so the economy's prospects were fully turned around with the announcement of Mexico's vast oil resources[95]. The trade deficit was under control again in 1977-78, at levels below those in 1971-72. The term profile of foreign debt was restructured and, for a while, new indebtedness did not grow in a noticeable way. An ambitious industrialization plan, aimed at strengthening export competitiveness and deepening import substitution in capital goods, was launched on the assumption of a sustained long-term increase in the price of oil. An agricultural program (*Sistema Alimentario Mexicano*, SAM) strengthened support policies for peasant agriculture with the twin goals of stimulating food production, in order to reach self-sufficiency at the national level, and improving the nutritional standards of the poor population[96].

[95] Oil proven reserves increased from 6.3 billion barrels in November 1976 to 16 billion at the end of 1977 and to 40 billion a year later (Székely, 1983, cited by Cárdenas, 2000)

[96] Another poverty alleviation program, launched in 1977, was COPLAMAR (*Coordinación General del Plan de Acción de Zonas Deprimidas y Grupos Marginados*), a special group to work under the President's office direct supervision with the responsibility of coordinating all policy

A major attempt at tax reform was also carried out in this period, and these changes reduced some of the inequities of the Mexican tax system. An adjustment for inflation was introduced in personal income taxation. A value-added tax and a new corporate income tax were established. The tax base broadened as loopholes were closed, and the whole administrative and compliance process was simplified. The one to five minimum wage brackets went from contributing 58 per cent of labor income tax collections in 1978, to 28 per cent in 1981, whereas the contribution of the highest wage bracket (more than 15 minimum wages) went from 8 per cent to 25 per cent of the total[97].

The exploitation of the newly discovered oil resources in Southern Mexico and their sale in the international market would bring a swift and strong recovery. Indeed, from 1978 to 1981 economic growth recovered strongly leading to a period of economic expansion at rates well above the historical norm. Led by oil production (19.4 per cent annual growth) and oil exports (52.7 per cent

Table 6.5. GDP growth by sector (annual percentage growth rates), 1977-1983

	1977	1978	1979	1980	1981	1982	1983
Agriculture 1/	7.7	6.1	-2.2	7.2	6.1	-2.0	2.0
Oil and mining	6.8	13.3	14.1	21.7	14.6	8.7	-0.9
Manufacturing	2.9	9.8	10.2	5.8	6.4	-2.7	-7.8
Construction	-5.3	12.4	12.9	12.4	14.4	-7.1	-19.2
Electricity 2/	7.4	8.0	10.4	6.3	11.6	9.7	1.1
Commerce 3/	3.5	11.8	14.6	13.2	10.6	-0.9	-7.5
T and C	4.5	9.7	12.8	10.9	10.1	9.3	-2.6
Financial ser. 4/	3.7	4.6	5.6	4.7	6.3	5.0	3.9
Other services	3.3	6.1	7.8	7.5	7.6	3.5	3.0
Total GDP	3.4	9.0	9.7	9.2	8.8	-0.6	-4.2

1/ Includes livestock, forestry and fishing
2/ Includes gas and water
3/ Includes restaurants and hotels
4/ Includes insurance and real estate
GDP for whole economy and by sector are at 1980 constant prices.
Source: INEGI

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actions aimed at improving social conditions in marginalized communities. Funds were given to federal entities that, in turn, used them to promote development at the municipal level.

[97] For a detailed description, see Gil Diaz (1987).

annual growth), GDP expanded at around 9 per cent per year, and real national income — benefiting from the favorable shift in the terms of trade given by the oil price rise of 1979-80 — grew even faster (9-10 per cent) (Ros, 1987, see also table 6.5). In addition to the oil sector, transportation and construction, which benefited from an extraordinary investment boom, recorded double-digit growth rates. This time agriculture responded vigorously to the incentives provided by the government and its production expanded at nearly 5 percent per year from 1976 to 1981.

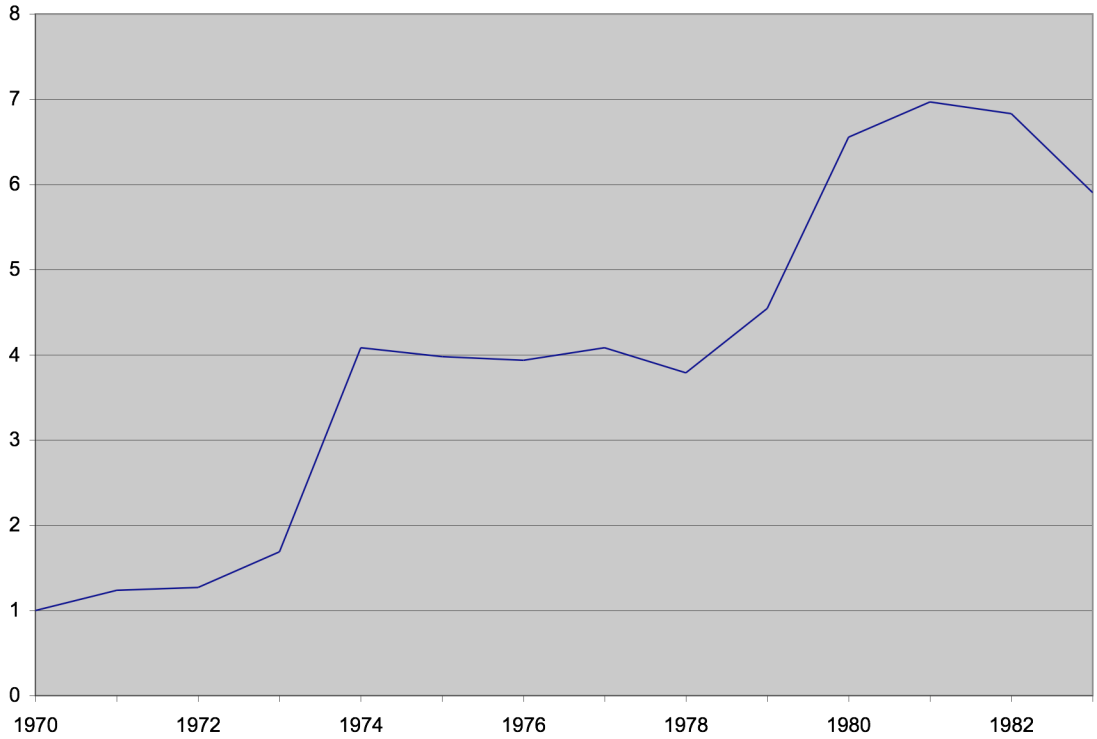
However, some signs were already worrying by the late 1970s. While the primary fiscal deficit remained subdued before 1981, it did so only in the context of a doubling of government oil revenues as a fraction of GDP (table 6.3) and thus of a very fast expansion of government expenditures (public investment, in particular, grew at rates of the order of 13 percent per year from 1976 to 1980). The inflation rate had reached a plateau of around 18 per cent and did not seem to climb down, contributing to a continuous real appreciation of the exchange rate (table 6.2). Eventually, inflation accelerated above 25 percent in 1980. Despite the extraordinary increase in oil exports there was a progressive imbalance in the balance of payments. The trade balance turned from a surplus of 0.1 billion of US dollars in 1977 to a deficit of 2.6 billion in 1980 while the current account deficit climbed to a record level of 7.2 billion in 1980 with rising interest payments on foreign debt having an increasing role. These increasing payments imbalances were financed through foreign debt, mainly public, which rose from US$31.2 billion in 1977 to US$57.4 billion in 1980 (see figure 6.1).

The pattern of growth presented some symptoms of Dutch disease that had their role in the increasing vulnerability and financial fragility of the economy. Although investment was very dynamic, its sectoral pattern was strongly biased in favor of the oil industry and the commerce and service sectors (table 6.6). With the exception of a moderate shift towards agriculture — which as already mentioned produced high returns in terms of agricultural output growth — public investment was strongly reoriented towards the oil industry which absorbed nearly one half of all public enterprise investment (compared with one third in the period 1970-77). Private investment, on the other hand, shifted radically towards services and distribution, and against manufacturing whose share declined from one half in 1970-77 to one third in 1978-80. It is not surprising then that in a boom period the growth of manufacturing output slowed down below the overall rate of growth, declining from 10 percent in 1979 to around 6 percent in 1980 and 1981. Moreover, few investments were directed to the manufacturing export sector, although two exceptions are worth noting: the motor-vehicle industry — where a new generation of plants was being built with state-of-the-art technology, explicitly designed to compete in the world markets — and the

petrochemicals sector, where the public sector was investing heavily. Thus, in spite of the ambitious industrial and development plans, the oil boom was very far from creating conditions in which the industrial sectors could take a leading role once oil revenues had ended an expansion which, from the beginning of the López Portillo regime, had been seen as temporary.

Figure 6.3. Real oil price, 1970-1983

(Index 1970 = 1.0)



Oil price divided by US producer price index

Source: OxLAD

The year 1981 witnessed a massive deterioration of the emerging macroeconomic imbalances. It is worth noting first that, against the background of increasing financial fragility and dependence on oil, international developments had played a destabilizing role. The doubling of the international oil price (figure 6.3) and the rise in foreign interest rates in 1979-80 had, on balance, a favorable short-term effect. Not only was oil export income twice what was originally projected but, for the same reason, the rise in interest rates was accompanied by an almost unlimited availability of foreign loans. The oil bonanza turned Mexico into a preferred customer of the international banks, and foreign loans were conceded in amounts and on conditions notably more

favorable than for the rest of the developing countries[98].

With hindsight, the nature of this first external shock was dramatically misinterpreted by the Mexican government (as well as by other economic agents). High and increasing real oil prices were taken to be a permanent feature of the international economy, while the increase in interest rates was interpreted as a temporary phenomenon. As an optimistic outlook continued to prevail during the first half of 1981, even though the US recession had started weakening the international oil market and foreign interest rates had continued to rise (the US prime rate reaching a peak of 19 per cent for 1981 as a whole), fiscal expansion was reinforced in 1981. This expansion was not only related to an error of diagnosis but was stimulated also by ready access to foreign finance and, as we shall discuss in greater detail later, by the particular phase in Mexico's political cycle: the fifth year of a six year presidential term when a rush set in to carry through the government's plans, and control over public expenditure was relaxed as the country entered a political period centered on the nomination of the next PRI candidate for the presidential elections to be held a year later. The inflation-corrected public sector deficit (5.6 percent of GDP) reached its historical peak in 1981, as did the real exchange rate (around 30 per cent appreciation above its historical level by the end of the year) (Ros, 1987). The financial deficit nearly doubled from 1980 to 1981 reaching a level of 14.1 percent of GDP (table 6.4).

The fiscal expansion, combined with the real appreciation of the exchange rate and the import liberalization started under the IMF stabilization program of 1976[99], led to a massive deterioration of the external accounts, in particular the balance of non-oil trade[100]. While non-oil exports had started falling in mid 1979, imports of goods had been growing at an extremely fast pace and increased by nearly 30 percent in 1981 (despite a reversal of the import liberalization program in the second half of the year). Thus the trade deficit doubled from 1980 to 1981 while the current account deficit reached a new record level of $12.5 billion.

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[98] Thus, from 1978 to 1981, while international bank loans to developing countries as a whole increased by 76 per cent, in the case of Mexico (already a very large debtor in 1978) they rose by 146 per cent (Frieden, 1984).

[99] Import liberalization included the progressive abandonment of import licenses and its replacement by tariffs and a general relaxation of controls over import licenses. Uncontrolled imports reached 40 per cent of the total import bill by the first half of 1981.

[100] There was much controversy over the relative weight of these three factors, particularly with respect to the role of import liberalization. See Eatwell and Singh (1981), Schatán (1981) and the papers by Bazdresch, Brailovsky and Singh in Barker and Brailovsky (1982).

Table 6.6. Composition of total public and private investment in 1970-77 and during the oil boom (1978-81)

Total investment	1970-77	1978	1979	1980	1981
Agriculture	7.3	8.4	7.5	7.2	na
Mining	2.2	1.6	2.9	3.1	na
Oil	11.2	20.7	18.4	19.0	na
Manufacturing	38.0	20.7	24.7	25.6	na
Electricity	8.1	10.1	9.5	9.8	na
Com. and serv.	33.3	38.4	36.9	35.3	na
Total	100.0	100.0	100.0	100.0	
Public investment (excl. central gov.)					
Agriculture	1.8	1.7	2.2	2.5	3.5
Mining	0.7	0.7	1.0	1.1	1.0
Oil	32.0	44.6	41.9	44.2	44.7
Manufacturing	14.2	9.8	14.3	11.6	15.2
Electricity	23.1	21.8	21.8	22.8	19.4
Com. and serv.	28.2	21.4	18.8	17.8	16.2
Total	100.0	100.0	100.0	100.0	100.0
Private non-residential inv.					
Agriculture	10.2	14.2	11.7	10.7	na
Mining	3.0	2.3	4.4	4.6	na
Oil	0.0	0.0	0.0	0.0	na
Manufacturing	50.8	30.3	32.8	36.1	na
Electricity	0.0	0.0	0.0	0.0	na
Com. and serv.	36.0	53.0	51.1	48.6	na
Total	100.0	100.0	100.0	100.0	

Source: Santamaría (1985)

Foreign debt financed the external gap and jumped from US$57.4 to US$72.2 billion in one year (figure 6.1). The debt structure, on the other hand, became increasingly vulnerable. Short-term foreign public debt jumped from $1.5 billion at the end of 1980 to $10.8 billion a year later (Zedillo, 1986). By 1981, short-term loans accounted for more than half of net external indebtedness. The

ratio of foreign debt interest payments to total exports rose from 27 percent in 1977-78 to 37 percent in 1981-82, although it is worth pointing out that this increase was fully explained by rising interest rates since the debt/export ratio shows a moderate decline over the same period (from 3.1 to 2.8). The financial fragility that developed over the period also affected the private sector. The boom in domestic demand and investment triggered a rapid growth of private indebtedness: the debt/capital ratio of large private firms rose from 0.9 in 1978 to 1.2 in 1981. More important, however, was the changed composition of this debt: the share of dollar-denominated debt in the overall debt of large private firms rose from 30 per cent in 1978 to 63 per cent in 1981[101]. The upsurge of long term foreign indebtedness by private firms in 1978-80 can be explained by the optimistic expectations prevailing about the exchange rate at a time when the rule of monetary policy was to set domestic nominal interest rates equal to foreign interest rates plus the expected devaluation of the peso implied by the gap between the spot and forward exchange rates in the Chicago futures market. Since, however, the actual mini-devaluations engineered by the Central Bank were not consistent with the (expected) devaluation implicit in its interest rate policy — the latter being much greater than the former — domestic interest rates remained for several years well above ex post interest rates abroad (expressed in a common currency).

The government's optimistic expectations were shared by international banks, which redoubled their lending to Mexico. However, official expectations were not shared by everybody else: after borrowing heavily from abroad in 1979-80, the Mexican private sector started an unprecedented speculative attack on the peso in the first half of 1981, and more than 20 billion dollars flew out of the country in a period of about 18 months. The magnitude of the capital flight is such that it absorbed as much as 54 percent of the increase in Mexico's total foreign debt (net of international reserves) in 1981 and 1982, generating growing political tension between the López Portillo government and the large private financial conglomerates.

Before turning to the denouement it is worth asking where had the entire oil windfall gone? Gavin (1996) has estimated that subsidies to the private sector were the main form in which the oil windfall was spent. This included domestic oil subsidies (about 70 percent of the oil windfall), by keeping PEMEX domestic sales at prices well below world prices, budgetary transfers to sectors such as agriculture, and non oil subsidies on publicly provided goods, such as electricity and transportation, that were channeled through the non oil state enterprise sector. It is this pattern of public sector response that made possible the private investment boom. In addition to the rapid expansion of domestic demand, private firms benefited from the large domestic oil and non oil

[101] See López (1985) and the 1981 survey of large private firms by the Oficina de Asesores del Presidente based on a sample of 2200 firms.

government subsidies as well as from an increasingly overvalued real exchange rate which reduced the relative price of imported capital goods thus increasing the profitability of investments for the domestic market (especially the market for non tradable goods sectors).

The 1982 debt crisis

At the beginning of 1982 the international price of oil was still falling (figure 6.3), capital flight was at its peak, and nearly half the country's foreign debt was due for repayment or refinancing over the following 12 months. Although import controls were re-imposed in mid 1981 and a 4 per cent cut in the 1981 budget was introduced, a more radical shift in economic policies was now unavoidable.

In February, the government decided on a fiscal contraction plus a devaluation package, maintaining the free convertibility of the peso. This was the starting point of the recession, and of a rapid acceleration of inflation (table 6.2). Thus, in 1982, for the first time since 1932, the level of economic activity fell, accelerating its decline throughout 1983. The fall in aggregate demand was led by private investment, affected by the stagflation effects of devaluation and by the fiscal and public investment contraction. The present and expected future profitability of investment was reduced, in particular, by the sharp increase in the price of imported capital goods and in the real value of firm's dollar liabilities resulting from the devaluation, together with the depression of the real market value of physical assets, determined to a large extent by the massive capital flight. The financial breakdown of Grupo Alfa, the country's largest industrial conglomerate, is the most representative and best-known example of the financial difficulties affecting, in early 1982, several large private firms with substantial dollar-denominated debts.

Although the trade balance became positive by the second quarter of 1982, the policy package was ineffective in stopping post-devaluation capital flight and the financial speculation which flourished in the absence of any kind of restriction on capital flows. Capital flight became by far the most important source of payment imbalances and, with foreign loans increasingly rationed, of the resulting fall of foreign reserves at the Central Bank. In August 1982, when the official reserves were almost completely exhausted, the flow of international lending to Mexico was suddenly interrupted. Dramatic new devaluations, together with the adoption of a dual exchange rate regime, followed and the government suspended payments on its foreign debt, signaling the beginning of the international debt crisis. It is in these circumstances, further complicated by mounting political tensions between the government and the large financial conglomerates, that in his last annual presidential address to the nation (September 1, 1982), López Portillo dramatically

announced the nationalization of the private banking system and the adoption of full exchange controls on capital flows (see, on the subject, Tello, 1984). It was too late, however, for the adoption of an exchange control regime: foreign reserves were exhausted and the international debt crisis had arrived.

What went wrong? The whole strategy had been based on: (1) the premise of a long-term foreign exchange and fiscal abundance from oil exports — and the 1979-80 oil price hike appeared only to confirm expectations that the era of high real oil prices had come to stay; and (2) the notion that the external debt problem was over, given the low real interest rates that had so far prevailed. Thus when in 1981 the oil market started to crumble and foreign interest rates drastically jumped upwards, both of these shocks were taken to be transitory, and thus to be dealt with by additional external finance. Indeed, the whole international economic environment that made the oil boom possible had been tragically misperceived (by the government, foreign banks and international financial institutions alike) and when this became clear Mexico suddenly became a highly indebted country, that is, an over-indebted borrower given the new levels of interest rates and export revenues with which the old debt had to be serviced.

It is worth speculating on the issue of a possible alternative course of events. Since mid-1981, two main alternatives to the prevailing inertia were put forward from different sides of the economic cabinet. The Ministry of Finance under David Ibarra (who remained in office until the devaluation of February 1982, when he was replaced by Jesus Silva Herzog) pressed for measures to rapidly correct the exchange rate and reduce the growth of public expenditure. In this view, the increasing trouble with the balance of payments, both in the current and in the capital accounts, was mainly attributable to the continuous real appreciation of the exchange rate and to the huge expansion of public spending. A second and different view, put forward at the Ministry of Industry and by other close collaborators of López Portillo, favored the adoption of direct controls on imports (as was done in June 1981) and on capital flows as the only effective policy response to the capital flight and to the external shocks coming from an increasingly unstable international economy. This position recognized the need for fiscal moderation — less emphatically than the former position — but for most of the period it opposed a maxi-devaluation on the grounds that it would simply exacerbate inflation and could even accelerate capital flight.

The policy debates of the period focused increasingly on these two options, but no major shift occurred during 1981 to head off the worst of all possible worlds: a huge fiscal expansion plus free capital mobility plus real exchange rate appreciation. The fiscal expansion of 1981 was, as we shall argue below, largely determined by the particular phase of Mexico's political cycle. But it

was also a policy mistake in that it was based, as we have seen, on a misinterpretation of international developments, and generated some of the incentives and the means for the massive capital flight. Given the extreme vulnerability of the Mexican economy at the time and, in particular, its external dependence on increasingly unstable oil and financial markets, we also tend to view the absence of any restrictions on capital flows as a major policy error of the period. With respect to the real appreciation, this was probably the unavoidable by-product of the oil boom and the 1981 fiscal expansion more than a policy mistake. However, when the growth of oil export revenues stopped, the real exchange rate became incompatible overnight with the simultaneous achievement of medium term growth and a viable balance of payments. In other words, the sustainable real exchange rate in the medium term was suddenly and radically altered by the new prospects of stagnating or falling oil revenues. A gradual correction of the exchange rate, with a temporary increase in foreign finance during the transition, would probably have been the economically less costly and socially more efficient way to deal with the problem. This would have required, however, that foreign finance to Mexico behaved counter-cyclically (with respect to the oil market), i.e. exactly the opposite of its actual behavior. In practice the pattern of external financing aggravated still more the extent of the real exchange rate adjustment.

Interpretations of the internal causes of the 1976 and 1982 crises

We turn now to discuss alternative interpretations of the 1976 and 1982 crises or, more precisely, of their domestic determinants having already highlighted the external factors that contributed to them. A first explanation attributes the crises to the model of industrialization followed by Mexico since the early 1940s. The argument runs as follows. The exhaustion of import substitution in the early 1970s caused a slowdown of growth and triggered political pressures to sustain growth through public spending leading eventually to large fiscal deficits and a balance of payments crisis. In turn, the exhaustion of import substitution comes in two versions. In the first, slow growth is caused by industrial inefficiency created by high protectionism (see Golub, 1991, for a review of the literature, as well as Kaufman, 1979, and Cárdenas, 1996). In the second, the opportunities for replacing imports by domestic production progressively disappear causing a slowdown of industrial expansion (see Boltvinik and Hernandez Laos, 1981)

Schlefer (2006) has a convincing critique of the first version. First, he argues, there is no evidence that industrial inefficiency increased during the 1970s. As we have seen in chapter 5 (table 5.12), total factor productivity in manufacturing grew 0.8 percent annually in 1960-1973 and then accelerated to 1.5 percent per year in 1973-1980. In the industrial sectors of the “difficult stage” of import substitution, TFP growth from 1973 to 1980 was particularly outstanding: it proceeded at

3.5 per year in the capital and durable goods sectors, faster than in the large advanced nations except Japan, and at 2.5 percent annually in chemicals and 3.2 percent in non-metallic minerals, in both cases faster than in any large industrialized country, Japan included (Schlefer, 2006). Export performance during the 1970s and early 1980s, before any trade barriers were removed, also sheds doubts on the supposed creeping inefficiency of the industrialization model. As argued by Schlefer, manufacturing exports grew on average 10 percent per year between the peak years of 1972 and 1984. Second, even if industrial inefficiency was causing a slowdown in economic growth, there is no evidence of a clear-cut relationship between the microeconomic distortions caused by protectionism and economic crises. Schlefer cites Rodrik's (1999) study of developing countries showing that those countries with large microeconomic distortions caused by protectionism and subsidies did not suffer economic crises any more than those with small distortions and also that countries that avoided the 1982 debt crisis had actually slightly larger distortions than those that suffered from it. He also compares two countries with relatively high protection, one with recurrent economic crises from the 1950s to the 1980s (Argentina) and the other with a record of outstanding macroeconomic stability during most of the 20th century and the only major Latin American country to escape from the debt crisis in the 1980s (Colombia). The difference has to do of course with fiscal and monetary discipline, which is not systematically tied to underlying structural problems.

Regarding the second version, it is true that using a Chenery-like decomposition of the sources of industrial growth into the expansion of domestic demand, export growth and import substitution, the contribution of import substitution is slightly negative in the 1970s after having been positive in the 1960s (see table A.6). But in this sense import substitution had become exhausted in the mid sixties when the import share in GDP reached a historic low (table 5.9). Yet, no recession or growth slowdown happened in the second half of the 1960s. There are, moreover, three additional problems with this version. First, the measured contribution of import substitution is not independent of the expansion of domestic demand: the faster domestic demand grows the more rapid is import growth other things being equal. And the most striking difference between the 1960s and the 1970s is precisely the sharp increase in the contribution of domestic demand to the growth of the industrial sector (see table A.6). Given the very fast growth of domestic demand during the 1970s it is not surprising that import coefficients tended to increase making the measured contribution of import substitution negative. Second, the model of industrialization followed in the 1970s was no longer one based exclusively on import substitution. As reviewed in this and the previous chapter, since the mid 1960s with the Border Industrialization Program that established the maquiladora regime, and certainly since the early 1970s with the establishment of export subsidies and the reorientation of fabrication programs to provide protection and duty-free

access to inputs in exchange for export commitments or foreign exchange balances, Mexico's industrialization model was well into the transition to an Asian-style mixed model combining protection of the domestic market with export promotion. Third, just as in the case of the links between protectionism, microeconomic distortions and economic crises, there is no compelling logic tying the disappearance of import substitution opportunities to the appearance of economic crises. There is not even evidence of a slowdown of growth in the genesis of the 1976 and 1982 crises, with the exception of a mild slump in 1971 when, nevertheless, the economy recorded a very respectable (by today's standards) 3.8 percent growth.

A second explanation focuses on populist economic policies. Were the 1976 and 1982 crises the outcome of macroeconomic populism? If by macroeconomic populism one understands macroeconomic policies of demand stimulation that fail to live within the constraints posed by the balance of payments and internal productive capacity leading to BOP crises and high inflation (Dornbusch and Edwards, 1991), then certainly they were. But such a definition of populism leaves unanswered the question of why the government lost fiscal and monetary discipline in the first place. Was the loss of economic stability the result of populist pressures on wages and public spending coming from labor unions and other social organizations (as may have been the case in classic cases of populism such as Perón and Alan García)? Framing the question in this way, the answer seems to be negative. As argued by Schlefer (2006), Mexico's political system at the time was immune to populist pressures given the complete control of peasant, labor and middle class organizations by the dominant party and the absence of meaningful electoral competitions. It is true that there was a labor insurgency led by the Democratic Tendency of the electrical utility workers during the Echeverria presidency. But it was negligible compared to the 1958-59 strike wave led by the railroad union, a powerful grass roots movement which was far from triggering a populist cycle. Moreover, it was largely prompted by the president himself and receded when he abandoned it. In addition, the insurgency was not concerned (unlike the 1958-59 movement) with wage demands, that could have triggered macroeconomic problems, but rather with union democratization.

The resilience of the Mexican state to populist pressures is also confirmed by the pattern of public spending which is not conditioned by the need to obtain external political support. Indeed, rather than increasing during election years, public spending and fiscal deficits (excluding debt payments) actually declined in 1976 and 1982 (table 6.7). The traditional political business cycle argument does not fit Mexico. This is not surprising given the absence at the time of a significant

electoral opposition[102].

What then? As shown by Schlefer, while there is no indication of a traditional electoral cycle in public spending, there is much evidence supporting a sui generis spending cycle by which public spending and fiscal deficits peak in the pre-electoral year when the internal party competition for the presidential nomination reaches its climax. Table 6.7, showing real public spending growth and the fiscal deficit as percentage of GDP (excluding debt service) from the mid 1960s through

Table 6.7. Public sector spending growth and budget deficits, 1966-1982
(excludes debt service)

	Real spending growth (percent per year)	Budget deficit (percent of GDP)
Diaz Ordaz		
1966	3	0.3
1967	9	0.7
1968	7	0.2
1969	13	0.7
1970	1	-0.2
Echeverría		
1971	7	0.5
1972	21	1.8
1973	25	3.5
1974	10	3.3
1975	27	6.5
1976	0	4.2
López Portillo		
1977	-2	1.8
1978	12	1.6
1979	17	2.0
1980	21	2.4
1981	22	7.2
1982	-8	0.6

Source: Schlefer 2006 (table 4-3)

[102] Haggard and Kaufman (1992, cited by Schlefer, 2006) argue, however, that even authoritarian regimes present evidence of the traditional electoral cycle in public spending as a means to legitimate their rule.

1982, illustrates the loss of control over public spending in the pre-electoral years of 1969, 1975 and 1981, and the corresponding increases in the fiscal deficit (excluding debt service), as the main contenders in the pre-electoral battles within the PRI attempt to build support for their candidacies. It is in the macroeconomics of elite conflict within a dominant party state, rather that in the macroeconomics of populism or in the exhaustion of the industrialization model that we must search for the internal causes of the crises.

7. The years of adjustment, the lost decade and the reform process

The Mexican economy was subject to two major external shocks during the 1980s: the 1981-82 debt crisis which increased foreign debt service and curtailed new external finance, and the 1986 oil price shock which dramatically deteriorated its terms of trade and cut off a major part of the country's foreign exchange and fiscal revenues.[103] These shocks generated acute imbalances in the balance of payments and the fiscal accounts. In addition, given that the rise in the US interest rate led to a contraction in the pace of expansion of the US economy and reduced its demand for imports, the adverse impact on the Mexican economy was exacerbated.

The strategies adopted to respond to the shocks can be summarized as follows. In the wake of the 1982 debt crisis, after the adoption of imports and exchange controls and the nationalization of the private banking system by the Lopez Portillo administration (discussed in the previous chapter), a very orthodox, stabilization-first strategy was adopted by the De la Madrid administration taking office in December 1982, with the aim of rapidly cutting the fiscal deficit and restoring price and balance-of-payments stability. This was supposedly to be followed by a gradual structural adjustment process that would induce an incremental reallocation of resources towards the production of tradable goods within a stable and growth-oriented macroeconomic framework. The orthodox approach prevailed up until mid 1985. Its main results were to slash the trade and current account deficits but the strategy failed to stabilize prices. With annual rates of inflation of consumer prices reaching three digit levels in 1986, policy shifted in favor of increasingly radical market liberalization reforms and a different approach to stabilization. In late 1987, the government accepted the failure of orthodox attempts at bringing down inflation, and opted for a rather heterodox approach to stabilization by launching the *Economic Solidarity Pact (the Pacto)* aimed at rapidly stopping inflation through a combination of wage and price controls, an exchange rate freeze, and tight fiscal and monetary policy[104]. All this was accompanied by an acceleration of market liberalization reforms, especially in the areas of trade, industrial policy and privatization. The Pacto proved to be a huge success in stabilizing inflation and helping to reactivate the economy. However, it gradually led to an overvaluation of the real exchange rate that was drastically corrected in 1994-95. But, before analyzing its achievements and limitations, we must examine in more detail the whole macroeconomic adjustment process of the Mexican economy in the 1980s.

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[103] Between 1981 and 1986 the terms of trade fell 46 percent. If the adverse impact of the rise in the interest rate on foreign debt is considered, their fall was 57 percent (Banco de Mexico, 1988).
[104] Similar heterodox plans were then implemented in Argentina, Peru and Brazil (see Alberro and Ibarra, 1987, and Edwards, 1995).

The years of adjustment and stabilization

The adjustment to the debt crisis

The size and speed of Mexico's external adjustment to the debt crisis was outstanding in the Latin American context. The turnaround of the trade balance was swift and massive — of the order of five percentage points of GDP. Indeed, with the economy entering a deep and prolonged recession, its trade deficit of US $3.8 billion dollars recorded in 1981 turned in the next twelve months into a surplus of US $7.1 billion. In 1983 it doubled to reach US $14.1 billion. The surplus in the current account of the balance of payments was somewhat less sizable given the large interest payments on external debt. In the same period, other large debtors, like Brazil and Argentina, were facing enormous difficulties in reducing their trade and current account deficits and were still very far from obtaining surpluses.

Two features of this adjustment should be highlighted as they help to explain its size and speed while at the same time revealing its long-term fragility. The first one refers to the role of oil revenues and can best be illustrated by a comparison with the Brazilian economy. To achieve equilibrium in its current account, Brazil had to then generate a surplus of US$ 20 billion in its non-oil trade balance to pay the interest on its external debt and to cover an oil import bill of the order of US $9 billion. Mexico, in contrast, with oil export revenues of the order of US $16 billion per year in 1983-84 — and through a drastic import compression — generated a massive trade surplus that more than compensated for the whole interest payments on external debt and achieved a surplus in the current account. Its non-oil trade balance was, at the same time, still recording a deficit of the order of US $ 5-6 billion.

The second feature is that the adjustment in Mexico's non oil trade balance was achieved more through a fall in domestic absorption — and thus in imports — than through an elastic response of exports. After several years of real exchange rate overvaluation, it was difficult to expect a strong expansion of non-oil exports in the short run. In any case, the fact is that Mexico's external adjustment was outstanding due to the brutal contraction of domestic spending (17 per cent between 1981 and 1983) and in particular to the collapse of public and private fixed investment (40 per cent). In the face of the enormous initial deficit in the private sector's trade balance and the low elasticity of overall export supply — the other side of the coin of the external surplus of the public sector and the dominance of oil in export revenues — the sharp exchange rate devaluation

in 1982 was bound to operate essentially through Hirschman and Diaz Alejandro effects[105], thus exerting a strong contractionary impact on private spending. Indeed, private expenditure fell by 15 per cent in those same years and to this was added the collapse of public investment (48 per cent) that was the main mechanism of adjustment of the fiscal accounts. All this is reflected in the strong contraction of imports, mainly intermediate and capital goods, whose contribution to the change in the non-oil trade balance was more than 70 percent (table 7.1). In just two years, the share of imports as a proportion of real GDP went down nearly ten points.

From a medium and long-term perspective, Mexico's external adjustment in this period did not contribute much to build a solid platform for high and sustained export led growth. As will be analyzed in this and the next chapter, local production did eventually reorient itself to sell much more in foreign markets. However, the renewed export drive became increasingly dependent on imported inputs and, thus, it did not build sufficient backward and forward linkages indispensable to pull the economy into a long-term path of high expansion. In fact, the moderate economic recovery in 1984-85, and the real exchange rate appreciation which accompanied it, slashed the trade surpluses obtained in 1983-84 and virtually sent the current account into a deficit.

The same factors behind the external adjustment are reflected in the evolution of public finances. The operational balance of the public sector turned from a deficit of 10 per cent of GDP in 1981 to a modest surplus in 1984. This remarkable adjustment was the result of the collapse of public investment (5.5 percentage points of GDP) and the increase in external public savings (2.3 percentage points), that is the difference between oil export revenues and interest payments on external public debt (table 7.1). By contrast, public disposable income of internal origin stagnated to the extent that by 1984 it was three percentage points of GDP below its 1980 level. Its weak evolution was due to the fact that the increase in indirect taxes and in the rates of public utilities was offset by a fall in direct tax collection — resulting from the Olivera-Tanzi effect during the acceleration of inflation in 1982-83[106] — and by the increase in real interest payments on

[105] The Hirschman effect refers to the redistribution of income caused by devaluation from residents to foreigners as a result of a trade deficit or from foreigners to residents as a result of a trade surplus. This effect had private-public sector implications since the public sector had a foreign exchange surplus and thus benefited from devaluation while the private sector had a trade deficit and was adversely affected by devaluation. The Diaz-Alejandro effect refers to the redistribution from wages to profits caused by devaluation. See Krugman and Taylor (1978) on the subject. Note too that in terms of assets, the private sector had probably a net creditor aggregate position because, as some estimates suggested, its total external debt may have been less than the total amount of its deposits abroad.

[106] The Olivera-Tanzi effect refers to the interaction between inflation and lags in tax collection that result in a fall of real tax revenues as inflation accelerates.

domestic public debt[107].

On the other hand, the increase of external public savings was to a large extent due to the effect of devaluations that increased the domestic currency value of the foreign exchange surplus of the public sector[108]. Other large debtors in Latin America saw exchange rate devaluations exacerbating their fiscal disequilibrium given that they increased the domestic currency value of their external debt service. By contrast, Mexico's abundant foreign exchange government revenues, which comfortably exceeded its foreign interest payments on public debt, implied that the devaluations had automatically a positive impact on fiscal net revenue. Together with the fall in public investment mentioned above, they led to the spectacular turnaround of the fiscal accounts even though domestic public savings scarcely increased[109].

The comfortable balance of payments position in 1983-84 and, at the same time, the difficulties in meeting inflation targets merely through contractionary fiscal and monetary policies, led to an increasing use of the exchange rate with counter-inflation objectives. However, the persistent appreciation of the peso in real terms it provoked — up through the first half of 1985 — plus the moderate recovery of domestic demand led, in turn, to a rapid decline of the trade surplus and the erosion of the operational fiscal balance. These difficulties were aggravated by a new wave of financial speculation, stimulated by the systematic failure in meeting the inflation targets and the increasing uncertainty in the international oil market. The result was a new foreign exchange crisis in July-August of 1985, which was met with a peso devaluation (by 20 per cent versus the US dollar) and more fiscal austerity.

The collapse of the oil market (1986-87)

The collapse in oil prices in early 1986 — which reduced by half oil export revenues — was met by strengthening fiscal adjustment measures and the pace of exchange rate depreciation. The exchange rate reached an unprecedented level of real undervaluation in 1987, even higher than in 1983, and more than twice its level in 1981 (figure 7.1). In turn, the operational deficit generated by this shock turned in less than 12 months into a surplus of almost 2 per cent of GDP,

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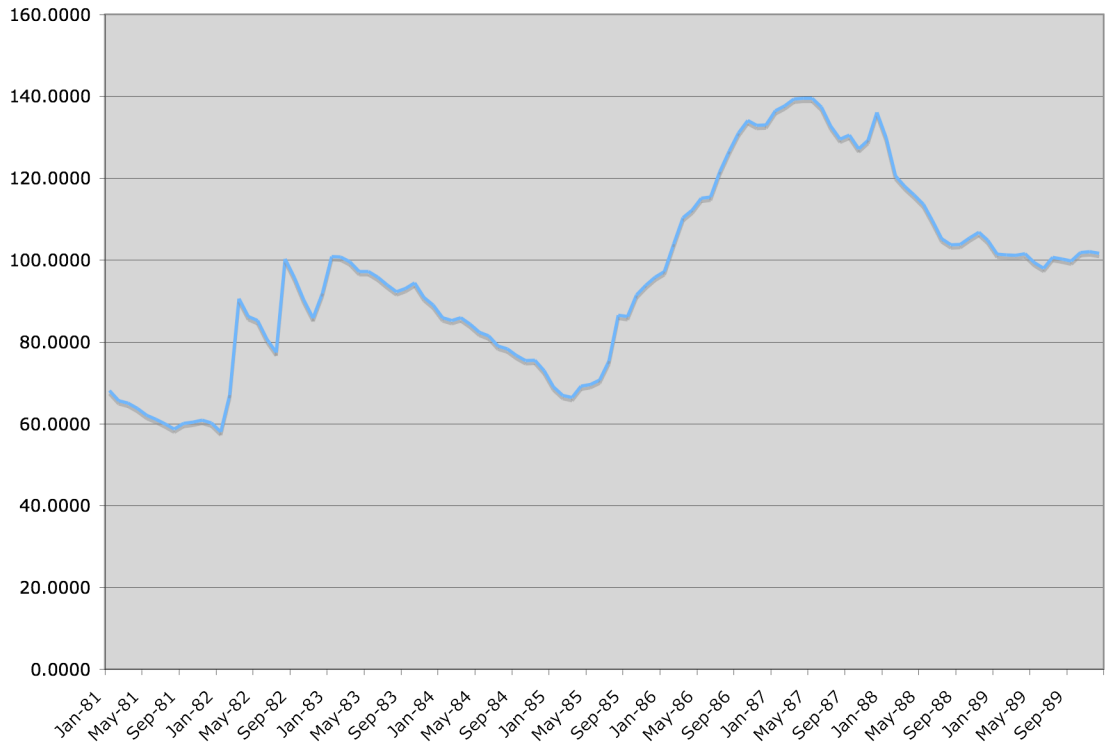
[107] It is worth observing, however, that exchange rate devaluations and the acceleration of inflation that followed had another positive fiscal effect by reducing the real value of domestic public debt. This meant that the real interest paid from then on was smaller than otherwise. See Ize and Ortiz (1987) and Reisen (1989).

[108] The other side of the coin was the contraction of private incomes and spending.

[109] Their increase was mainly due to the reduction of real wages of public employees, also linked indirectly with devaluations.

even larger than in 1983 notwithstanding the considerable loss of oil revenues.

Figure 7.1. Multilateral real exchange rate, 1981-1989
(1990=100)



Source: Banco de México

The adjustment of the external and fiscal accounts during the oil crisis differed from the previous one, four years earlier, to the debt crisis. Besides being smaller, the adjustment of the non oil trade balance was much more efficient: non-oil exports (mainly manufactures) — stimulated by the exchange rate variation just described — explained practically the whole adjustment that took place between 1984 and 1987. The minor role played by imports in the trade balance adjustment is explained by their already very depressed levels as well as the smaller initial deficit in the private trade balance and the smaller external surplus of the public sector, which moderated the contractionary effects of devaluation.

Fiscal adjustment was also very different in this episode. The oil market crisis led to a fall in external public savings of almost 4 percentage points of GDP which, added to the improvement by 2.1 percentage points in the operational surplus between 1984 and 1987, meant an internal fiscal adjustment of 6 percentage points of GDP. This adjustment took place, to a large extent, in

1986-87, and relied now much more on the increase in domestic public savings than in the fall in public investment, as it had done before. The higher internal savings were achieved largely though an increase in public disposable income (rather than a decline in public consumption), resulting from the fall in real internal interest payments and in current expenditures in transfers and subsidies and the larger operational surplus of non oil public enterprises (achieved through increases in the real public prices and rates and an additional reduction of real wages).

Not only did the results of the economic strategy adopted in 1986 differ from those of the adjustment to the debt crisis in 1982, but the hierarchy of objectives of economic policy was also not the same. In fact, the severity of the fiscal and foreign exchange constraints now left no option but to sacrifice the objective of price stabilization and instead maintain a strongly undervalued peso. The cost of the strategy was a higher rate of inflation which showed a tendency to continuously accelerate, reaching an annual increase of 160 per cent in 1987.

Eventually, as surpluses in the current account were reestablished and international reserves replenished, reduction of inflation became again the top priority in economic policy. The financial fragility created by high inflation contributed to this: the term structure of internal debt shortened progressively and, combined with the high nominal interest rates, made the domestic debt policy increasingly vulnerable to shocks in the domestic financial markets. Two such shocks took place in the second half of 1987: large external debt amortization payments by private firms and, in October, the collapse of the stock market followed by a new wave of speculation against the peso. With a new nominal devaluation of the peso in December, generalized wage demands and the prospect of a further increase in the frequency of wage adjustments — which had moved from yearly to quarterly revisions since the inflation acceleration of 1982 — hyperinflation became a real threat. Such concerns explain why policy makers tilted now in favor of a new effort at stabilization based on an alternative anti-inflation strategy: the *Pacto*.

The Economic Solidarity Pact and the achievement of stabilization

In December 1987, when De La Madrid´s presidency entered its last year, the government in coordination with unions and business organizations launched a heterodox stabilization program. This program had as its main target the rapid reduction of inflation through the de-indexation of key prices in the economy — initially a freeze of wages, exchange rate and public prices — additional measures of fiscal and monetary austerity, and an acceleration of trade liberalization.

The *Pacto* was successful in bringing inflation under control. Its end of year targets (1 to 2 percent

monthly inflation) were met, in fact, a few months after its implementation. The annual inflation rate, which had reached 160 per cent in 1987, fell to 20 per cent in only two years. These achievements were made without further aggravating the contraction of average real wages. Moreover they occurred in the context of a moderate recovery of private investment and economic activity. The success of the program, together with the foreign debt relief agreement in 1989 (Brady plan) and the turnaround in the capital account of the balance of payments, allowed the government to meet its exchange rate policy targets and even to reduce the daily rate of mini-devaluations which resulted, however, in a continuous real appreciation of the peso (see figure 7.1).

Trade performance dramatically changed during the stabilization and recovery from 1988 onwards. Exports became clearly dominated by manufactures, and rapidly grew. But given the surge of imports, the overall trade balance soon and systematically began showing red figures. Stimulated by foreign debt restructuring, capital inflows acquired massive proportions and helped to finance a current account deficit in continuous expansion. The import boom was such that, despite the sustained dynamism of non-oil exports, the trade balance massively deteriorated. By the early 1990s it was clear that the composition of imports had also been modified remarkably compared to ten years earlier. While those of consumption and intermediate goods had rapidly risen (respectively $3 and $9 billion dollars above their level in 1981) purchases of capital goods were barely recovering their initial values in current dollars.

The upward trend in public revenues, which began in 1986, continued due to an expansion of the tax base, the renewed impulse of economic activity, improvements in fiscal administration and the operation in reverse of the Olivera-Tanzi effect. This increase, together with the fall in current spending, strengthened domestic public savings. However, the effect was fully offset by an equivalent erosion of external public savings linked to the fall in the domestic currency value of the foreign exchange surplus of the public sector caused by the real appreciation of the peso that began in 1988 (table 7.1 and figure 7.1).

One implication of our analysis is that, contrary to conventional wisdom, the *Pacto* turned out to be a successful price stabilization program without further fiscal adjustment. This expression may in some ways appear as an exaggeration. It may be argued, indeed, that the huge primary surplus since 1987 contributed to the relaxation of the credit rationing that the government had been facing and, to this extent, to the turnaround of the capital account that made viable the prices and incomes policy of the program. However, it is also true that without this policy the turnaround would not have occurred and that, as we shall see, there was no additional net fiscal

adjustment (once the effects of the reduction of inflation are taken into account) after 1987. In our view, Mexico's macroeconomic structure in those years featured multiple equilibria and, in those conditions, prices and incomes policy had a fundamental role in moving the economy from the high inflation to the low inflation equilibrium.

Table 7.1. External and fiscal adjustments in three periods

	Changes during the period		
	1981-84	1984-87	1987-91
Billions of US dollars			
Trade balance [1/]	19.9	-3.5	-18.4
Oil exports	2.0	-8.0	-0.2
Non oil trade balance	17.9	4.5	-18.2
Non oil exports [2/]	2.2	4.9	9.4
Imports	-12.7	1.0	25.3
Consumer goods	-2.0	-0.1	5.3
Intermediate goods	-5.7	1.0	14.4
Capital goods	-5.0	0.1	5.6
Non factor services [3/] (net)	3.0	0.6	-2.3
In per cent of nominal GDP			
Operational fiscal surplus	9.7	2.1	0.7
Public savings	4.2	0.7	0.0
External	2.3	-3.9	-0.8
Internal	1.9	4.6	0.8
Public investment	-5.5	-1.4	-0.7
Public consumption	-1.5	-0.7	-0.4
Internal disposable income	0.4	3.9	0.4

1/ Includes non factor services
2/ Includes maquiladora exports
3/ Excludes maquiladora exports

Source: Ros (1992) based on Banco de México, Indicadores Económicos

Indeed, during 1988-91, the operational deficit of the public sector was higher by two percentage points of GDP than in 1987, essentially as a consequence of the higher real interest rates on domestic public debt. The primary fiscal surplus did improve, but by 1991 it was only 1.3 percentage points of GDP higher than in 1987, a magnitude similar to that of the effects of 1987

inflation on tax collection, financial subsidies and the composition of the public debt[110]. The fall in the inflation tax during the stabilization process was not, therefore, compensated by an increase in the operational surplus. The expansionary effect of that reduction led to a deterioration of the current account and a sharp decline in international reserves (a loss of 3.4 percentage points of GDP). Such reserve losses threatened to compromise the exchange rate rules of the program. However, this pressure was eased given the turnaround of external savings from 1989 onwards.

In synthesis, in our view the crucial differences of the *Pacto* with respect to previous failed attempts at price stabilization were the use of incomes policy as a centerpiece, the availability of external finance and an initially highly undervalued peso that made the inevitable exchange rate appreciation less damaging.

Mexico's adjustment in the Latin American context

Just as Mexico, all the other large Latin American debtor countries faced external and fiscal disequilibria as a result of the external shocks of the 1980s. Closing these gaps involved two different problems. First, for the economy as a whole and given the sharp decline in external financing, it implied generating a foreign exchange surplus large enough to compensate for the increased debt service and the deterioration of the terms of trade. This is the external transfer problem. Its magnitude was determined by: i) the initial level of indebtedness, ii) the severity of the external financing contraction in the post crisis period, iii) the significance of the terms of trade losses, iv) the degree of openness of the economy, and v) the composition of exports and imports. The first two determined the size of the financial transfers abroad. The third determined the additional real resource transfers, while the characteristics of foreign trade affected the magnitude and effectiveness of the devaluation required to close the foreign exchange gap.

Moreover, in order to tackle the external transfer problem, the government had to generate sufficient domestic savings since most of the debt was either public or guaranteed by the government and the fall in the terms of trade implied, in general, a loss of public sector revenues. This is the internal transfer problem that appeared as a fiscal adjustment problem given the acute credit rationing faced by the public sector. It implied that in order to undertake efficiently the external transfer, i.e. without relying on excessive contractions of domestic output and on the use of the inflation tax, the traditional measures of reducing absorption combined with a devaluation were not sufficient. A non-inflationary mobilization of the transfer required in addition a

[110] The sum of the three effects was 1.2 percentage points of GDP, the Olivera-Tanzi effect on tax collection (0.9 percentage points) being the most important one (Banco de México, 1989).

redistribution of income from the private to the public sector, that is, it specifically required an increase in public savings. This implied a “third gap”, the fiscal constraint in the literature on three gap models[111].

The severity of the internal transfer problem was partly determined by the magnitude of the external transfer one. The stronger the external shock, the larger the fiscal effort necessary to undertake a non-inflationary mobilization of the transfer. Moreover, the exchange rate adjustments required to close the external gap had important fiscal implications which depended on the foreign exchange balance of the public sector, the currency composition of public debt and the degree of indexation of domestic financial markets (which determined the extent to which the increase in real terms in the foreign debt service was more or less offset by a reduction in the real value of domestic debt). The fiscal effort to be undertaken as a result of the external shock can be seen as the initial fiscal shock — at the exchange rate prevailing before devaluation — more or less the losses or gains of disposable public income associated to devaluation and the changes in the real value of domestic debt.

On the other hand, together with the nature of the fiscal effects of devaluation, the inflationary implications of the fiscal and external shocks were affected by the degree of indexation of the tax system and the system of price and wage determination, as well as the state of local financial markets. A high degree of indexation of prices and wages and long fiscal lags tended both to exacerbate the acceleration of inflation necessary to undertake a given real exchange rate adjustment. A low initial demand for domestic financial assets made the redistribution of savings to the public sector through bond finance and seignorage more difficult.

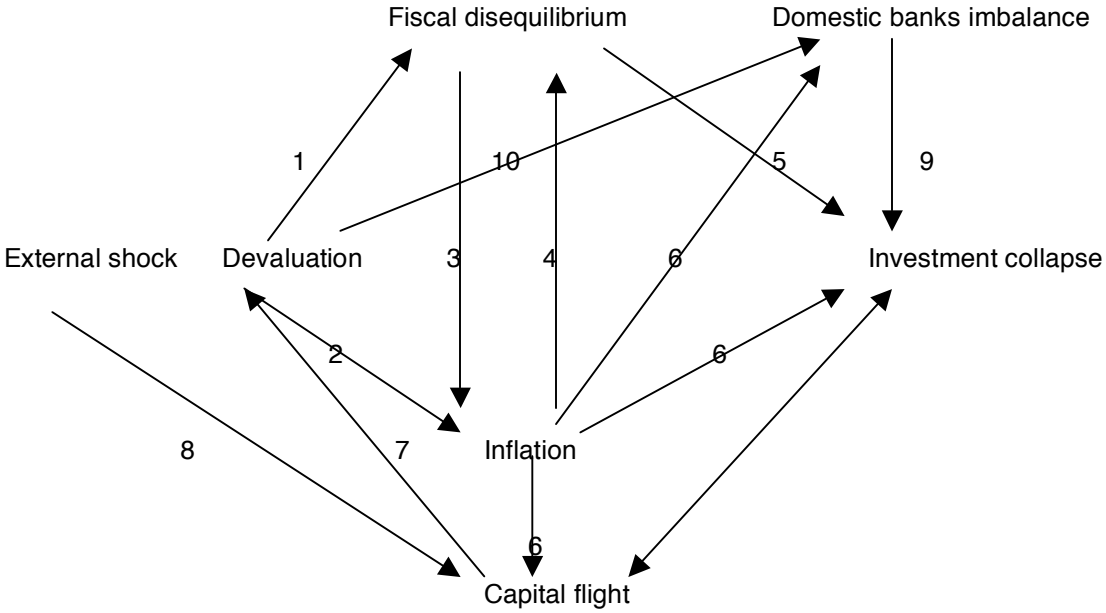
Before looking at the implications of all this for the adjustment in Mexico, it is convenient to synthesize in a diagram the main forces which tended to generate a vicious circle of macroeconomic instability and stagnation of investment and economic activity as a result of the interaction between the fiscal and external dimensions of the shocks of the 1980s (figure 7.2).

The vicious circle described in the diagram was put in motion, to a greater or lesser degree, in all large Latin American debtor countries. It implied, as a common characteristic of their adjustment processes, a sharp reduction in the effectiveness of the traditional instruments of macroeconomic policy. Macroeconomic policy thus oscillated between the Scylla of a liquidity trap in the market for foreign assets and the Charybdis of a domestic debt trap in the local market for government

[111] The classic papers are Bacha (1984, 1990), and Taylor (1994).

bonds (see, on the subject, Ros, 1991a). However, although the vicious circle described and the resulting ineffectiveness of economic policy were present across Latin America, the size of the external and fiscal shocks and the intensity with which they acted and interacted were different from country to country.

Figure 7.2. The vicious circle of instability and stagnation



1) Fiscal effects of devaluation
2) Price and wage indexation
3) Monetization of fiscal deficit
4) Olivera-Tanzi effect
5) Fiscal constraints on public investment
6) Uncertainty and resource allocation effects
7) Higher burden on the current account
8) Default risk and fiscal rigidities
9) Credit rationing from domestic (private & development) banks
10) Impact of devaluation on banks´ balance sheets

In Mexico, the external transfer problem was particularly acute. As in the other debtors (with the exception of Chile), the financial transfers abroad were enormous, of the order of one third of total exports on average during 1983-89. In addition, there were the real resource transfers derived from the terms of trade losses following the oil price shock in 1986. Also worth noting is that in the period preceding this shock, the dominant presence of oil in total exports magnified the size and reduced the effectiveness of the devaluation required to close the external gap.

Given the size of the external shocks, aggravated by capital flight only comparable to those of Argentina and Venezuela in Latin America, Mexico's internal transfer problem appeared to be equally acute. There were, however, two attenuating factors. First, the fiscal effects of devaluation were positive in Mexico and, unlike in Brazil and Argentina, they reduced the internal transfer problem. Second, the initial conditions — a past of moderate inflation, relatively low degrees of indexation in the system of price and wage determination, and a large room for maneuver in wage policy — were far more favorable in the Mexican case than in economies with chronic inflation, high degree of indexation and relatively demonetized financial systems[112].

In sum, the peculiarity of the Mexican price stabilization experience was the combination of an acute external transfer problem — as in other large debtors but exacerbated by the oil price collapse and the initial inelasticity of exports — with a relatively minor internal transfer problem. The solution of the latter was facilitated by the considerable foreign exchange surplus of the public sector, the moderate initial inflation, low initial degrees of wage/price indexation and de-monetization, and the relative absence of a strict wage constraint like that prevailing in other Latin American countries. Mexico's then peculiar situation was due to the fact that the initial current account deficit in the balance of payments had as its financial counterpart a deficit of the public sector and as a trade component a deficit of the private sector (with a foreign exchange surplus of the public sector). These features had profound implications for the fiscal adjustment and explain Mexico's better performance in bringing down inflation when compared with Brazil and Argentina, the two other large debtors that faced an acute internal transfer problem. The differences should not be underestimated. While in Mexico the 1982 devaluations explain almost the whole increase in public savings, in Argentina their fiscal effects determined an expansion of the fiscal deficit of 5 percentage points of GDP, and in Brazil of 2 percentage points (Reisen and van Trotsenburg, 1988). If we consider in addition the differences in the degree of indexation and demonetization of the local financial system, it is not necessary to go beyond the stabilizing effects (in one case) and destabilizing impact (in the other) of exchange rate adjustments in order to account for the enormous differences in the evolution of inflation.

These features magnified, however, the external adjustment problem and explain why, especially

[112] For example, before the 1982 crisis the frequency of wage adjustments in Mexico was annual, in Brazil biannual, and in Argentina it was moving from quarterly to monthly. In Mexico, the coefficient of wage adjustment to past inflation in 1983 fell below 0.5 and remained below 1.0 from then on. Money balances in the first quarter of 1982 were equivalent to 10 percentage points of GDP, while in Brazil and Argentina they were respectively 5.8 and 4.9 (Reisen and van Trotsenburg, 1988).

in the first stage, this adjustment was achieved more through a reduction of absorption than through an elastic response of the trade balance to devaluations. The initially dominating presence of oil in exports reduced their overall elasticity. For that reason as well as for representing simultaneously fiscal and external income, oil revenues exacerbated the devaluation's contractionary effects on private spending. In these conditions, it is no surprising to find in the Mexican experience (together with that of Venezuela with similar characteristics) one of the largest declines in investment in Latin America (see table 7.2). This in turn explains why, despite a much lower inflation than Brazil's or Argentina's, the growth performance of the Mexican economy was not significantly better (and was in fact much worse than Brazil's from 1983 to 1989).

Table 7.2. Gross fixed investment as percent of GDP in selected Latin American countries

	1979-81	1982-89
Colombia	16.6	17.5
Chile	17.8	17.1
Peru	24.8	22.7
Brazil	22.9	20.3
Latin America and Caribbean	23.2	19.3
Mexico	**24.9**	**18.9**
Venezuela	26.6	19.8

Source: World Development Indicators database. Data not available for Argentina.

The lost decade

By the early 1990s the foreign exchange and fiscal gaps that were opened by the debt crisis and the oil shock had been closed. But the legacy of these external shocks had been harsh. The adjustment to these disequilibria led to an interruption of the growth process and left a legacy of reduced living standards. From 1982 to 1988 the average rate of expansion of real GDP was zero, falling in per capita terms more than 15%, and average inflation was nearly 90 per cent. Total wage income declined an average of 8.1 per cent per year between 1983 and 1988 with the sharpest declines — 24.6% in 1983 and 10.7% in 1986 — occurring during the two years of deepest economic crisis. Over the same period, government expenditures on education and health dropped by a cumulative 30.2% and 23.9% respectively (Lustig, 1992) reflecting lower wages and public investment in the social sectors. While infant mortality continued to decline and the average number of years of schooling continued to increase (although at a slower rate than in

Table 7.3. Macroeconomic peformance from 1980 to 1990

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
GDP growth rate (%) a/	8.2	8.8	- 0.6	- 4.2	3.6	2.6	- 3.8	1.7	1.2	3.5	4.5
Inflation rate (%) b/	29.9	28.7	98.8	80.8	59.2	63.8	105.8	159.2	51.7	19.7	29.9
Real exchange rate c/	100.0	92.1	136.4	154.1	135.8	136.2	176.8	178.0	143.6	135.8	129.2
Real wage d/	100.0	101.5	92.5	78.6	72.1	71.0	64.0	60.8	53.6	49.4	43.4
Wage share (%)	36.0	37.5	35.2	29.4	28.7	28.7	28.5	26.8	26.0	25.5	25.0
Composition of GDP (%)											
Private consumption	65.1	64.2	63.0	62.3	62.1	62.7	63.3	62.4	68.3	70.3	71.2
Public consumption	10.0	10.2	10.5	11.2	11.5	11.2	11.9	11.6	11.4	11.2	11.0
Fixed private investment	14.1	14.5	12.4	10.0	10.5	11.4	10.6	11.2	11.7	11.8	12.8
Fixed public investment	10.7	12.0	9.8	6.6	6.6	6.5	5.7	4.9	3.9	4.0	4.2
Change in inventories	2.4	2.2	- 0.3	0.1	- 0.0	0.4	- 1.4	- 0.7	2.5	1.8	1.7
Exports	10.7	11.0	13.5	16.0	16.3	15.2	16.2	17.6	13.8	14.1	14.1
Imports	13.0	14.0	8.8	6.1	6.9	7.5	6.8	7.0	11.7	13.2	15.0

a/ GDP is at 1980 constant prices
b/ End of year (December-December). Consumer price index.
c/ Using consumer prices indices in US and Mexico. Index 1980=100
d/ Average wage (whole economy) deflated by consumer price index (INEGI, SCN and INEGI, 1994). Index 1980 = 100

Source: INEGI, SCN; Banco de México, The Mexican Economy, 1994 and 1995; Solís (2000); and NAFINSA. La Economía Mexicana en Cifras, 11a ed

the past) some social indicators deteriorated reflecting a worsening of nutritional conditions and educational standards. For example, infant and preschool mortality associated to nutritional deficiencies increased from 1982 onward after years of steady decline. The fall in the number of children registered for the first year of grammar school between 1981 and 1984 was larger than the population decline of the relevant age range. The crisis and its aftermath left Mexico with a relatively impoverished middle class, an increasing number of poor households, and probably with the poorest worse off than before. Indeed, during the 1980s the share of the population living in conditions of poverty increased approximately 10 percentage points to reach 48% by the end of the decade (Uthoff, 2007).

Moreover, the collapse of public and private investments in the wake of the debt crisis and the loss of foreign exchange and fiscal revenues after the 1986 oil shock — together with the stagnation of productive activity and the contraction of the population real incomes — adversely affected the economy's growth potential by reducing the domestic savings rate and producing an ageing of the capital stock and lower overall economic efficiency[113]. This has adverse effects on international competitiveness, particularly serious within the context of the drastic trade liberalization then implemented. In synthesis, the economy emerged weaker, rather than stronger, after nearly ten years of crisis and adjustment.

The reform process

In addition to the difficult processes of macroeconomic adjustment, the 1980s and early 1990s witnessed a complete overhaul of the development strategy. This overhaul was rooted in many policymakers' view that the 1982 debt crisis was the consequence of the years of trade protectionism and heavy state intervention that had traditionally marked Mexico's development during the post war period. Thus, as in other Latin American countries, but sooner and faster than in most of them, the government in Mexico undertook a far reaching program of economic reforms in different areas: trade and industrial policy, foreign investment and capital account liberalization, privatization of public enterprises, financial liberalization and deregulation of domestic economic activities.

Trade policy reform

The first stage of trade policy reform began in early 1984 with a moderate liberalization of the

[113] For a detailed analysis, see Ros (1993).

import regime. Direct import controls, which had been fully reestablished in mid 1981, were relaxed (the value of imports subject to licenses fell from 100 to 83 per cent) while the number and dispersion of tariffs was also cut down. The disappointing performance of non-oil exports during the first half of 1985, coupled with the failure in meeting inflation targets, led the government to soon accelerate the pace of import liberalization. As part of the devaluation cum fiscal adjustment package of July 1985, trade policy reform accelerated. The coverage of import licenses was reduced to 37.5 per cent. The liberalization of direct controls affected mainly intermediate and capital goods as well as, more selectively, some consumer goods. At the same time, to compensate for the elimination of licenses, tariff rates were increased while their dispersion was reduced. By 1986, 90 per cent of dutiable imports was subject to three rates (Zabludovsky, 1990).

A GATT membership agreement was negotiated and signed in July 1986. Mexico pledged to continue the replacement of import controls by tariffs (which by then was well advanced), followed by tariff reductions, and a system to assess anti-dumping and countervailing duties was introduced. In addition to obtaining the advantages of GATT membership, the agreement was viewed by the administration as a means of strengthening the private sector's confidence in the government's long-term commitment to trade liberalization.

Table 7.4. Import licenses and tariffs

	Import license coverage [1/]	Tariff mean (unweighted)	Trade-weighted average tariff	Dispersion	Number of tariff rates
1982	100	27.0	16.4	24.8	16
1983	100	23.8	8.2	23.5	13
1984	83.5	23.3	8.6	22.5	10
1985	37.5 [2/]	25.5	13.3	18.8	10
1986	31 [2/]	22.6	13.1	14.1	11
1987	26 [3/]	10.0	5.6	6.9	5
1988	20 [4/]	10.4	6.1	7.1	5
1989 [5/]		13.1	9.8	4.3	5

1/ As percent of import value
2/ June
3/ May
4/ April
5/ To March 9, 1989

Sources: Balassa (1985), de Mateo (1988), USITC (1990), Zabludovsky (1990)

Trade liberalization was deepened again at the end of 1987, in the context of the Economic Solidarity Pact. This time, import licenses were abolished for a large part of consumer manufactures and the tariff system was considerably simplified. Tariff dispersion was reduced to a range of 0 to 20 percent, with only 5 rates, while the average tariff fell to 10.4 percent (non-weighted average) and to 6.1 (import value-weighted tariff). Reform included also abolishing all the remaining official prices on imports, which had traditionally constituted the basis for the payment of tariffs. The sectors that remained protected after these measures represented around 25 per cent of the total tradable production, mainly agricultural products and a few manufacturing industries that were still under industrial promotion programs (especially the automobile industry).

The culminating phase of Mexico's trade reform was the North America Free Trade Agreement (NAFTA). When NAFTA negotiations started in 1990, Mexico was already one of the world's developing economies most open to foreign trade (OECD, 1992). The end of the negotiations and the signing of the agreement by Canada, the United States and Mexico came in late 1992, with the treaty becoming effective in January 1994. With NAFTA, the three parties committed themselves not only to the elimination of tariff and non-tariff trade barriers to intra-regional trade, but also to loosening restrictions on foreign investment over the next ten years. For Mexico, in particular, it entailed additional steps to deepen the unilateral trade liberalization process that it had started nearly ten years before, but now in a *quid pro quo* fashion with the US agreeing to open up its domestic market to Mexican products. Nonetheless, Mexico did keep some trade restrictions in certain sectors (equivalent to close to 7 percent of the value of imports), with the promise of having them gradually phased out. These sectors included agriculture, particularly in corn production (where it was feared that fast liberalization would lead to massive labor migration), oil refinery (due to sovereignty considerations) and transportation equipment industry (where automobile enterprises had made investment decisions based on industrial programs that guaranteed protection in exchange for achieving trade balance-related performance targets).

The official rhetoric on NAFTA identified it as an ambitious step forward in the region's route towards integration. As stated in Article 102 of the Agreement, NAFTA's initial objectives were to:

> Eliminate barriers to trade in, and facilitate the cross-border movement of, goods and services between the territories of the Parties; promote conditions of fair competition in the free trade area; increase substantially investment opportunities in the territories of the Parties; provide adequate and effective protection and enforcement of intellectual property rights in each Party's territory; create effective procedures for the implementation and application of this Agreement, for its joint administration and for the resolution of disputes; and establish a framework for further trilateral, regional and multilateral

cooperation to expand and enhance the benefits of this Agreement.

In our view, the Mexican government saw NAFTA as an instrument to achieve three goals. First, the Agreement was thought to have the potential to boost Mexico's trade with and FDI flows from the United States and Canada. Second, NAFTA was to induce local and foreign firms (both within and outside of the NAFTA region) to invest in the production of tradable goods in Mexico in order to exploit the region's potential as an export platform to the United States. The belief was that such an investment would launch Mexico into a phase of high and sustained economic growth led by exports. The third, and decisively political objective of NAFTA, was to guarantee the lock-in of Mexico's economic reform process. As we examine in this and the following chapters, the goals were partially fulfilled.

Watering down industrial policy

Industrial policy reforms timidly started in the mid 1980s and then were deepened during President Salinas's administration (1988-94). The new measures eliminated production or credit subsidies, tax cuts, trade protection schemes as well as performance requirements (on export percentages or local content) on their beneficiaries. Reforms also inaugurated new programs, aimed at maximizing Mexico's static comparative advantages, fully complying with GATT/ WTO provisions. Open to all businesses, whether in manufacturing or services, the new programs aimed at putting forward a diagnosis of the economic activity in question and suggesting actions by the government and private entities to improve performance (Ten Kate and Niels, 1996). A formal evaluation of these programs is not yet available but, in general, the magnitude of their resources —financial or otherwise — has been small. Thus, most likely they were unable to significantly contribute to the solution of deeply rooted structural problems of Mexico's industry, *inter alia* technological gaps, weaknesses of the national innovation systems, lack of long-term financial resources and insufficiency of investment to modernize local machinery and equipment. They certainly were inadequate to develop Mexico's potential as an export platform of manufactures over and above the merely assembling activities dependent on the tax-free entry of temporary imports to be re-exported (Máttar et al, 2003). The persistent and significant appreciation of the Mexican peso in real terms that took place after the *Pacto* did not help.

NAFTA formally institutionalized Mexico's trade liberalization strategy with a long-term perspective. Since put in place, Mexico joined the OECD and signed free trade agreements with numerous countries, including Chile (1991), Costa Rica (1994), Colombia, Venezuela (1994), Bolivia (1994) and Japan (2004). A few months after the dramatic twin crises — in the balance of

payments and in the domestic banking system — experienced in 1994-95 (whose causes and effects are examined in later chapters) President Zedillo (1994-2000) launched the Program for Industrial Policy and Foreign Trade (PROPICE, May 1996), which implied a certain reorientation of industrial policies prevalent since 1985 (Ten Kate and Niels, 1996). The Program´s rationale was that trade liberalization had led to an excessive de-linking of some productive chains in the Mexican manufacturing sector and claimed that sectoral specific policies and incentives were required to increase domestic value added. However, it explicitly excluded the notion of going back to trade protectionism or granting financial or tax subsidies to promote exports or investment. It identified as priority export industries the following ones: textile, footwear, automobile, electronics, appliances, steel, petrochemicals, and canned foodstuff production, and it marked the machine tools, plastic products and electronic components industries as having major potential to become relevant indirect, i.e. suppliers of, exporters (Ten Kate and Niels, 1996). In practice, the program only granted a tax rebate on certain imported inputs and allowed for the accelerated phase out of certain import tariffs. The initiatives launched, besides the Maquiladora, drawback and PITEX programs, included ALTEX, a program to favor tax-free entry of temporary inputs from abroad to large exporters. A Mexican System for External Promotion (SIMPEX) was later put in place to inform the business community of investment opportunities in Mexico, and to provide local companies with marketing information. Some other programs were launched to offer consultancy to local companies to strengthen their possibilities for export.

A rather significant change took place in industrial policies in 2000 when a series of sectoral development programs (PROSEC) were launched to compensate certain industries — classified in 22 sectors — for the adverse impact of the implementation of rule 303 of NAFTA. This rule stated that to avoid trade distortions, eight years after its launching Mexico must equate the nominal tariffs applied to imports coming outside of North America with those applied to goods coming from within the NAFTA region. The implementation of rule 303 caused a drastic reduction of import tariffs in a vast number of items imported from the rest of the world. PROSEC's goal was precisely to try to compensate a selected number of domestic sectors for the adverse impact of the trade liberalization measure. A quantitative estimate of the impact of such programs is not available, but academic experts tend to coincide that PROSEC caused major distortions in the trade system given that it opened the legal possibility of applying different import tariffs to the same item depending on the type of firm/sector importing.

The administration of President Fox (2000-06) reaffirmed the notion that Mexico, though firmly inserted in a strategy of trade liberalization, must implement sector-specific policies to stimulate investment and economic growth. The National Plan for Development (2001-06) explicitly stated

that, concerning the industrial sector, a key objective was to increase the generation of domestic value added, and to strengthen the linkages among local productive chains. It argued that the State — at the national, regional and local levels — has a leading role in promoting international competitiveness and declared as a key goal the implementation of specific sectoral programs to boost the international competitiveness of a number of industries (automobile, electronics, software, aeronautical, textiles and garment, agriculture, maquiladoras, chemical, leather and shoes, tourism, trade and construction). By the end of the administration only four such programs had been formally completed and launched (in electronics, software, leather and shoes, and textiles). Contrary to the prevailing practice in the last two decades, these programs do allow for a more active involvement of the State and earmark public funds to provide financial support in preferential conditions. The small magnitude of the programs funds plus the long delay in putting them in place made it highly unlikely that they have had a significant, positive impact.

On November 13, 2006 — less than a month away from the end of the Fox presidency — a new program *Fomento de la Industria Manufacturera, Maquiladora y de Servicios de Exportación (IMMEX)* was launched. This program simplifies the procedures for exporting firms to apply to the PITEX program and reduces the waiting period to receive the VAT returns. Most important, it allows firms that export services to receive the same benefits that manufacturing exporters currently receive under PITEX. Obviously the IMMEX program is too new to be able to gauge its impact. Nevertheless, it is safe to conclude that, in practice, the Fox administration's key and perhaps only instrument of industrial policy was still the allowance of tax-free imported inputs to be re-exported. Thus, President Fox's announced change in Mexican industrial policy's orientation, to move somewhat away from horizontal policies in order to implement sector-specific measures, was in practice more rhetoric than real. It remains to be seen what will be the approach of President Felipe Calderón (2006-2012) to industrial policy.

Liberalization of foreign investment and the opening of financial markets

The 1973 foreign investment law, as discussed in chapter 6, had reserved certain economic activities to Mexican investment, and introduced as a general rule a maximum limit of 49 per cent on foreign ownership of companies[114]. Even though it was not until 1993 that the 1973 law

[114] In practice, the law applied to new foreign investment projects, since the regulatory agency established by the law — the National Committee for Foreign Investment (CNIE) — allowed companies fully owned by foreigners to maintain the capital structure in existence before the law became effective. The CNIE was also allowed to modify the 49 per cent general rule, taking into account a number of criteria that included complementarity of investments with national capital and its effects on transfer of technology, balance of payments, and employment.

stopped being the reference framework regulating foreign participation in the economy, the governments of Presidents De la Madrid and Salinas gradually started interpreting the law less restrictively. The most far-reaching change within this process was the decree of May 1989 that abolished all administrative regulations and resolutions and presented a very liberal interpretation of the 1973 law (Lustig, 1992; Peres, 1990, Moreno-Brid et al, 2005). New regulations established automatic approval of full foreign participation in investment projects of less than 100 million dollars, as long as these projects fulfilled a series of conditions (such as generation of foreign exchange and regional development). The implicit goal of the new measures was to increase the share of foreign direct investment from 10 to 20 per cent of the total investment level prevailing in 1988.

The new law of 1993 incorporated the recent changes in regulations as well as NAFTA enactment in matters of national dealings with foreign capital. The 49 per cent limit disappeared as a general rule regulating the participation of foreign investment, and the number of sectors with restrictions to foreign ownership was considerably reduced. The areas with limitations to a maximum of foreign participation included financial institutions, newspapers, fishing and harbors (all with 49 per cent), and national air transportation and co-operatives (25 and 10 per cent, respectively). The activities that remained restricted to foreign investment included radio and television (except for cable TV), ground passenger transportation, tourism and cargo, credit unions and development banking, and the distribution of gasoline and liquid gas. The sectors reserved exclusively to the state included oil and basic petrochemicals, electricity and nuclear energy, telegraph and mail, and radioactive minerals. Several post-1993 changes have allowed greater participation of foreign capital in some of these activities. In particular, in recent years FDI regulations were further relaxed to allow for foreign ownership of domestic banks.

The liberalization and opening of local financial markets was initiated in 1988 with several measures that liberalized reserve requirements and interest rate ceilings, unified the free and controlled exchange rate, and eliminated the exchange controls that had been adopted during the 1982 crisis. In 1989 and 1990, the main measures allowing foreign portfolio investment in the domestic stock and money markets were adopted. The decree of May 1989 liberalized the so-called neutral investment regime (introduced in 1986) to stimulate the entry of foreign investors into the Mexican stock market (SECOFI, 1993). In addition, in late 1990 restrictions to the purchase of fixed interest (government bonds) by foreigners were eliminated.

Privatization of public enterprises

Unlike in other countries, developed and developing, where the debate on privatization has been dominated by considerations of economic efficiency, this policy reform was not initially based in Mexico, at least in the official discourse, on the respective merits of public and private enterprises in that respect. In fact the urge to privatize public firms was associated more to the need to ease the acute constraints on the financing of public investment and to reduce the administrative burden of the public sector[115]. The goal was to have greater selectivity in the participation of the state in the economy and, in particular, to concentrate it in areas where it has clear comparative advantages, that is where the social rates of return are much higher than the private ones.

Mexico's privatization process went through two main stages. The first, 1983-89, involved the sale, transfer or liquidation of small and medium enterprises that had been acquired or created by the state, mostly in the 1960s and 1970s, without much economic or social justification. Their disappearance —beyond their numerical importance which implied that in this period the number of public enterprises fell from 1155 to 310 — did not have much effect on the economic weight of the public sector. Industrial firms represented around 40 per cent of all public enterprises privatized in this first period and as a result the government stopped participating in around 22 industrial activities[116]. The bulk of the firms sold (84%) was acquired by the private sector, and the remaining 16 per cent by the social sector (cooperatives). Among the former, only 7 per cent of buyers were foreign investors. Most private buyers were large consortia that produced the same goods that the enterprise on sale so that the acquisitions consolidated their oligopolistic position in the domestic market. Other buyers were private suppliers or shareholders in the former public enterprise (Rogozinsky, 1994, Chong and Lopéz de Silanes, 1994a and 1994b).

The second stage began in 1989 and had its major impact between late 1990 and mid 1992. It

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[115] Under such conditions, a clear comparative advantage argument can be made for privatization for society as a whole would clearly gain from a reallocation of public investments from areas where social and private returns do not differ greatly to activities yielding a higher social/private returns differential.

[116] See Gasca Zamora (1989). The more significant reductions in state participation within the manufacturing sector took place in food processing, including sugar, soft drinks and mineral water, seafood and agro-industries of tropical products, as well as tobacco, textiles, chemical industry, wood and construction materials. The state also reduced its presence in the automobile industry and steel. The most significant events in these areas were the closing of Fundidora Monterrey — the oldest steel company in Latin America — in May 1986 and the sale of the government's share in Renault de México and other firms in the transport equipment and auto-parts industries.

included the sale of enterprises and banks with assets far more valuable than those of the first stage. As shown in table 7.5, in this phase privatization revenues amounted to some US$ 22 billion dollars. The sale of Teléfonos de México (Telmex), to a group of national and foreign investors in 1990-91 — eventually concentrated in the group of Carlos Slim — and the sale of commercial banks to local financial groups in 1991-92, constitute the bulk of such revenues. Telmex alone represented nearly 30 per cent while the sale of 18 banks contributed nearly 58 per cent[117]. In 1991-92, when the major privatizations took place, the revenues reached 3.3 per cent of GDP. As shown in table 7.6, around two thirds of such revenues were used to reduce the government's external debt as well as its internal one with the Central Bank (approximately half and half). The other third went either to cut the government's internal debt with the private sector or to finance the financial deficit of the public sector. In this second stage, the drive to privatize became marked by the view that state intervention in the economy had been excessive and the source of distortions that undermined its growth potential and fueled inflation.

Table 7.5. Sources of privatization revenues 1989-92 (billions of US dollars)

	1989	1990	1991	1992	1989-92	% of total 1989-92
Total	0.78	3.13	10.78	6.82	21.51	100
Banks	0	0	7.44	4.93	12.37	57.5
Telmex	0	2.1	2.75	1.4	6.25	29.1
Investors						
Foreign	0	0	2.35	1.24	3.59	16.7
National	0	2.1	0.4	0.16	2.66	12.4
Other	0.78	1.03	0.59	0.49	2.89	13.4

Source: Ros (1994), prepared on the basis of SHCP (May 1993)

[117] Two banks (Banco Nacional de México and Banco de Comercio) represented in turn half of this subtotal. Other privatized firms (with a share of 13.4 per cent in total revenues) include the airlines (Mexicana de Aviación and AeroMéxico in mid 1989) and the Compañia Minera de Cananea and Mexicana de Cobre, the two major state producers of copper.

Table 7.6. Uses of privatization revenues (billions of US dollars)

	1989	1990	1991	1992	1989-92	1991-92 (%)
Total	3.3	3.3	9.42	10.74	20.16	100
Financial deficit	1.4	0.1	4.02	0.28	4.3	21.3
Debt reduction	1.9	3.2	5.39	10.46	15.85	78.6
External	1.5	0.8	4.39	2.55	6.94	34.4
Central Bank	1.9	0.2	5.49	0.7	6.19	30.7
Private sector	-1.6	2.2	-4.48	7.21	2.73	13.5
Residents	1.8	1.5	5.03	4.94	9.97	49.5
Non residents	-1.2	-2.7	-3.54	-8.77	-12.31	-61.1
Com. banks	-2.1	3.4	-5.97	11.04	5.07	25.1

Source: Ros (1994), prepared on the basis of Banco de México, Informe Anual (1991 and 1992, tables on balance of payments and sources of finance of the public sector deficit)

The reform of the land tenure system and the overhaul of agricultural policies

Up until the debt crisis of 1982, state intervention in agriculture included price supports to staple producers, subsidies to agricultural inputs, credit and insurance, and government involvement in the commercialization and processing of grains, oils and powder milk, the production of fertilizers and improved seeds, and in granting consumption subsidies to the poor. After the 1982 debt crisis, the de la Madrid administration (1982-1988) started to dismantle agricultural support policies by eliminating price supports for five out of the twelve basic crops and reorganizing CONASUPO, the state marketing board which bought staples from producers at guaranteed prices and sold them at low prices to processors and consumers, in order to reduce administrative costs[118].

The Salinas government (1988-1994) diagnosed the problems facing agriculture since its growth slowdown began in the mid 1960s as having their origin in excessive state intervention in the sector and the inefficiency of the ejidos which comprised in the early 1990s about half of Mexico's agricultural land, over 75 percent of all agricultural producers, 70 percent of national maize production and 80 percent of beans production (Davis, 2000; Johnson, 2001). With a view to increase land tenure security and, with it, productivity and investment in agriculture, the

[118] For an overview of the agricultural reform process since the early 1980s, see Yunez and Barceinas (2003)

administration reformed the land tenure system and continued the overhaul of agricultural policies. In early 1992, a new Agrarian law was enacted following the reform of article 27 of the constitution in late 1991. The law formally ended the process of land reform and allowed the privatization of ejidos by lifting restrictions on ejido land use. At the same time, import licenses were removed and tariffs reduced in the context of the general overhaul of trade policy and the establishment of NAFTA under which all tariffs will be eliminated by 2008. Most important, price guarantees for basic crops (with the exception of maize and beans) were abolished in 1991 and support prices for maize and beans were eliminated in 1999. Official credit and credit subsidies were reduced with the elimination of BANRURAL, and fertilizer subsidies and technical assistance reduced and redirected. Input and output markets were deregulated and CONASUPO started to be dismantled in 1991 and was abolished in 1999. Other state enterprises — in the production of fertilizers, seeds and other inputs and in the marketing of coffee, sugar, and tobacco — were eliminated or privatized.

Reform was accompanied by compensatory measures. ASERCA was created in 1991 to provide marketing support and services to producers; an income support program, *Procampo*, was established in 1993 with a view to offset the negative effects expected from the abolition of price guarantees and market support under NAFTA; and *Alianza para el Campo* began operating in 1996, under the Zedillo government, with the goal to increase agricultural productivity through small investment projects financed jointly by the government and producers. In 1997 *Procampo* reached over 80 percent of all ejidatarios but only 12 percent of ejido households participated in *Alianza* (Davis, 2000). In 2003, the Fox administration created the *Acuerdo Nacional para el Campo*, with the goal to define policies for rural development, resulting in an increase in the benefits provided by *Procampo* to farmers (Yunez and Barceinas, 2003).

Deregulation and competition policies

Reforms in the regulatory framework involved changes to domestic competition policies, especially in the tertiary sector where the barriers to entry and exit of firms, through permits and other legal constraints, had been important in the past[119]. Deregulation is based on the premise that excessive regulation was responsible, to a great extent, for inefficiency in resource use. In this view, it is essential to create a more competitive environment that leads to the modernization of financial services and to the reduction of transport, communications and distribution costs so as to increase the international competitiveness of manufacturing and the economy as a whole.

[119] For an analysis of reforms in the domestic regulatory framework, see Lustig (2002) and Ros (1991b).

As part of this program, the government completed the revision of regulations which affect various economic activities.

The privatization of Teléfonos de México described above was the most important measure within a broader program of modernization of the telecommunications system. In very few years, Mexico´s telephone company went from being an example of an inefficient public sector's monopoly to becoming a top-level — still quasi monopolistic — enterprise capable to successfully compete and penetrate world markets. Protected by the decree of its privatization that granted it a dominant position in the market for a number of years after being transferred to the private sector, it has certainly been a key pillar in expanding and upgrading Mexico´s telephone network and system, bringing their quality up to par with its world competitors. However, at the same time, its privileged and well protected market position has allowed it to set its rates and fees well above the ones that prevail in developed or similar developing economies[120].

Road transport — the most important mode of transportation for firms in Mexico — was characterized for a long time by legal barriers to entry (*concesiones de ruta*) and regulations on transactions that benefited the transport concessionaries. Reform in this area has been driven by the perceived consequences of this highly oligopolistic structure (high transport costs among others). In July 1989 a new decree introduced a radical deregulation of the sector through the liberalization of the entry permits and the elimination of concessions. Moreover in January 1990, price controls were eliminated as was an overcharge of 15 per cent for the transport of imported goods. The number of permits granted during the eight months after the reform of 1989 more than tripled the number granted between 1986 and 1988, although a high percentage is explained by the legalization of companies that previously operated without permit. It has been estimated also that rates in real terms fell by 20 per cent on average following the reform (although they in fact increased in the South and only fell in the North; World Bank, 1990).

Although the Mexican Constitution of 1917 explicitly prohibited monopolies, it was not until 1992, that is 85 years later, that the Mexican Congress approved the *Ley Federal de Competencia Económica*, a federal law to regulate oligopolistic or monopolistic practices. To implement such law the *Comisión Federal de Competencia* (CFC) was created as an independent regulating agency — though currently within the Ministry of the Economy — with the responsibility to investigate and sanction monopolistic practices, including potential implications of mergers and

[120] According to Sentido Común, a respected Mexican financial news website, in 2007, the owner and CEO of Telmex became the richest man in the world having overtaken in that year Gates and Buffet.

acquisitions[121]. The rationale behind it was that the extensive privatization processes and deregulation and phasing out of the government's direct controls on the price formation mechanisms, made it necessary to have a federal agency to monitor that market mechanisms would not be impaired by monopolistic practices.

In its fifteen years of operation, the CFC has had to face many challenges, including in particular the lack of practice and expertise in this matter in the country. Key constraints on its performance are its budget and legal and technical expertise[122]. In addition, a number of sectors, considered to be of strategic importance for national security, are excluded from its application (among other the oil industry). In practice, despite the conspicuous monopolies or oligopolies that prevail in various sectors of the economy and the limitations on its budget, the CFC has nevertheless gained gradual and persistent recognition as an independent agency with apt technical and legal capacity. Another limitation has been the lack of efficiency and efficacy of the overall legal and judicial systems, resulting in a low likelihood of sanctions being enforced.

This chapter reviewed the macroeconomic stabilization polices put in place in Mexico from the outset of the 1982 balance of payments crisis — that inaugurated the international debt crisis in Latin America and pushed the region into its lost decade — up until the mid 1990s, just before the so called Tequila crisis in 1995. Macroeconomic adjustment policies managed to correct the fiscal imbalances, in the sense of eliminating high and unsustainable deficits, but relied excessively on downsizing public investment, while failing dramatically to strengthen non-oil tax revenues. As a result, the tax burden continues today to be extremely low by international standards. At 11-12 percent of GDP in the early 2000s, tax revenues are well below those of OECD countries and even below those of Latin American countries with similar income per capita (see table 7.7). Moreover the capacity of the state to collect taxes appears to have been declining in recent years. As shown in figure 7.3, the non-oil revenues of the federal government were down to 9.8 percent of GDP in 2005 after having reached a peak of 11.1 percent in 2002. Meanwhile the share of oil income in total government revenue has been increasing, reaching 42 percent in 2005. Thus, besides constraining much needed public investment, the low tax burden implies that the fiscal accounts continue to be highly vulnerable to changes in volatile oil revenues.

[121] The CFC decisions are not subject to revision by the Ministry, and the Comisión has the prerrogative to present its own budget requests directly to Congress without any prior authorization from the Ministry

[122] For in depth analysis of the LFC, see Avalos (2006) and Levy (2000)

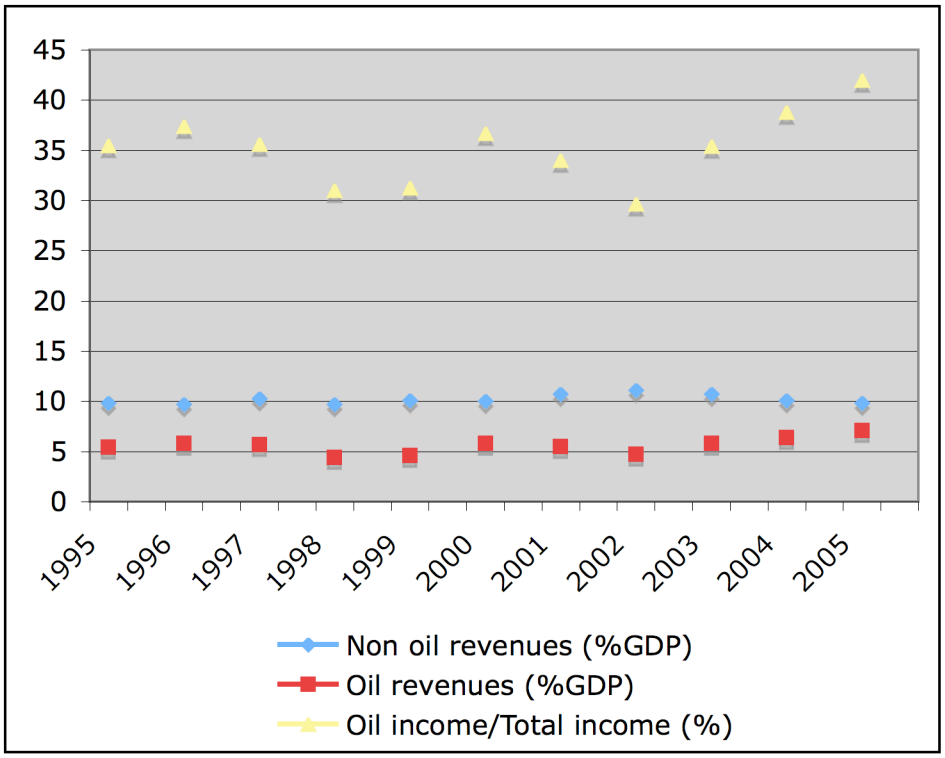
Table 7.7. Tax revenues in developed and developing countries

(percentage of GDP, c. 2003)

European Union (15) [1/]	40.6
United States [1/]	26.4
Japan [1/]	25.8
Brazil [2/]	25.8
South Korea [1/]	24.4
Uruguay [2/]	24.4
Colombia [2/]	17.3
Chile [2/]	17.2
Argentina [2/]	16.6
Dominican Republic [2/]	15.3
Peru [2/]	14.9
Venezuela [2/]	11.7
Mexico [2/]	11.4 [3/]

1/ Total tax revenues
2/ Central government tax revenues
3/ Total tax revenues, including royalties and fees paid by PEMEX: 18.1
Sources: OECD, Recent tax policy trends and reforms in OECD countries, OECD Tax Policy Studies n. 9, 2004, ILPES, Estadisticas sobre finanzas públicas (on line)

Figure 7.3. Composition of federal government revenues



Source: Anexo Estadístico al Sexto Informe de Gobierno 2006

We have also reviewed the structural reforms meant to shift Mexico's traditional strategy away from trade protection and state-led industrialization that were firmly and rapidly put in place since the mid 1980s, in a context of economic stagnation and severe credit rationing. Trade reform was launched, initially with a unilateral and drastic opening of the domestic market to imported goods and further deepened with a negotiated trilateral agreement with the US and Canada. Trade liberalization, incorrectly as we shall see, was seen as a necessary and sufficient condition for export-led growth. In this process, fundamental instruments of industrial policy were dismantled. Privatization essentially meant downsizing the public sector in order to mainly obtain extraordinary fiscal revenues and not so much with a clear view on the impact that such divestitures would have on the competitive conditions, efficiency and growth potential of key markets. What was the overall impact of these reforms on Mexico's quest for high and sustained, socially inclusive economic growth? What were their limitations and strengths? These key questions are explored in the next chapters.

8. The shift in the market-state balance and the quest for export led growth

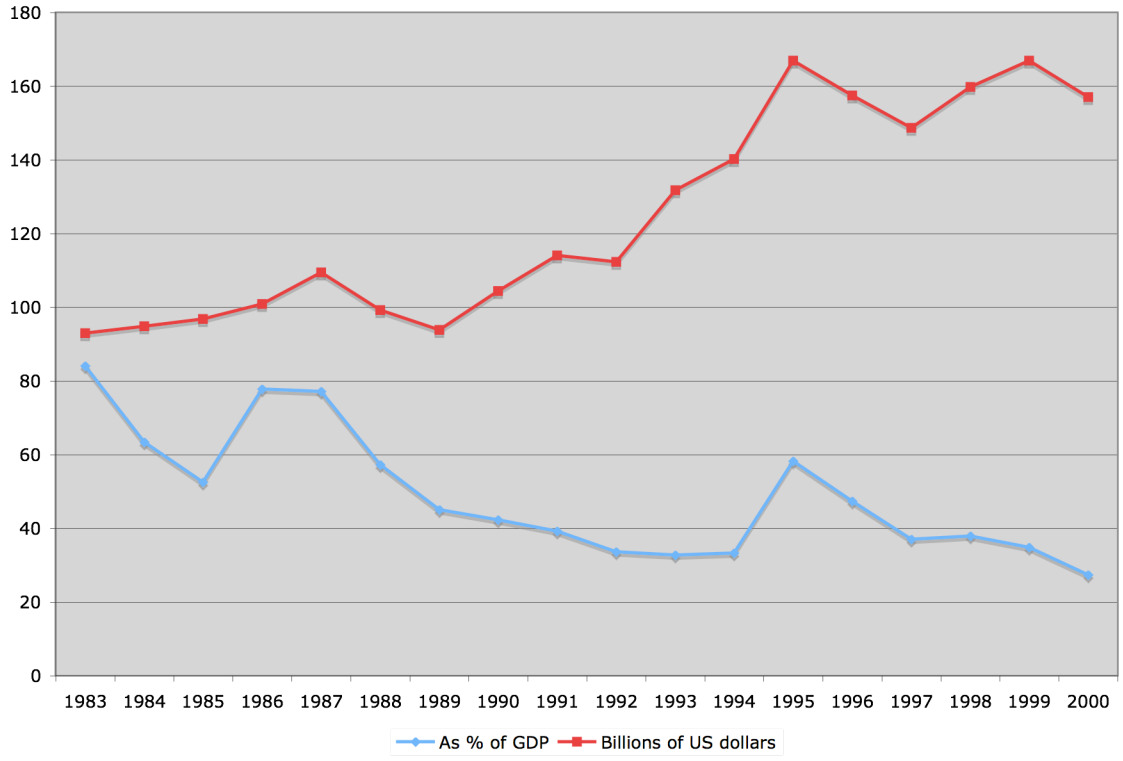
Following the reform process described in the previous chapter a 'great transformation' has been taking place, if we may appropriate Polanyi's expression for events of a different scale. Trade and financial liberalization and the implementation of the NAFTA have strengthened the close ties of the Mexican economy with that of the US, both in terms of capital flows and trade in goods and services. Reform in the rules and regulations on foreign investment opened the door to a surge of capital flows and led to a higher presence of foreign capital in the domestic economy through new investments and acquisitions of local firms particularly of privatized public enterprises. In this process the State closed down or privatized a vast number of its public enterprises; in particular, most State banks were turned into private hands. Privatization revenues, together with debt relief (granted under the 1989 Brady Plan) and fiscal adjustment allowed the government to reduce its external debt as a proportion of GDP to low levels by international standards (see figure 8.1). At the same time, in various rural regions typically characterized by communal property, a much more market oriented economy began to emerge as a result of far reaching changes in the legal regulations concerning the land tenure system, the government's support price policies, and the privatization or elimination of key government agencies — including the state marketing board and the rural development bank. These changes plus the adoption of a different perspective on subsidies to stimulate agricultural production and the introduction of social programs targeted to alleviate poverty transformed Mexico's rural economy. In sum, Mexico's drastic reform process gave a larger role to the private sector in the allocation of resources, and greater scope to market forces and international competition; all this with the goal of entering a phase of strong export-led economic expansion.

What has been the outcome of these reforms? Has the Mexican economy shown signs of having entered or being on the brink of entering a path of long term, socially inclusive development? Has it been able to remove some of the crucial binding constraints on its economic growth? Is the Mexican economy closing its gap vis a vis the US and other developed economies? Have economic and social conditions of the poor population significantly improved? These are fundamental questions that we address in this and the following chapters.

Some policy reforms — for example the creation of a federal entity to promote competition — were long overdue. In such cases, their effects have been beneficial both on efficiency and equity grounds, and most likely their benefits have largely exceeded the costs they may have had. These reforms have not been, however, the most radical ones, nor those from which the greater benefits were a priori to be expected. In what follows we focus on the most important reforms —

privatizations, trade and financial liberalization as well as the overhaul of industrial and agricultural policies —, offering a preliminary evaluation of their effects.

Figure 8.1. Total external debt, 1983-2000



Source: OxLAD

Privatization and economic efficiency

The case for greater selectivity in state participation in the economy and for its disengagement in a number of productive activities was mainly based, as we saw in the previous chapter, on macroeconomic grounds. As it was then presented, the argument that the government was severely rationed in credit markets, and faced pressing social needs to be met, was combined with the assumption that the private sector's ample financial resources abroad were ready to be invested in previously state-dominated activities which do not have a high social priority. Free from the tight fiscal and credit constraints to which the government was subject to, a significant increase in private and overall investment was to be expected. There is also, of course, the traditional microeconomic case based on the notion that a greater participation of the private sector will bring about microeconomic efficiency gains and improvements in the overall efficiency of investment. If the latter is an increasing function of the share of private investment in overall

investment then part, if not all, of the fall in the rate of accumulation in the 1980s could be compensated by the shift in the composition of investment.

The macroeconomic case for privatization was extremely powerful, given the macroeconomic constraints that prevailed in the 1980s. However, privatizations have had a minor impact, if any, on the long-term growth potential of the economy, beyond the promise (which so far largely remains just that) of a considerable expansion in human capital investments that the huge privatization revenues could make possible. Indeed, as we shall see in greater detail in the next chapter, the expected boom in private investment has failed to materialize. While public investment fell by 6.6 percentage points of GDP from 1979-81 to 2004-2006, private investment increased by only 1.4 percentage points of GDP over the same period with the result that overall fixed investment is today some 5.2 percentage points below its level during the oil boom (see table 9.11 in chapter 9). Thus, the shift in the private/public composition of investment came about as a result of the decline in the rate of public investment, and not so much of the increase in private investment.

Moreover, there is no evidence that the large shift in the private-public composition of total investment has brought about an increase in investment efficiency. In fact, the evidence points to the contrary. Rather than increasing, the productivity of capital has declined as revealed by the rising capital-output ratio since the early 1980s (see table 8.1). This decline in the efficiency of investment should not be surprising. First, because the efficiency of aggregate investment does not depend only on its private/public sector composition, but also on the rate of investment itself. It is precisely the pace of capital accumulation that, to a great extent, determines its overall efficiency as it modernizes the vintage composition of the capital stock and changes its structure (residential construction/machinery and equipment, net investment/ depreciation). Thus, with the ageing of the capital stock (Hofman, 2000) and with the shift in the composition of the capital stock from non residential to residential investment (see table 8.1 and Hofman, 2000), both of which resulted from the fall in the rate of investment after the debt crisis, an increase in the capital-output ratio was to be expected.

Second, as we have seen, the increase in the share of the private sector in total investment since the early 1980s was largely due to the collapse of public investment. In these conditions, the efficiency losses resulting from the absolute fall in the overall rate of investment were likely to outweigh any efficiency gains brought about by the shift in its composition. In addition, the relationship between the efficiency and the composition of overall investment is surely more complex than generally assumed. It is likely to have the shape of an inverted U, Laffer-type curve,

Table 8.1. Composition of fixed investment and capital-output ratio

	Public [1/]	Private[1/]	Residential construction [1/]	Non residential construction [1/]	Machinery and equipment [1/]	Capital-output ratio
1980	43.0	57.0	17.9	38.2	43.9	
1981	45.4	54.6	16.7	38.2	45.1	
1982	44.2	55.8	20.3	41.5	38.2	
1983	39.5	60.5	26.7	40.1	33.2	
1984	38.6	61.4	26.3	38.9	34.8	
1985	36.1	63.9	26.4	36.2	37.4	
1986	35.1	64.9	29.4	34.5	36.1	
1987	30.8	69.2	30.8	34.4	34.8	
1988	25.0	75.0	*25.0*	*27.5*	*47.5*	
1989	25.3	74.7	*25.2*	*25.7*	*49.1*	
1990	24.9	75.1	*24.2*	*26.0*	*49.8*	
1991	22.6	77.4	*24.3*	*24.9*	*50.8*	
1992	19.7	80.3	*23.6*	*25.3*	*51.1*	
1993	20.3	79.7	*26.7*	*27.0*	*46.3*	
1994	25.7	74.3	*26.2*	*27.9*	*45.9*	
1995	24.8	75.2	*29.6*	*23.0*	*47.4*	
1996	18.2	81.8	*26.0*	*24.2*	*49.8*	
1997	16.5	83.5	*23.4*	*25.4*	*51.2*	
1998	13.9	86.1	*22.2*	*24.8*	*53.0*	
1999	14.3	85.7	*22.2*	*25.6*	*52.2*	
2000	16.1	83.9	*22.3*	*27.0*	*50.7*	
2001	16.3	83.7	*23.7*	*27.8*	*48.5*	
2002	19.2	80.8	*24.2*	*29.4*	*46.4*	
2003	20.7	79.3	*24.3*	*30.8*	*44.9*	
2004	19.8	80.2	*23.9*	*31.7*	*44.4*	
2005	18.3	81.7				
2006	17.1	82.9				

1/ As percentage of total fixed investment

Source: For public/private composition, based on INEGI at constant prices of 1993
For residential/non residential composition: Hofman (2000) for 1980-1987 (based on 1980 constant pesos); INEGI for 1988-2004 (based on current prices)

with low efficiency levels being consistent with both too high and too low shares of public investment. This is so because public investment irslef, as much recent empirical research suggests, affects positively the productivity of private investment, and thus at low levels of public investment further reductions can bring about losses rather than gains in overall efficiency. Given the sharp contraction of public investments during the 1980s, the question arises as to whether the economy moved to the wrong side of the Laffer-type curve. In such circumstances, an increase in public investment in areas with high social returns and high positive externalities for the profitability of private investment may be the best way of addressing the problem of investment efficiency.

What about the traditional microeconomic efficiency gains from privatizations? Some of the expected effects have materialized (see Chong and Lopez de Silanes, 2005). Profitability has tended increased in the newly privatized enterprises and this is related largely to efficiency gains (measured by reductions in unit costs and increases in the sales to capital ratio). The productivity of employees, measured by sales per employee, dramatically increased as a result in part of equally dramatic reductions in employment of both blue-collar and white-collar workers. Privatized firms tended to catch up with private firms and even surpassed them, most remarkably in the ratio of net income to sales, so that the bulk of the improved firm performance does not seem to be attributable to macroeconomic factors.

In a number of other ways, however, privatizations left a lot to be desired. First, in the case of banks, the purchases were in some cases ultimately financed by credits extended by the banks themselves to the new owners which had no previous experience in banking. These limitations soon proved to be of monumental relevance when the newly privatized banking system collapsed in 1994-95 and had to be rescued by the government to protect savings accounts and keep the financial intermediation system working. Eventually, most of the privatized domestic banking system was sold to foreign international banks. A second major failure was the road privatization program. The moral hazard incentives created by the program led concession holders to inflate construction costs and charge excessively high tolls (see, on the subject, Rogozinsky and Tovar, 1998, and World Bank, 2003). The situation deteriorated with the devaluation of 1994 as higher interest rates pushed many concession holders to the brink of bankruptcy eventually leading to their rescue by the government. Third, some privatizations were simply not lasting, and the state had to absorb the firms once again. Besides some of the road concessions, the airlines and the sugar industry are cases in point as the new owners proved unable to operate them in an efficient

and profitable way.

Moreover, the lack of an appropriate regulatory framework before the privatization process started has resulted in a high concentration of wealth and ownership in some of the privatized areas. The bulk of the purchases and shares went to established industrial or financial groups, so that while the stated objective of privatization was higher efficiency, in practice several privatized sectors turned into private oligopolistic markets. TELMEX, the privatized telephone company, is a monopoly in the telecommunications market. The banking sector continues to be highly concentrated and features oligopolistic practices. Privatization in one of the areas consolidated control of almost all of chloric acid production. The sale of the two largest copper companies to one owner resulted in more than 90 percent of copper production falling under the control of one company. In paper and paper products, four firms produce over 60 per cent of total output.

Trade liberalization, industrial policy reform and the quest for (non-oil) export-led growth

The export boom and the transformation of the export structure

Trade liberalization and NAFTA have profoundly transformed the insertion of Mexico in global markets. The growth of exports since the early 1980s has been very fast (higher than 8 percent per year) and has accelerated since NAFTA took effect, increasing from a rate of 5.8 percent per year in the period 1982-1993 to 11.1 percent in 1993-2005 (table 8.2), with non oil exports increasing even faster. Although clearly inferior to that of China or South Korea, the export growth rate in the second period is remarkable in the international context: similar to that of Turkey and clearly higher than that of Argentina, Brazil, Chile, Malaysia and Thailand.

Exports (and imports) soared to such an extent that their combined total as a proportion of GDP has increased from 27 percent on average in the period 1982-1984 to close to 60 percent in 2001-2005. Although it does not reach the levels of some East Asian countries, this conventional measure of trade openness is about twice that of Argentina or Brazil and not far from that of Chile, a smaller economy and, for that reason, prone to be more open (table 8.3).

Table 8.2. Export growth (average annual rate in percentage).
Mexico and selected developing countries

	1982-1993	1993-2005
China	6.9	18.3
South Korea	10.9	14.4
Turkey	7.0 [1/]	11.7
Mexico	**5.8**	**11.1**
Brazil	8.0	9.3
Malaysia	12.3	9.2 [2/]
Argentina	3.7	8.0 [2/]
Chile	8.4	8.0
Thailand	14.5	7.5

1/ 1987-1993; 2/ 1993-2004
Source: World Bank, World Development Indicators (on line)

Table 8.3. Share of international trade in GDP (percent).
Mexico and selected developing countries.

	1982-1984	2001-2005
Malaysia	107.0	213.0 [1/]
Thailand	47.7	131.2
South Korea	67.7	75.0 [1/]
Chile	45.3	69.6
Turkey	30.3	61.6
Mexico	**27.0**	**58.2**
China	22.0	53.3 [1/]
Argentina	14.3	36.0 [1/]
Brazil	19.0	30.8

1/ 2001-2004
Source: World Bank, World Development Indicators (on line)

Besides the role of trade liberalization and NAFTA in eliminating the anti-export bias of protection, the export boom was helped by two other factors. The first was the collapse of Mexico's domestic market in the 1980s and then again in 1995 (when real GDP fell 6%) that forced firms to export in order to compensate for the decline in domestic sales. The second was the acute depreciation of the exchange rate of the peso vis-à-vis the US dollar in response to the 1982 debt crisis and the oil price shock in 1986 and which took place again in 1995 (45% in real terms) in response to the

foreign exchange crisis then experienced[123]. This real depreciation, however, has gradually but systematically eroded since then[124] and by 2006 preliminary data indicates that it has practically been eliminated relative to its level in 1994.

Trade liberalization and NAFTA have also radically affected the pattern of trade specialization. From being in the early 1980s an oil exporting economy, in a few years Mexico became a relevant player in the world markets of manufactures and its export mix was radically transformed. In fact, between 1985, when trade liberalization was in its beginnings, and 1994, when NAFTA came into effect, Mexico ranked fifth in the world among the countries with the largest increase in their share in world exports of manufactures (see table 8.4). With NAFTA in operation, from 1994 to 2002 (the most recent year for which data was available at the time of writing) Mexico had climbed to second place, just behind China.

Table 8.4. Changes in participation of manufacturing exports in the world market (top 20 countries), 1985-94 and 1994-2002

Changes in Participation of Exports of Manufactures in the World Market (Top 20 Countries), 1985–94 and 1994–2002

	1985	1994	Variation 85-94	Rank		1994	2002	Variation 94-02
	(A)	(B)	(B - A)			(C)	(D)	(D - C)
China	1.42	5.86	4.44	**1**	China	5.86	9.82	3.96
Malaysia	0.55	1.73	1.18	**2**	Mexico	1.71	3.32	1.61
Singapur	0.88	1.88	1.00	**3**	Philippines	0.43	0.92	0.48
Thailand	0.30	1.06	0.77	**4**	Malaysia	1.73	2.11	0.38
Mexico	1.01	1.71	0.70	**5**	Hungary	0.23	0.60	0.37
USA	12.82	13.36	0.55	**6**	Chec Rep.	0.31	0.64	0.32
Indonesia	0.19	0.67	0.48	**7**	Poland	0.40	0.62	0.22
Spain	1.49	1.79	0.30	**8**	Turkey	0.40	0.58	0.18
Poland	0.18	0.40	0.22	**9**	Thailand	1.06	1.24	0.18
India	0.47	0.67	0.20	**10**	Israel	0.41	0.56	0.15
Turkey	0.22	0.40	0.18	**11**	Viet-Nam	0.08	0.20	0.12
Philippines	0.31	0.43	0.12	**12**	Slovakia	0.10	0.21	0.12
Hungary	0.15	0.23	0.09	**13**	Rumania	0.15	0.26	0.11
Viet-Nam	0.00	0.08	0.08	**14**	Indonesia	0.67	0.73	0.07
Australia	0.35	0.43	0.07	**15**	Bangladesh	0.10	0.16	0.06
Portugal	0.44	0.51	0.07	**16**	Costa Rica	0.05	0.10	0.05
Pakistan	0.14	0.20	0.06	**17**	Cambodia	0.00	0.05	0.04
Dominican Rep.	0.06	0.11	0.05	**18**	Honduras	0.03	0.08	0.04
Israel	0.36	0.41	0.05	**19**	United Arab Emirates	0.10	0.14	0.04
Marocco	0.06	0.11	0.05	**20**	Estonia	0.02	0.06	0.04

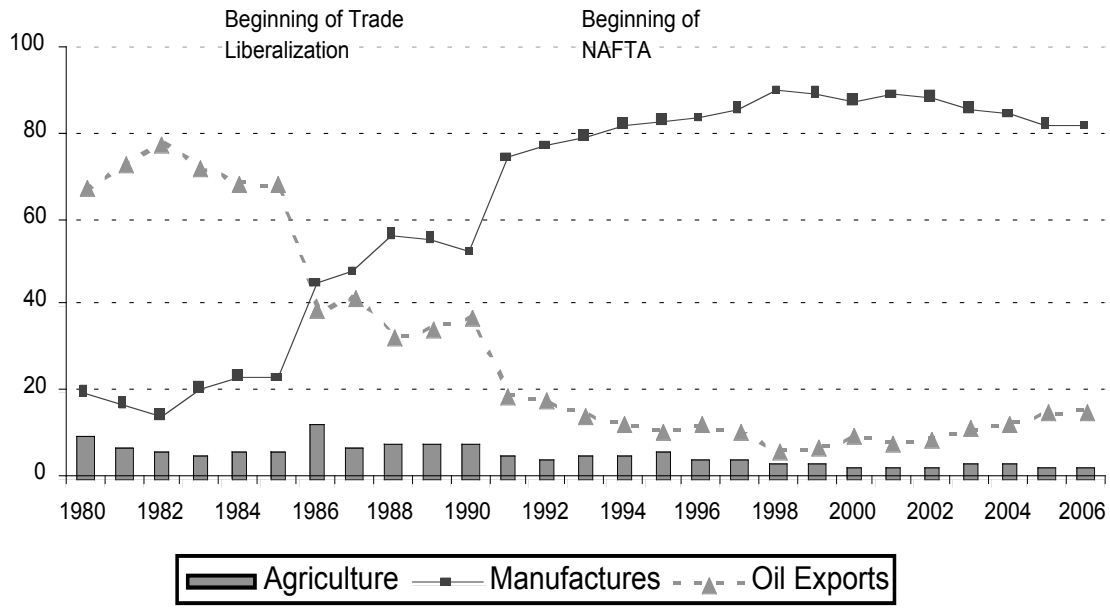
Source: Own calculations based on ECLAC, CAN 2005.
Manufactures covers items 6, 7 and 8 of the CAN classification

[123] Blecker (2005), Krueger (1998) and Pacheco-López (2004) provide econometric studies that conclude that NAFTA had no significant impact on Mexican exports, after controlling for the effect of the real exchange rate movements. However, Lederman *et al* (2004) argue the opposite.

[124] Comparing consumer price indices measured in a common currency indicates that the peso appreciated in real terms 30% between 1995 and 2006. The ratio of the price deflators of tradables (manufactures) *vis a vis* non-tradables (services) suggests a real exchange appreciation of around 15% this same period.

This impressive success in penetrating the world market of manufactures is mirrored in a change in the composition of Mexican exports. As figure 8.2 shows, from the mid 1980s onwards the share of manufactures in total exports has been climbing steadily and substantially. By the end of the 1980s it was over 50% and in 2006 — even though the price of crude oil has soared in the last few years — it exceeds 80%. In turn, agricultural products continued their long term decline in the export mix.

Figure 8.2. Composition of total exports, 1980-2006 (percentages)



Source: Based on INEGI (2007).

It is worth noting that this pattern of international integration, similar to that of other countries in Central America and the Caribbean, differs from the South American case. The Southern countries have integrated as geographically diversified exporters of primary goods and natural resource intensive manufactures (minerals in the case of several Andean countries or agricultural products in the case of MERCOSUR economies, with Brazil being a case of a diversified exporter) (see table 8.5).

Table 8.5. Export structure (2003)
(percentages of total exports)

	Agriculture and processed foods 1/	Minerals and oil	Manufactures 2/
Mexico and Central America	8.0	10.0	82.0
MERCOSUR and Chile	35.4	10.3	54.3
Andean Community	15.4	53.3	31.3
Latin America	18.8	16.7	64.5

1/ Includes beverages and tobacco
2/ Excludes foodstuffs, beverages and tobacco
Source: CEPAL, Anuario Estadístico 2004

The export drive has been accompanied by increased technological sophistication of the manufactured goods Mexico sells abroad. Table 8.6 presents the structure of Mexican exports and their share in OECD's total imports from 1985 to 2002 distinguishing three groups: i) Exports directly based on natural resources (agriculture, energy, textile fibers, minerals and metals), ii) Manufactures and iii) Other exports. In turn, manufactured goods are classified in two groups, those that make intensive use of natural resources and those that tend to use more other resources[125]. The second part of the table shows the composition of Mexico's total exports in terms of the same categories. Note the fast penetration of the OECD market of manufactures *not based* on natural resources, raising their share from 1.1 percent in 1985, to 2.1 in 1994 and 4 percent in 2002. In turn, in 1985 these manufactures accounted for 36 percent of Mexico's total exports, by 1994 the share was 72.4 percent, and by 2002 it stood at 80.1 percent.

[125] Table 8.6 does not give any information on the technological content of the actual processes adopted to manufacture export goods. In particular, all *maquiladora´*s exports are registered as "not based on natural resources".

Table 8.6. Selected Indicators of Mexican exports to the OECD: 1985-2002

Mexico	1985	1990	1994	2000	2002
Market Share	**1.78**	**1.52**	**2.03**	**3.46**	**3.64**
Natural Resources	3.12	2.12	2.00	2.59	2.71
Agriculture 1/	1.30	1.28	1.37	2.01	2.09
Energy 2/	4.60	3.26	2.99	3.28	3.42
Textil Fibers, Minerals and metal 3/	1.89	1.48	1.57	1.48	1.43
Manufactures	1.17	1.39	2.21	4.07	4.33
Based on Natural Resources 4/	1.23	0.96	1.03	1.22	1.23
Not Based on Natural Resources 5/	1.09	1.32	2.09	3.81	3.99
Others 6/	1.61	2.54	2.70	4.01	4.66
Structure of exports	**100**	**100**	**100**	**100**	**100**
Natural Resources	58.60	33.62	21.43	14.38	14.52
Agriculture 1/	9.66	10.27	8.18	5.33	5.26
Energy 2/	45.94	21.02	11.82	8.49	8.79
Textil Fibers, Minerals and metal 3/	3.01	2.33	1.44	0.56	0.48
Manufactures	39.13	62.45	74.89	81.70	81.55
Based on Natural Resources 4/	3.38	3.37	2.52	1.57	1.45
Not Based on Natural Resources 5/	35.76	59.08	72.37	80.13	80.10
Others 6/	2.27	3.93	3.68	3.92	3.93

The classification here adopted corresponds to SITC: 1/ Sections 0, 1 and 4; Chapters 21, 22, 23, 24, 25 and 29, 2/ Section 3, 3/ Chapters 26, 27 and 28 4/ Chapters 61, 63 and 68; groups 661, 662, 663, 667 and 671, 5/ Sections 5 and 6 (less chapters included in 4/), sections 7 and 8., 6/ Section 9.

Source: Based on CAN 2005, ECLAC.

Moreover, the share of high technology exports in total manufacturing exports has been increasing over time and reaches around 20 percent today. Although lower than that of Malaysia, South Korea or Thailand, this share is well above that of Brazil, Argentina, Chile or Turkey (table 8.7). A significant share of medium and high technology intensive exports has also been found in other studies for the Mexican case (Cimoli, 2004; ECLAC, 2005)[126].

Export dynamism placed Mexico among the most successful competitors in many branches of the US market of manufactures, a position currently challenged by China. *Maquiladoras* were a key driving force behind this export drive: their share of total exports increased from 15 percent in 1980 (Kose et al., 2004) to around 37 percent in 1991 and 45 percent in 2006 (INEGI). Other important actors behind this boom have been the foreign firms already well established in Mexico as well as some that arrived as part of the vast inflow of foreign direct investment triggered by trade liberalization, NAFTA and privatization. Actually, FDI grew from about 2 percent of GDP in the early 1990s to reach a peak of 4 percent in 2001, but has declined since then. The

[126] However, as will be discussed in chapter 9, one can have reservations about the way the technological content of exports from developing countries is measured.

manufacturing industry absorbed 53 percent of all FDI inflows to Mexico from 1994 to 2004, and was heavily concentrated in three sub-sectors: metal products (48 percent), chemical products (16 percent), and food, beverages and tobacco (18 percent) (Moreno-Brid et al, 2007).

Table 8.7. High technology exports (percentage of total manufacturing exports)

	1990	1997	2005
Malaysia	38.2	49.0	54.7
Korea	17.8	26.4	32.3
Thailand	20.7	30.6	26.6
Mexico	**8.3**	**17.5**	**19.6**
Indonesia	1.2	11.4	16.3
Brazil	7.1	7.3	12.8
Argentina	7.1 1/	4.5	6.6
Chile	4.6	3.3	4.8 2/
Turkey	1.2	2.2	1.5

1/ 1992
2/ 2004

Source: World Bank, World Development Indicators

More generally, Mexico's export-drive has been highly concentrated. A few industries — motor engines and autoparts, automobiles, and computers and other electronic equipment — account for approximately 60% of total exports of manufactures in 1994-06. And according to some authors, the bulk of manufacturing exports was done by no more than 300 firms, a majority of them linked to transnational corporations (see Máttar et al 2003, Dussel 2004)[127]. Thus, along with the export boom, a dual structure in Mexico's manufacturing sector has been taking shape. A few very large firms, whose links with TNCs and access to foreign capital help them to successfully become relevant players in export markets, coexist with a vast number of medium and small firms struggling to survive the intensified competitive pressure from their external competitors.

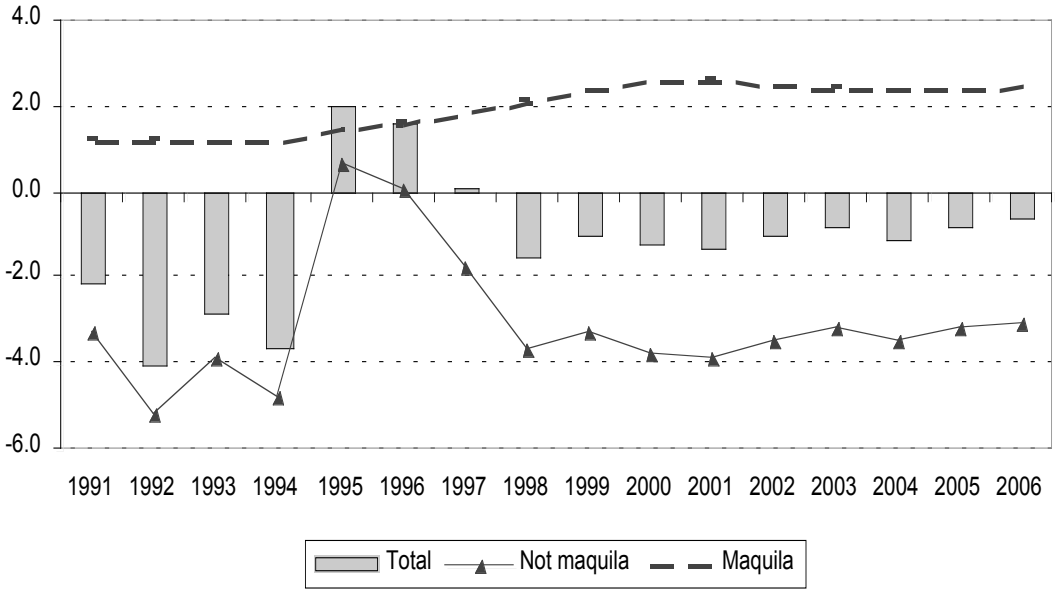
The import surge and the disintegration of domestic linkages

Notwithstanding the export boom, Mexico has systematically recorded trade deficits — except during severe recessions — as the maquiladoras' surplus has been more than counterbalanced

[127] For an analysis of the evolution and determinants of Mexico's manufacturing exports, see Cordero et al. (2007).

by the deficit in other activities (see figure 8.3). The reason is that besides the export boom, trade liberalization brought about a massive surge of imports.

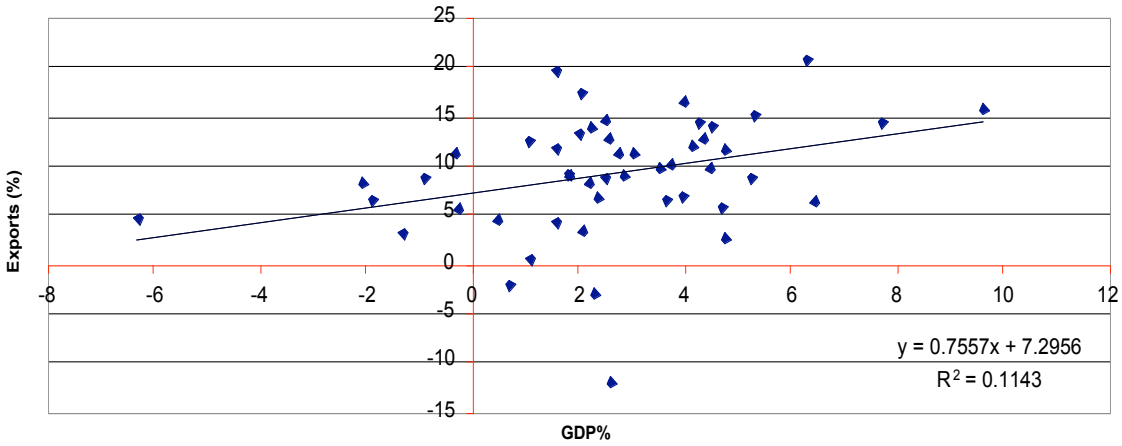
Figure 8.3. Trade balance (% GDP), 1991-2006



Source: Moreno Brid et al (2007).

After decades of trade protection, opening the domestic market to foreign competition was expected to cause an intense but temporary flow of imports. However, purchases of imported goods have kept growing at a brisk pace. As a share of GDP, they went from 10 per cent in 1982 to around 38 percent in 2000 and 45 percent in 2006. Their intense and persistent penetration of the domestic market has weakened the "pulling" power of the exporting sector relative to the rest of the economy. Indeed, the evolution of real value added in manufacturing activities — even excluding maquiladoras — tends to be scantly associated with the evolution of its exports. As figure 8.4 shows, during the period 1988-2004 there is no significant correlation between the growth rate of exports and that of value added across manufacturing industries.

Figure 8.4. Manufacturing industries: Real value added and exports, 1988-2004
(Annual average rates of growth, excluding *maquiladoras)*



Source: Moreno Brid et al (2007)

The lack of a correlation between the growth rate of exports and that of value added, which is behind the fact that exports have not served as a strong engine of growth of the manufacturing sector, is largely due to the fact that Mexico's manufactured exports have become heavily dependent on imports, with rather reduced local content and weak linkages with domestic suppliers. This is true of *maquiladoras* [128] but also of a substantial proportion of other firms that export manufactures. In fact around 70 percent of Mexico's exports of manufactures are produced through assembling processes of imported inputs that enter the country under the preferential tax schemes PITEX and ALTEX (Dussel, 2003 and 2004, see chapter 7). Most important, such tax facilities entail approximately 30% lower input costs for manufacturing firms that rely on foreign suppliers — entering through a program of temporary imports — relative to a similar firm that relies instead on locally produced inputs. Another key element behind the surge of imports is an appreciated real exchange rate in recent times which has contributed to the breakdown of internal linkages in Mexico's domestic productive structure as local producers have been put out of

[128] According to some estimates, on average no more than 5% of *maquiladoras* intermediate inputs are locally supplied (Dussel 2003).

business by foreign competition.

Applied econometric studies confirm that in the last fifteen to twenty years the Mexican economy has significantly increased its structural dependence on imports. The results indicate that Mexico's long-term "income-elasticity" of demand for imports (essentially manufactured goods) has more than doubled in this period[129]. Traditionally its value stood at between 1.2 and 1.5, and has then risen to levels close to 3.0. Thus, if Mexico's real income is to grow at an annual average long-term rate of 5 per cent, its imports in real terms will tend to expand at a rate of 15 percent. To keep the trade deficit in check, and avoid it bulging as a proportion of income, Mexican exports must then expand at least 15 percent per year. If the terms of trade move in an adverse way, the required expansion of exports would have to be higher. Such fast growth of exports seems unlikely to be sustained in the long run. Recall that during 1988-99 when the US economy grew rapidly, Mexican exports increased at an annual average rate of 10 percent.

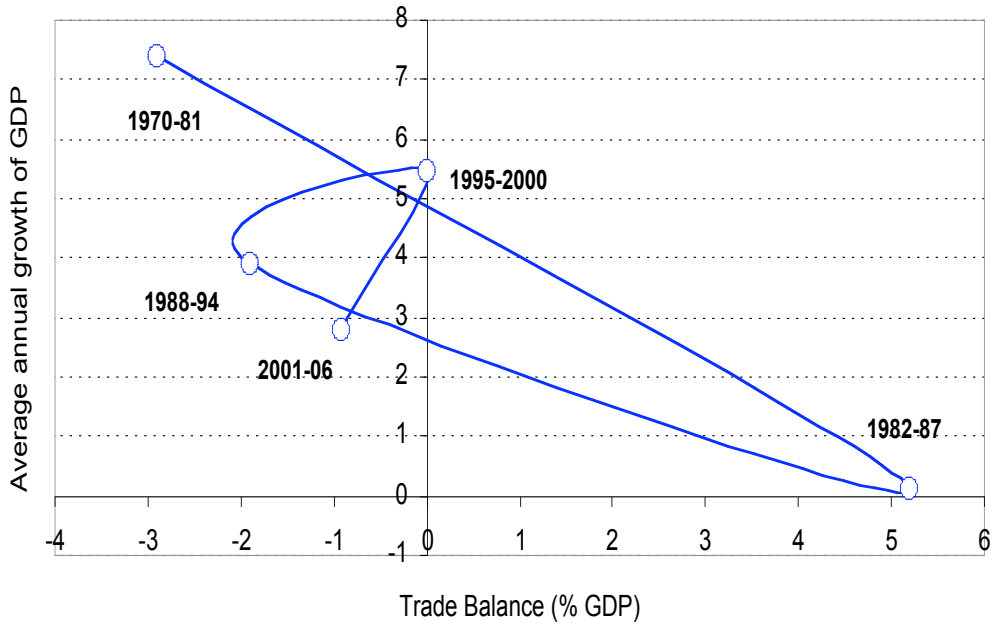
The upward shift in the long-run income elasticity of imports may not, however, be a long-term phenomenon. Most likely, the elasticity will abate somewhat as some once-and-for-all effects of trade liberalization on the demand for foreign goods and services wear off. But, if it remains at or near current high levels[130], the external sector will be a major constraint in Mexico's development path, a source of recurrent balance of payments problems.

Figure 8.5 illustrates how trade liberalization and macroeconomic reforms have failed to launch Mexico on a path of strong export-led growth. It shows that, for the Mexican economy as a whole, the relation between trade performance and economic growth has in fact deteriorated. The trade off curve relating growth and the trade balance has shifted inwards in recent times so that today in order to achieve a given rate of growth the economy tends to generate a larger trade deficit than in the past. Thus the balance of payments constraint on the economy's long term growth has tended to become more binding over time.

[129] By the "income-elasticity" of imports we understand the increase — in percentage points — that imports measured at constant prices will register for every one per cent increase in real income.

[130] The data for 2006 shows an annualized increase of 15.5 per cent in imports, while real GDP expanded 4.8 per cent.

Figure 8.5. Trade balance and real GDP growth, 1970-2006



Source: Based on INEGI (2007).

The efficiency and productivity gains from trade reform

The smoothness of the microeconomic processes of resource reallocation is a striking feature of the Mexican transition towards a liberalized trade regime. Applying UNIDO's index of structural variation, a measure (varying between zero and one) of the degree of structural change, we find that the change in the composition of manufactured exports between 1988 and 2003 was equivalent to 32% of their total volume. If *maquiladoras* are excluded, the index is lower, 27.6%[131]. The same methodology suggests a much smaller change in the composition of value added in Mexico's manufacturing industry in this period: only 13.2% of total output! One may conclude that, with some exceptions, the economic transformation post-economic reforms has merely extrapolated past trends in the composition of value added within the manufacturing industry. In other words, there is scant evidence of a massive restructuring of manufacturing output. The lack of labor reallocation processes has also been documented by Revenga (1997), Hanson and Harrison (1999) and Feliciano (2001).

The explanation for this lack of restructuring is unclear but has probably to do with Mexico's successful import-substitution experience in the past — that led to an irreversible change in the

[131] For the construction of the index, see UNIDO (1998).

economy's structure of comparative advantages — and the advanced stage that intra-industry (and intra-firm) processes of specialization and trade had already reached by 1980, including in particular those capital-intensive, large-scale manufacturing industries which have been partly responsible for the export boom.

In any case, the lack of significant processes of resource reallocation within the industrial sector has important implications for the assessment of the efficiency gains from trade reform. Indeed, the counterpart of this smoothness and of the lack of reversal in the direction of structural change in manufacturing is that the classic allocative efficiency gains expected from trade liberalization cannot possibly be very important. For those expecting a large, painful but greatly beneficial reallocation of resources in favor of traditional exportable goods, labor- and natural resource-intensive, the experience with trade liberalization to date should have been, in fact, greatly disappointing.

What can be said now about the dynamic effects of trade liberalization on productivity performance? As can be seen in table 8.8, labor productivity growth in manufacturing, the main tradable goods sector, slowed down in the period 1981-94, undoubtedly as a result of the adverse demand shocks associated to the debt crisis and oil price shock of the 1980s. Since 1994 it has almost recovered its past trend increase over the period 1970-1981 despite a much lower rate of output growth (roughly half that of the period 1970-81). This implies that for each percentage increase in output, productivity now increases at a faster rate than in the past suggesting that, indeed, the increasing openness of the Mexican manufacturing sector has had a positive effect on the rate of labor productivity growth. A cautionary note, however, is that the effects of trade liberalization are difficult to disentangle from those of privatizations, industrial policy and recurrent episodes of real exchange rate appreciation. For example, in the basic metals sector, which shows the fastest rate of productivity growth both in 1981-94 and 1994-2004, the industry's rationalization has probably been partly determined by a government program with precisely that goal that included the shutdown and privatization of many public enterprises in a sector where the latter had traditionally shown a relatively high share of the industry's output.

The contribution of trade liberalization to productivity growth appears to have been positive in sectors producing capital goods and transport equipment, where productivity growth has almost recovered past trends despite a lower rate of output growth and where trade liberalization has probably facilitated a greater degree of intra-industry (and intra-firm) specialization in foreign trade, as suggested by the rapid and simultaneous expansion of both exports and imports in some of these industries. In some sectors producing intermediate inputs, such as the cement

and glass industries, productivity performance has been outstanding, well ahead the historical one. In this sector, just as in the chemical industry, the failure of output growth to maintain even the slow growth rates of the period 1981-94 has meant, however, that the recovery of productivity growth has taken place in the midst of a very significant reduction of employment in the most recent period. In some light manufacturing industries — such as food processing — greater foreign competition has shaken out less efficient local producers or forced them to modernize, as

Table 8.8. Output, employment and productivity growth in manufacturing

(Annual growth rates in percent)

	Output			Employment			Labor productivity		
	1970-81	1981-94	1994-04	1970-81	1981-94	1994-04	1970-81	1981-94	1994-04
Food processing[1/]	4.8	2.6	3.0	3.0	1.2	0.3	1.8	1.4	2.7
Textiles, apparel and leather	4.8	-0.4	1.1	2.6	-1.5	0.9	2.2	1.1	0.2
Lumber, wood and furniture	5.8	-0.1	0.2	3.9	-2.4	-1.0	1.9	2.3	1.2
Paper	5.8	2.6	1.4	2.8	0.5	-0.8	3.0	2.1	2.2
Chemicals	8.9	2.7	2.4	4.0	0.9	-0.4	4.9	1.8	2.8
Stone, clay and glass	5.5	2.3	1.8	2.7	0.8	-1.7	2.8	1.5	3.5
Basic metals	6.8	1.5	4.4	4.9	-6.2	-0.3	1.9	7.7	4.7
Machinery and equipment[2/]	8.3	1.8	4.8	5.2	-0.2	2.0	3.1	2.0	2.8
Total manufacturing	6.1	2.0	3.1	3.6	0.1	0.8	2.5	1.9	2.3

1/ Includes beverages and tobacco
2/ Includes fabricated metals
Growth rates are calculated as the change in the logarithm divided by the number of years. The choice of periods is such that the initial and final years are roughly in the same phase of the economic cycle
Source: Based on INEGI, Cuentas Nacionales

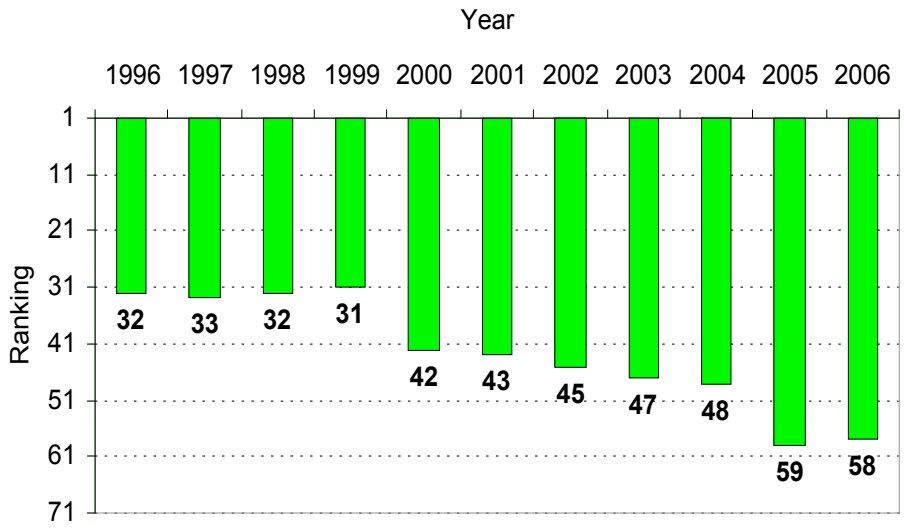
conveyed by the fact that the recovery of productivity growth has taken place here in the midst of a relatively slow rate of output growth partly explained by the high rates of import penetration in these industries. The benefits of import penetration, in terms of productivity performance, become much more doubtful when we look at other sectors — such as the textile and wood industries with the slowest rates of output and productivity growth in the manufacturing sector — which show a rapid displacement of local producers resulting from increased exposure to foreign competition. In these cases, the result has been a worsening of productivity performance whether compared to historical trends or to the period 1981-94.

To the extent that the productivity gains that have occurred were based on the elimination or displacement of local producers, their short term social impact may have been adverse. Whether in the medium term such impact becomes positive depends on the degree to which the thus redundant labor successfully makes the transition to be gainfully employed in dynamic, high-productivity sectors. So far, as we shall see in the next chapter, this has not happened as investment has failed to respond in a commensurate way[132]. This is the reason why the productivity gains in manufacturing have failed to accelerate the rate of productivity growth in the economy as a whole. In fact, output per worker in the economy as a whole is today below its level in 1980, the reason being that the increase in labor productivity in manufacturing has been offset by a large productivity decline in the services sectors of the economy. As we shall see later, the failure of the economy to grow at a fast rate, the consequence of a low rate of capital accumulation, is behind the massive increase in underemployment in the tertiary sectors of the economy and the resulting decline in output per worker in these sectors.

In the face of the sluggish growth of aggregate productivity and the absence of a significant restructuring of manufacturing, the key tradable goods sector, it is not surprising that Mexico's international competitiveness is lagging behind. As the Global Competitiveness Ranking states, from 1996 to 2006 Mexico's ranking has been falling from 32nd place in 1996 to 58th in 2006 (see figure 8.6).

[132] Note too that contrary to the support policies in place in the United States, Mexico has not implemented any program to ease such transition or to compensate displaced workers for the potentially adverse effects of NAFTA.

Figure 8.6. Mexico: Global Competitiveness Ranking, 1996-2006

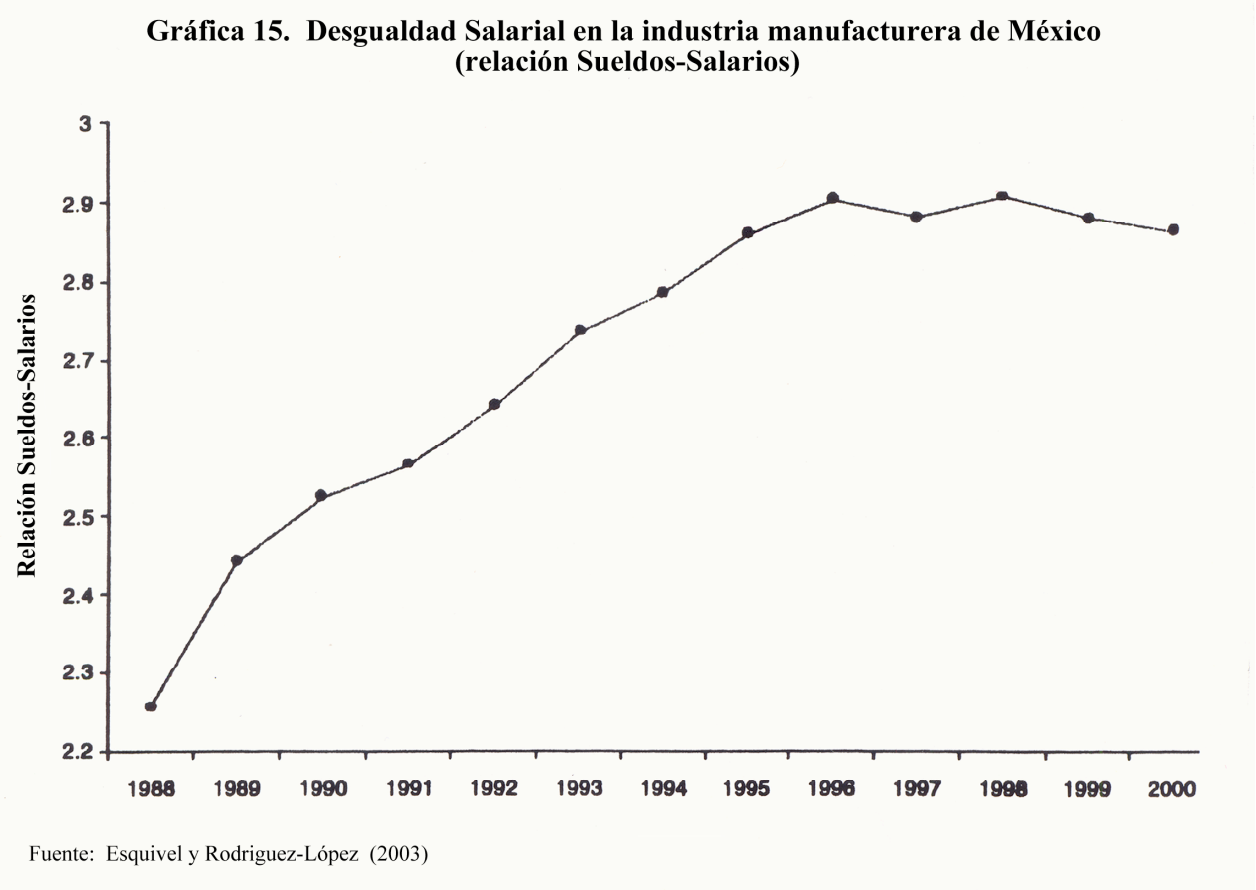


Source: Moreno Brid et al (2007)

The paradoxical increase in wage inequality

A paradoxical development during the period of economic reform has been a rising wage premium on skilled labor that has resulted in increased wage inequality (see figure 8.7 which shows how the ratio of white collar salaries to blue collar wages within manufacturing has increased since the late 1980s). The paradox arises from the fact that in a country with abundance of unskilled labor conventional trade theory leads us to expect exactly the opposite result. Indeed, according to the Stolper-Samuelson theorem, the relatively abundant factor (unskilled labor in Mexico) should have gained from trade liberalization relatively to the scarce factors (including skilled labor): the induced shift in relative prices in favor of unskilled intensive goods increases the demand for labor in industries intensive in unskilled labor thus causing the wages of unskilled labor to increase relative to those of skilled labor. The consequence of the increase in international trade is then a greater equality in the distribution of wage incomes, rather than the increased inequality observed in Mexico after trade liberalization.

Figure 8.7. Ratio of white-collar salaries to blue-collar wages in manufacturing



Several explanations link this increase in the skill premium to the effects of trade liberalization. There is, in fact, no dearth of such explanations. Hanson and Harrison (1999) discuss the possibility that before trade liberalization the structure of protection in Mexico may have favored industries intensive in unskilled labor so that trade reform could then conceivably have shifted relative prices in the "wrong" direction. Another line of explanation, also consistent with the logic of the Stolper-Samuelson theorem, is that, even though relatively abundant in unskilled labor relative to the United States, Mexico may be relatively abundant in skilled labor with respect to the rest of the world given, in particular, the emergence in world trade over the past two decades of low wage competitors in unskilled labor intensive industries (Londoño and Székely, 1997). Larudee (1998) highlights that Mexico, despite its abundance of unskilled labor, may not have a comparative advantage in many activities intensive in unskilled labor for reasons related to differences in production functions (technological backwardness in unskilled labor intensive

industries) and/or factor intensity reversals[133]. Feenstra and Hanson (1997) focus on the effects of "outsourcing", stimulated by trade liberalization and removal of capital controls, whereby products shifted to Mexico (and other developing countries) are characterized by a relatively high skill intensity from the perspective of the developing country but at the same time are relatively unskilled labor intensive from a developed country perspective. The result is an increase in the average skill intensity of production which increases the skill premium in both developed and developing countries. Cragg and Epelbaum (1996) and Cañonero and Werner (2002) suggest that trade liberalization operated through the fall in the relative price of imported capital goods. This stimulated the adoption of more capital-intensive techniques and, given the complementarity between skilled labor and physical capital, a skill-biased shift in the demand for labor. Ros (2001) emphasizes the effects of import competition and real exchange rate appreciation on profitability and employment in the tradable goods sectors and the adjustment of firms to the profitability squeeze by reducing the employment of unskilled labor, the variable factor in the short run.

Other explanations emphasize the role of skill-biased technological progress. Esquivel and Rodriguez-Lopez (2003) argue in fact that trade liberalization operated along Stolper-Samuelson lines in the direction of increasing the relative incomes of unskilled workers but its effect was offset by the unequalizing influence of skill biased technological progress

Despite these differences of opinion about the relative contributions of trade liberalization and technological change to the increase in the skill premium, it is now generally agreed that even if skill biased technological change were to be considered the most important influence, this technological change was itself an endogenous response to the competitive pressures associated to greater international integration which was thus indirectly responsible for the increase in the skill premium and wage inequality. As noted by Esquivel and Rodriguez-Lopez themselves, the effects of technological change and trade liberalization cannot be clearly separated since the adoption of new technologies and productivity improvements are frequently the result of external competitive pressures associated with trade liberalization.

A deepening agricultural dualism

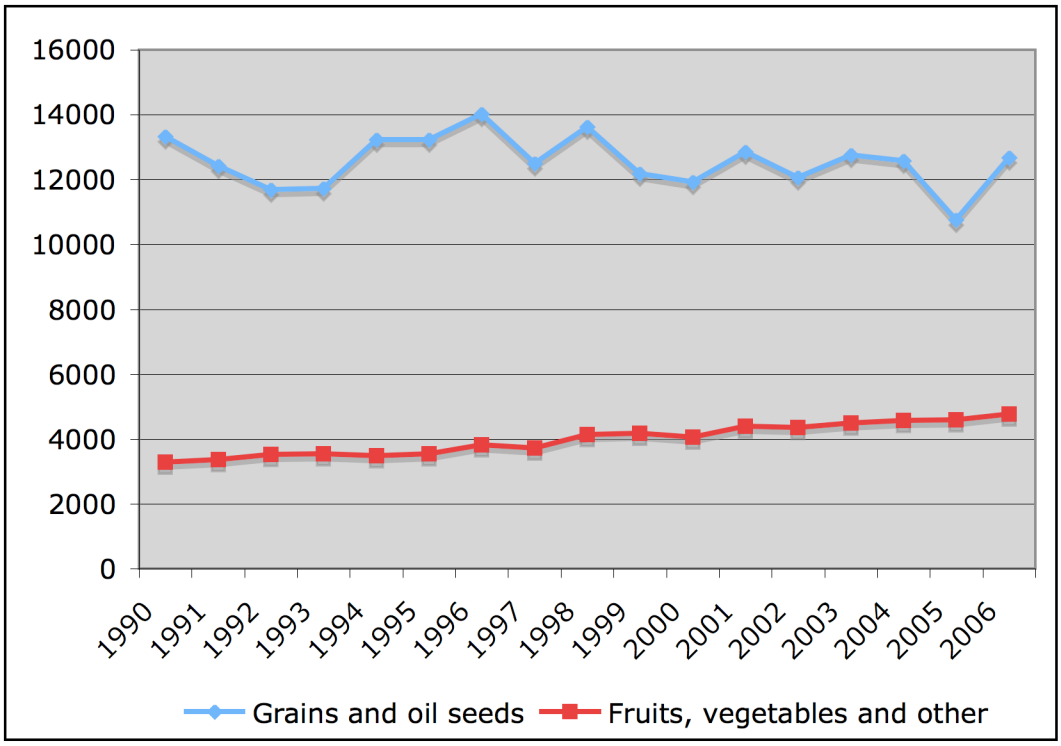
While foreign trade as a proportion of agricultural production rapidly expanded after NAFTA took effect — increasing from an average of 23 percent in 1990-93 to almost 40 percent in 1994-2001

[133] This could be the case of agriculture which is intensive in unskilled labor in Mexico and relatively capital intensive in the United States, so that the United States may have a comparative advantage in agriculture despite Mexico's abundance in unskilled labor.

(Yunez, 2002) — the overall expansion of agricultural production, at a rate of 1.9 percent per year from 1991-93 to 2003-06[134], has been disappointing. On average rural incomes have grown at a very slow pace (0.7 percent per year in 1992-2004) and only a small fraction (35 percent) of this increase is due to productive activities (the bulk of it being explained by public and private transfers)[135]. Moreover, there has been a clearly differentiated behavior between the commercial sector and the jido sector. The former, producing exportable goods (such as fruits and vegetables), benefited from and responded positively to the reforms (exports in constant dollars grew by almost 50% in 1994-2003 compared to 1989-1993[136]), while the latter has not — imports grew by 53% over the same period affecting this sector which largely produces importable goods (basic grains and beans). This is reflected in the evolution of the harvested areas of different crops (see figure 8.8). Rather than shifting into high value crops, the ejidatarios' risk-averse response to the agricultural reforms has been to stay in maize and fodder while accumulating livestock and, at the same time, diversifying into wage and own account off farm activities as well as migrating to the United States (Davis, 2000). Today almost half of the sector's income comes from non-farm sources, including remittances, and more than 60 percent of all ejido households have some family member working off farm[137]. Within the importables sector there has also been a differentiated response of land productivity after NAFTA went into effect. While yields have increased significantly in irrigated areas, they have stagnated in rain-fed areas where subsistence farmers are located (Yunez and Taylor, 2006).

[134] Anexo al Sexto Informe de Gobierno 2006.
[135] See BID (2006).
[136] See BID (2006).
[137] See Davis (2000) and Giugale et al. (2001).

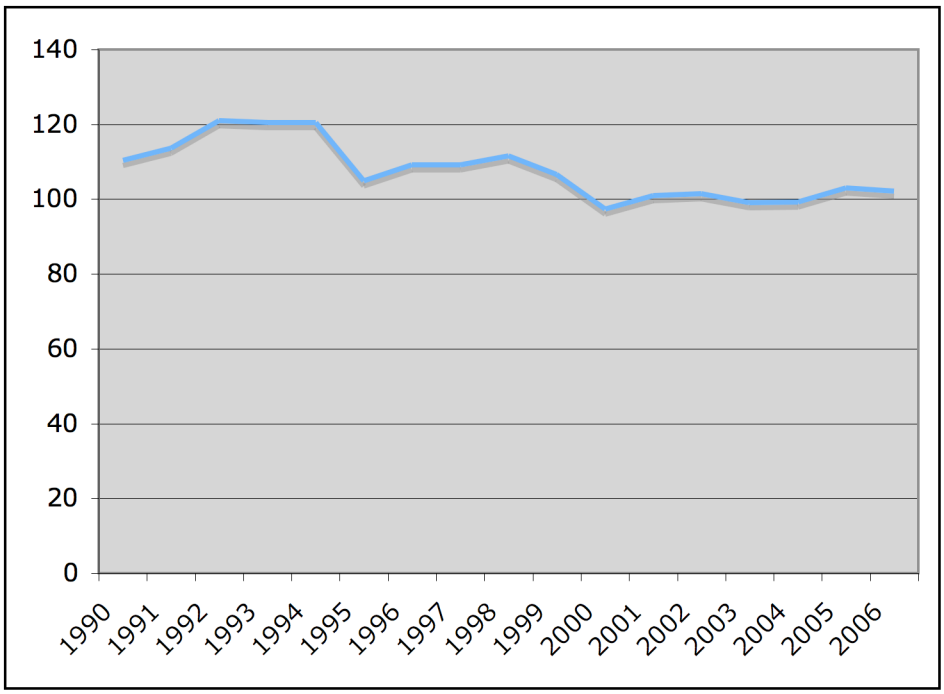
Figure 8.8. Harvested area. Basic grains and oil seeds, and fruits and vegetables
(Thousands of hectares)



Source: Anexo al sexto Informe de Gobierno based on Secretaria de Agricultura

Some of the expected benefits from the reform process have materialized. Foreign investment has flowed into the agroindustrial sector, although not into primary agricultural production, trebling since the beginning of NAFTA (BID, 2006). Other expected benefits have not happened. In fact, the slow growth of agricultural output and the persistence of rural poverty seem to be related to the reforms themselves (see Giugale et al., 2001). The downward trend in real agricultural prices throughout the 90s and 2000s (see figure 8.9) is largely explained by the evolution of international prices but was probably also strengthened by the removal of trade protection (and exchange rate overvaluation in the early part of the 1990s and during the 2000s). The elimination of extension programs and technical assistance has affected a large proportion of small producers. The retreat of the state from distribution was followed by the domination of marketing channels by oligopolistic intermediaries that depress the prices obtained by producers, affecting particularly the poorest areas. In the absence of competitive markets and without proper consideration to the large regional diversity and income heterogeneity of the Mexican countryside, liberalization did not yield the expected benefits.

Figure 8.9. Real agricultural prices



Agricultural sector prices divided by producer price index

Source: Anexo al sexto Informe de Gobierno based on INEGI

Financial liberalization, the capital surge and the 1994-95 peso crisis

If the efficiency and productivity effects of market reforms have been unable to make up for the loss of growth potential during the 1980s, what about their effects on external capital inflows and the prospects for increasing the rate of accumulation by these means? Would the shift in the market-state balance bring about a permanently higher flow of external savings, significantly greater than historical rates that would allow an increase in the rate of accumulation? Such was the optimistic outlook of many observers which in the early 1990s believed that Mexico, a model reformer and successful emerging market, would turn into a Latin-American economic miracle. Recall too that in August 1990, the Mexican government announced its plan to re-privatize the banking sector that had been expropriated during the López Portillo administration, thus deepening the financial liberalization reform. This announcement further boosted optimistic expectations, optimism that became rampant when NAFTA was signed in 1993.

Market reforms, together with progress in NAFTA's negotiations and favorable external developments, such as the fall in foreign interest rates, contributed in three main ways to a capital surge from 1990 to 1993. The first was the liberalization of domestic financial markets[138]. The second was a drastic reduction in the country risk premium — an improved image of Mexico as a "good place to invest" — which resulted from the debt relief agreement, the fall in international interest rates, and the repayment of foreign debt financed by the large privatization revenues of 1991-92. The third, which interacted with the reduction of country risk, was the real appreciation of the peso and the very high interest rates that prevailed in the initial stages of the disinflation program of late 1987.

The size and composition of capital inflows, heavily biased towards short-term portfolio investments, had three consequences on the economy. First, the continuous appreciation of the real exchange rate that was taking place in the midst of a radical trade liberalization produced a profit squeeze in the tradable goods sectors of the economy with negative consequences on investment (Ros, 2001). Second, as a result of the difficulties in intermediating massive capital inflows, an allocation of resources biased towards consumption rather than investment (Trigueros, 1998) reinforced a decline in the private savings rate. Third, an increasing financial fragility, which resulted from the concentration of the inflows in highly liquid assets and the excessive expansion of domestic credit for consumption purposes, accompanied a progressive deterioration of the banking system balance sheets (Trigueros, 1998). Financial fragility was also the result of the lack of experience of the new bankers that soon became evident. Indeed, the average rate of return in the banking sector fell from its average of 50 percent in 1987 to 12 percent in 1994, at the same time that the proportion of non-performing loans steadily increased. With banks progressively borrowing more in foreign capital markets to lend domestically, their vulnerability to exchange rate movements was exacerbated.

These trends should have been a legitimate concern for economic policy. They were not. By 1993, the current account deficit reached levels of the order of 6-7 percent of GDP and by early 1994 the capital surge was over. Thus, throughout 1994 the massive current account deficit was financed through the depletion of international reserves. Clearly there was an incorrect diagnosis by the government of the causes of the macroeconomic disequilibria, as it was considered that the pressure on the reserves and dilemmas of policy makers were temporary and would be corrected without the need of a depreciation of the exchange rate. Thus, no significant depreciation of the exchange rate was implemented on the grounds that it would rekindle inflation,

[138] Ros (1994) studied the determinants of capital inflows and found that the opening of the bond market is the main determinant of the "change in asset preferences" during this period.

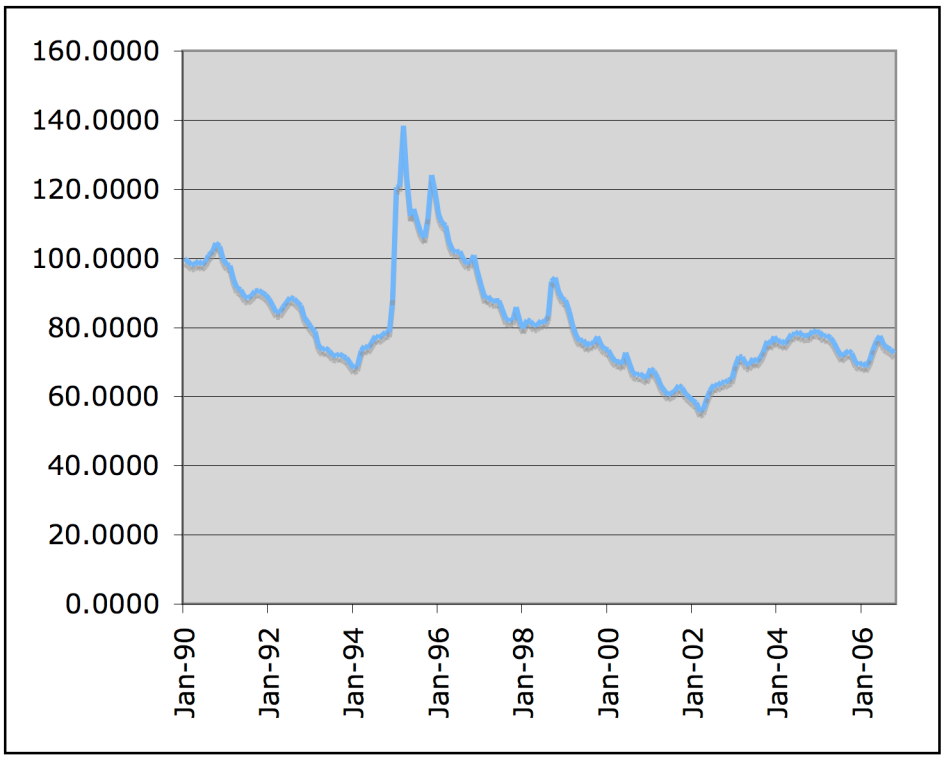
and would give “alarming signs to the market”, augmenting capital flight and triggering a balance of payments crisis. In any case, such policy was steady but surely being perceived as non-sustainable by investors in Mexico’s capital and money markets. In the course of the year, the Bank of Mexico allowed increases in the interest rates on CETES and Tesobonos, and increased the guarantees on the rates of return on government paper denominated in foreign currency. Nevertheless, the foreign exchange reserves kept being depleted ultimately forcing to perceive macroeconomic policy as unsustainable. At the end of 1994, scarcely a year after NAFTA came into effect, the Mexican economy was in the midst of a financial crisis and on the brink of the worst recession since the great depression of the 1930s. Moreover, the country had been experiencing instability and political violence throughout 1994, starting with the armed revolt of the Zapatistas in January (the same day that NAFTA came into effect).

The boom and bust cycle that culminated with the banking crisis of 1994-95, was a consequence, at least in part, of an excessive reliance on financial deregulation and capital market liberalization (Clavijo and Boltvinik, 2000, Lustig 2002, OECD 2002). The left over from that cycle was a bankrupt banking system whose bailout — through FOBAPROA — added some 20-percentage points of GDP to the public debt and left those households and firms, mostly small and medium enterprises with no access to foreign finance, virtually without access to bank credit. Indeed the current balance sheet of commercial banks — now subsidiaries of foreign financial institutions — shows that loans which used to make up more than 80% of its assets, now only represent less than 12%. Moreover, in recent years, the total annual amount of bank credits granted to private firms as a proportion of GDP oscillates around 15%, one of the lowest in Latin America (Esquivel, 2006). Paradoxically enough, this progressive and acute weakening of the financial intermediation functions of the banking system happens at the same time that the profits they generate are a major proportion of the total profits of the foreign financial corporations that own them.

It is ironic that the banking sector returned to a situation of acute credit rationing, a characteristic of the era of financial repression that preceded the financial liberalization of the late 1980s. Moreover, this situation has become more worrying given the constraints that have been increasingly put by the macroeconomic reform process on development banks to directly grant credit to the private sector. The lack of credit has become a major obstacle — especially for small and medium firms — that severely constrains their possibilities for investment and thus for increasing their long-run growth and has also reinforced the dual structure of the productive sector. In the next chapter, we look at this and other causes of the poor growth performance of the economy in the post-reform period.

Figure 8.10. Multilateral real exchange rate, 1990-2006

(1990=100)



Source: Banco de México

9. The growth slowdown since 1982

Over the past two decades and a half the pace of Mexico's economic development has suffered a severe slowdown compared to the historical record of the previous 40 years. Between 1981 and 2005, Mexico's GDP per capita has grown at an average rate of only 0.5 percent per year (table 9.1), which is similar to that of the period 1910-1940 and compares very unfavorably with the historical record of 3.2 percent per year over the period 1940 to 1981. This poor performance is partly due to the decline in per capita incomes from 1982 to 1989, a period characterized by highly adverse external shocks, an acute macroeconomic instability and a continuous transfer of resources abroad (to cover the foreign debt service) in the context of a severe external credit rationing. But even leaving aside this period, economic growth has been wanting: from 1990 to 2005, output per capita has expanded at an annual rate of 1.5 percent (table 9.1) and this in the context of a strong volatility in the level of economic activity.

Even such meager recent growth has to be attributed to the rapid increase in the labor force participation ratio as GDP per worker has in fact fallen over the period 1981 to 2005 and has stagnated since 1990 (see table 9.1). The growth slowdown is thus particularly serious to the extent that it implies wasting the "demographic dividend" associated to the transition towards low rates of population growth in the context of a still very dynamic growth of the working age population[139]. Indeed, while in other historical experiences this demographic transition is associated to an acceleration in the growth of per capita incomes, in the Mexican case what one observes is an increasing underemployment of the labor force and a deceleration in the growth of per capita incomes.

Table 9.1. Growth of GDP per capita and GDP per worker

	1940-1981	1981-2005	1990-2005
Growth rate of GDP per capita	3.2	0.5	1.5
Growth rate of GDP per worker	3.1 [1/]	-0.7	0.3

1/ 1960-1981

Source: Based on INEGI, Penn World Table 6.2 and World Bank, World Development Indicators

[139] As shown in table 9.7, as a result of this transition the dependency ratio fell from 95.8 to 56.4 percent between 1980 and 2005.

The rate of growth of GDP per capita has not only fallen below the historical experience in the pre-debt crisis period, it has also fallen short of the growth of most other regions in the world, rich and poor countries, oil exporters and oil importers, economic reformers and non reformers. The relative decline of the Mexican economy has taken place with respect to the major country groupings with the exception of Sub-Saharan Africa and the transition economies of Europe and Central Asia. Moreover, this relative decline is not an exclusive feature of the lost decade of the 1980s since it has continued (albeit at a generally slower pace) in the period since 1990 (see table 9.2). Thus, in particular, instead of catching up, the Mexican economy's gap with the high income OECD economies is widening.

Table 9.2. Mexico's GDP per capita as a ratio of GDP per capita in:

	1981	1990	2005
East Asia and Pacific	7.78	4.12	1.73
South Asia	7.01	4.68	3.23
Sub-Saharan Africa	4.37	4.31	4.94
Middle East and North Africa	2.19	1.85	1.66
World	1.55	1.21	1.08
Latin America and Caribbean	1.30	1.25	1.21
Europe and Central Asia 1/	---	0.99	1.09
High income OECD	0.46	0.33	0.30

1/ Developing countries
GDP per capita is in 2000 international dollars
Source: Based on World Bank, World Development Indicators (on line)

Trade expansion without export-led growth

In reviewing the causes of the slow growth of the Mexican economy we must first discard a lack of international trade integration and export growth[140]. The premises on which the trade liberalization process launched in the mid 1980s was expected to improve the growth performance of the economy were two. First, exports and foreign trade more generally would be stimulated by trade liberalization as it removed the anti-export bias of protection and opened up the domestic markets to foreign competition. Second, the expansion of international trade would act as an engine of growth by improving the allocation of resources and the dynamic efficiency of

[140] For an explanation of the slow growth rate of Latin American economies that emphasizes the still low degree of trade openness of the region (especially in comparison to East Asia), see De Gregorio (2005).

the economy as competition in domestic and world markets would force producers to adopt best practice techniques and thus accelerate the rate of technological progress, improve overall productivity and strengthen international competitiveness.

As we have seen in chapter 8, the first of these assumptions turned out to be correct. There is little doubt that trade liberalization, by eliminating the anti-export bias of protection, has greatly stimulated export growth. Yet, the second premise turned out to be wrong. Clearly, international trade has not acted as a sufficiently strong engine of growth, capable of leading to a substantial improvement in the growth performance of the economy. There has been fast export growth but no rapid export led growth.

Why has the fast export expansion failed to generate broad based growth? In answering this question one must first look at what technological benefits do firms derive from exporting and the associated issue of the causality between exports and productivity performance. The evidence from micro-econometric analyses of the relationship between exports and firm productivity performance using plant level data sets suggests that causality seems to run from productivity to exports rather than the other way around as generally believed. In other words, efficient firms seem to self-select into export markets rather than deriving technological benefits from exporting[141].

Second, the most careful studies of the relationship between trade liberalization and growth across countries do not find a clear-cut relationship between the two (see Rodriguez and Rodrik, 2001). Ultimately, the reason, we think, is that freer trade may contribute to growth or not depending on the structure of static comparative advantages that an economy has at a point in time and the dynamic potential of this structure. Recent models of endogenous growth have formalized old ideas on infant industry protection showing that whether trade promotes growth or not depends on whether the forces of comparative advantage push the economy to allocate more resources to sectors with increasing returns to scale and knowledge externalities or whether they prevent the development of such activities[142]. In other words, freer trade may promote more or less dynamic patterns of specialization depending on the present factor endowment of the economy.

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[141] See Bernard and Jensen (1995, 1998), Aw, Chung and Roberts (1998), and Clerides, Lach and Tybout (1998). Note that the earlier literature on cross-country regressions of the relationship between exports and growth reached inconclusive results. For a survey of this literature, see Edwards (1993).

[142] See Grossman and Helpman (1991), Feenstra (1990), Matsuyama (1992), and Rodriguez and Rodrik (2001).

At first sight, the nature of Mexican exports should have generated faster economic growth. Indeed, in a recent paper, Hausmann, Hwang and Rodrik (2005) show that the level of technological sophistication of a country's exports relative to its per capita income is a good predictor of a country's subsequent growth and it is clear from their findings that Mexico has a relatively high level of sophistication of its export basket, higher certainly than other Latin American economies with similar or even higher levels of income per capita (Chile and Argentina, for example). Mexico acquired a comparative advantage in manufacturing during the ISI period, unlike many South American countries which maintained a comparative advantage largely in primary goods. As a result Mexico has integrated into the international economy as an exporter of not only oil but also of manufactures, both labor intensive (garment and assembly of electronic products) and of medium and high technological intensity (automobiles, metal mechanic industries). Thus, as we have seen in chapter 8, the share of manufactures in total exports climbed from below 20 percent in the early 1980s to around 80 percent today at the expense of the share of oil exports which fell from over two thirds of the total in the early 1980s to less than 20 percent today (see figure 8.1). This transformation is remarkable in the international context. Today, the manufacturing exports share in total exports is higher in Mexico than in several Latin American and East Asian countries (table 9.3). Moreover, as discussed in chapter 8, the share of high technology exports in total manufacturing exports has been increasing over time and reaches around 20 percent today.

However, the evidence put forward in chapter 8 raises serious doubts about the ability of the current industrial structure to generate high, self-sustained growth. The counterpart of the processes of intra-firm and intra-industry trade specialization[143] is that many, if not most, exporting sectors and firms, while dynamic, either do not have adequate domestic linkages or have seen their weakening in the last decades. The consequences have been negative for the trade balance, the growth effects of exports, and learning processes. Moreover, the fragility of Mexico's pattern of industrial production and trade specialization goes beyond the lack of domestic linkages in export-oriented activities and the dependence of export demand on US economic activity. The increasing dominance of the import intensive industries, maquiladora-type, in export activities is a motive for concern. First, as UNCTAD's Trade and Development Report (2002) points out, the statistics that show a significant share of manufacturing exports with

[143] Within manufacturing, the most dynamic component both before and after NAFTA is associated to intra-industry and intra-firm trade, including in particular the maquiladora industry. The share of intra-industry trade (closely associated to the maquiladora industry) in the manufacturing sector increased from 62.5 percent in 1988-91 to 73.4 percent in 1996-2000 (OECD, 2002).

medium or high technology intensity in developing countries may be misleading. Most of the technology in these manufactures is in fact incorporated in the components produced in technologically advanced countries while developing countries are merely involved in the

Table 9.3. Diversification of exports
(in percent of total merchandise exports)

	Argentina	Brazil	Chile	Indonesia	Korea	Malaysia	**Mexico**	Thailand	Turkey
Manufactures									
1980	23.2	37.2	9.1	2.3	89.6	18.8	**11.9**	25.0	26.9
1993	31.9	58.9	16.5	53.1	93.1	69.7	**74.6**	71.1	71.8
2005	30.8	53.9	13.8	47.1	90.8	74.6	**77.1**	76.8	81.6
Agriculture 1/									
1980	71.2	50.3	24.9	21.7	8.8	46.0	**14.7**	57.1	64.7
1993	57.4	28.4	38.3	15.0	3.8	18.1	**8.5**	25.8	24.5
2005	48.0	30.2	25.9	16.7	1.9	9.5	**5.9**	16.1	11.0
Min. and oil2/									
1980	5.7	11.2	65.4	75.8	1.3	34.9	**73.3**	13.9	8.4
1993	10.7	12.3	43.3	31.9	3.0	11.5	**16.5**	1.6	3.6
2005	19.6	15.9	58.1	35.9	7.2	14.5	**16.7**	5.3	6.1

1/ Food and agricultural raw material exports

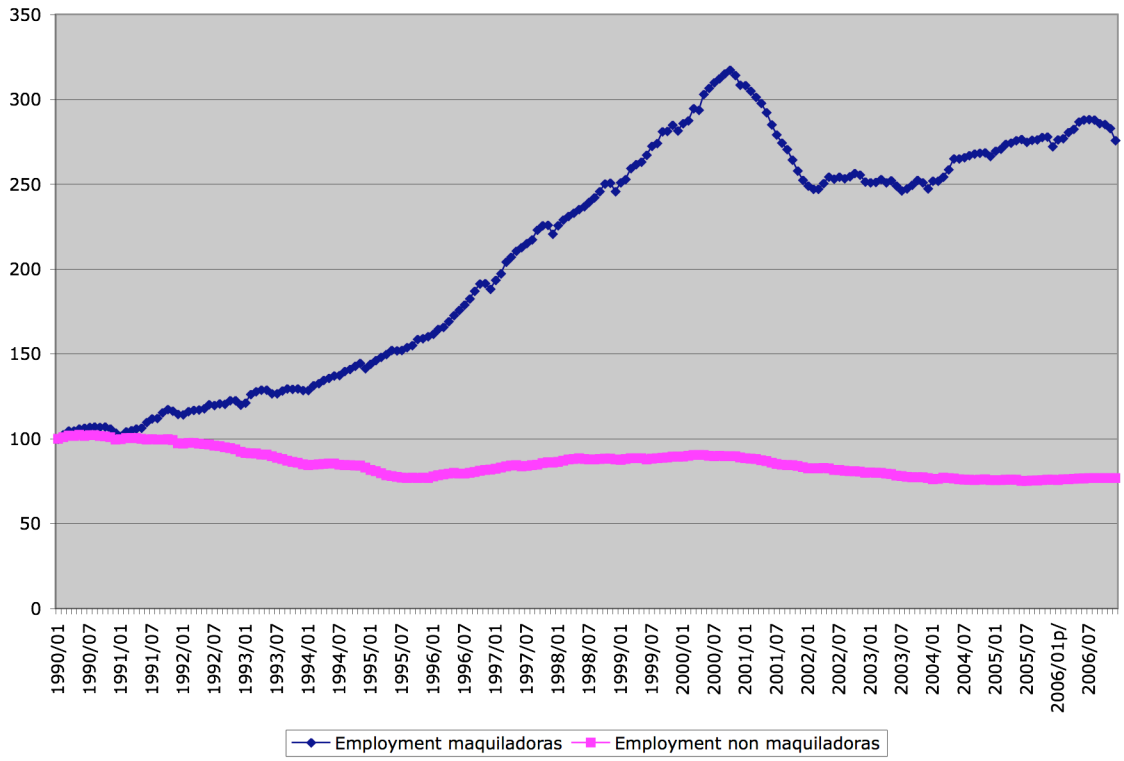
2/ Ore, metals and fuel exports

Source: World Development Indicators

assembly of these components, a process characterized by a low technological sophistication, the use of low skilled labor, little value added and low and stagnant labor productivity. This is certainly the case of most segments of the maquiladora industry which, as we have seen, have vastly increased their importance in Mexico's manufacturing exports and employment. Given that these industries tend to be characterized by a low potential for productivity growth, the counterpart of their high capacity of employment absorption, the persistency of an appreciated real exchange rate in the recent past has led to a fall in profit margins in these activities as wages in Mexico measured in US dollars have tended to increase. This, together with increasing competition from China and the slowdown in the US economy in the early 2000s put a brake on the expansion of productive capacity and output in the maquiladora sector and led to a sharp decline in employment starting in the third quarter of 2000 from which the industry has not yet recovered (see figure 9.1). With no productivity growth, the maquiladoras constitute a sector that can only expand on the basis of low wages. Given the tendency of wages to increase in other

sectors along with productivity gains, the maintenance of the "internal competitiveness" of the maquiladoras, i.e., their capacity to attract resources from the rest of the economy, would require a continuous undervaluation of the currency.

Figure 9.1. Employment in the maquiladora and non-maquiladora industries, 1990-2006



Indices January 1990 = 100.
Employment in non-maquiladoras is based on the Monthly Industrial Survey (Encuesta Industrial Mensual)

Source: INEGI

This is probably the major reason, along with the disintegration of backward and forward linkages that has accompanied the very fast growth of imports since trade was liberalized, why the pattern of specialization in the case of Mexico has not been particularly dynamic. In some sense, the Mexican economy is trapped by the loss of comparative advantages in labor intensive manufacturing to countries with lower labor costs and, on the other hand, by the inability to acquire comparative advantages in more human capital and technology intensive goods that are produced by countries with high per capita incomes. .

Is productivity performance the culprit for the growth slowdown?

In accounting exercises that decompose the rate of GDP growth into the contributions of factor accumulation and total factor productivity (TFP) growth, it is customary to attribute Mexico's growth slowdown since the early 1980s to a weak growth performance of TFP[144]. A recent exercise (Faal, 2005) finds, for example, that about two thirds of the decline in the rate of GDP growth (a reduction of 3.9 percentage points comparing 1980-2003 to 1960-79) is explained by lower TFP growth, which in fact *declined* at rate of 0.5 percent per year from 1980 to 2003 (see table 9.4). These findings are consistent with those of other similar decomposition exercises (see Santaella, 1998, Bosworth, 1998, World Bank, 2000, and Bergoeing et al., 2002). In this view of the growth process, the weakness of productivity growth is in turn often attributed, without any evidence being provided, to the incompleteness of market reforms or the lack of a second generation of structural reforms (in the areas of energy, labor market or the judicial system).

Table 9.4. Sources of growth, 1960-2003

	1960-79	1980-2003	1996-2003
Real GDP growth	6.5	2.6	3.5
	Factor growth rates (in percent)		
Capital	6.1	3.4	3.8
Labor	3.6	3.0	2.4
TFP	2.1	-0.5	0.7
	Factor contributions (in percentage points)		
Capital	2.0	1.1	1.2
Labor	2.4	2.0	1.6
TFP	2.1	-0.5	0.7

[144] More generally, TFP growth is often seen as a major "source of growth" in growth accounting exercises (see, for example, Easterly and Levine, 2001). A recent exception to this result is Baier et al. (2006) which considering a large sample of countries over a long historical period and after taking into account the contribution of human capital find that TFP growth accounts on average for only 14 percent of the growth in output per worker. It has also become almost common place to attribute the income gap separating developed from underdeveloped countries primarily to differences in productivity, i.e. to differences in the efficiency with which the available factors are used in production (rather than to, say, the endowment of factors of production) (see Hall and Jones, 1999, Klenow and Rodriguez-Clare, 1997, Helpman, 2004, and, in the Mexican context, Bazdresch and Mayer, 2006). As we shall see later, Mexico in the early 1980s does not fit well with this common view.

Source: Faal (2005)

The growth decomposition exercises on which these claims are based are flawed in several ways but it is not our purpose here to address this subject (see, on the topic, Kaldor, 1966, Cripps and Tarling, 1973, Lavoie, 1992, Felipe and McCombie, 2006). We want however to illustrate what is wrong with these claims in the Mexican case by looking at Mexico's relative decline with respect to OECD countries using a different decomposition exercise.

In 1980, Mexico was an upper middle-income country with a GDP per capita that was well over 40 percent of the average of a group of high-income OECD countries (see table 9.5)[145]. The difference in income per capita separating Mexico from the high income countries in table 9.5, its

Table 9.5. Mexico's development gap in 1980 and 2003

	1980		2003	
	Mexico	OECD	Mexico	OECD
GDP per capita [1/]	7,856	18,016	8,784	28,043
Participation ratio (%) [2/]	30.4	47.3	40.5	49.9
Output per worker [3/]	25,818	38,089	21,710	56,166
Agriculture [4/]	8,512	21,496	5,428	26,807
Industry [4/]	24,657	42,075	22,578	65,204
Services [4/]	37,570	38,363	26,202	54,709
Employment shares (%) [5/]				
Agriculture	28	10	16	4
Industry	29	34	25	26
Services	44	56	58	69
Output shares (%) [5/]				
Agriculture	9	6	4	2
Industry	28	38	26	30
Services	63	56	70	68

Notes and sources:

OECD = Average of Australia, Austria, Finland, Italy, Japan, Norway and Sweden
1/ PPP estimates in 2000 international dollars. World Development Indicators (on line).
2/ Labor force divided by population. World Development Indicators (on line).
3/ Estimated as the ratio of GDP per capita to the participation ratio.

[145] The OECD figures in table 9.5 are simple averages for seven OECD countries for which data on PPP estimates of GDP per capita, output and employment shares are readily available in World Development Indicators. See notes in table 9.5.

4/ Estimated as average output per worker multiplied by the sector's output share and divided by the sector's employment share.
5/ For Mexico 1980, Ros, 2000 (based on ILO Yearbook of Labour Statistics and World Bank, World Development Report). For Mexico, 2003, and OECD, World Development Indicators (on line).

development gap, can be decomposed as the sum of three components[146]: (i) differences in the labor force participation ratio, largely attributable to differences in the population's age structure and women participation rates; (ii) differences in occupational structure arising from the fact that the employment share of low productivity sectors is typically larger in developing countries than in developed countries; (iii) differences in output per worker in individual sectors (leaving aside differences in occupational structure) or the productivity gap *stricto sensu*.

Table 9.6 shows the results of this decomposition exercise. In 1980, nearly two thirds of Mexico's development gap was attributable to differences related to demographic and occupational structures. This was largely due to Mexico's high dependency ratio (over 40 percent of the gap was related to differences in participation ratios), a legacy of very high rates of population growth in the past. Still significant, although probably less than in earlier decades, was the difference in occupational structure: around 20 percent of the gap, largely due to the still high employment share of low productivity agriculture. This is what leaves just over one third to be accounted for by a 'pure productivity component', arising largely in agriculture and industry productivity differences.

These results can be looked at as follows. With OECD participation ratios and occupational structure, Mexico's GDP per capita would have been almost twice its level in 1980 and therefore about 80 percent of the level of high-income OECD countries (a smaller development gap than that separating Spain from the high-income OECD countries). In other words, had the Mexican economy absorbed the rapidly growing labor force since 1980 while simply maintaining 1980 levels of output per worker and changing its occupational structure along past trends, it would have largely become a high-income country as its demographic and occupational structures and women's participation ratio in the labor market converged to those of a typical OECD country.

Table 9.6. The components of Mexico's development gap

	1980	2003
Percentage points due to differences in:		
Participation ratios	43.1	10.6
Occupational structures	20.6	6.8
Output per worker by sector	36.2	82.6

[146] See Ros (2000) for a formal analysis.

Had output per worker continued to grow at the rate of the period 1960-1981, this transition to high income levels would have been accomplished during the last two decades and a half. Indeed, having reached a peak of over 3 percent per year, population growth started a sharp deceleration in the mid 1970s. Since then the demographic structure has been undergoing dramatic change with an increasing participation of working age groups in the population which has kept a high growth momentum in the expansion of the labor force. The declines in fertility rates and in the dependency ratio were also to contribute to an increasing participation of women in the labor market further raising the participation ratio (table 9.7). With the increase in the labor participation ratio since 1981 (1.2% per year) and the growth of output per worker from 1960 to 1981 (3.1% per year), income per capita would have reached by 2005 about 80 percent of today's level in the high income OECD countries in table 9.9 (and would have been 25 percent above the 1980 level in these countries)[147]. The reason, of course, is that GDP per capita growth would have accelerated from 3.2% (in the period 1940-1981) to about 4.3% per year, thus multiplying income per capita by almost 3 times over 25 years.

Table 9.7. The demographic transition in Mexico

	1965-70	**1975-80**	**1985-90**	**1995-2000**	**2005-10**
Total fertility rate	6.8	5.3	3.6	2.8	2.5
Population growth rate	3.2	2.7	2.0	1.6	1.4
	1970	**1980**	**1990**	**2000**	**2005**
Population under 15 years [1/]	46.5	45.1	38.6	33.1	30.8
Dependency ratio [2/]	103.0	95.8	74.0	61.0	56.4
Participation ratio (%) [3/]	NA	30.4	35.5	40.3	41.0

1/ As percentage of the total population
2/ ((population aged 0-14 + population aged 65 and over)/population aged 15-64)*100
3/ Labor force divided by population

[147] This calculation uses the identity y^ = p^ + r^, where y is GDP per capita, p is GDP per worker, r is the participation ratio and the symbol ^ refers to growth rate.

Sources: CELADE, Boletín Demográfico n. 69. América Latina y el Caribe: Estimaciones y Proyecciones de Población. 1950-2050; World Development Indicators (for participation ratio)

This process of convergence, as we know, did not happen. Instead, by 2003 Mexico's income per capita had fallen below one third of the level in high-income OECD countries. Although there had been a process of convergence in labor force participation ratios and occupational structures, this now larger development gap is explained by the emergence of a large productivity gap that, as we have seen, was of relatively minor importance at the beginning of the period. As can be seen in table 9.5, the fall in output per worker between 1980 and 2003 is largely the result of a dramatic decline in output per worker in services that took place along with a substantial increase in this sector's employment share[148]. What appears to have happened is simply that, as the economy was unable to absorb the new entrants to the labor force into the high productivity sectors of the economy, the expanding labor force found its way into the low productivity activities of the services sectors where, in addition, a decline in hours worked (per worker) must have taken place. This simultaneously increased the employment share of services and reduced the average output per worker in this sector[149]. In other words, what explains the increased development gap is a massive increase in underemployment in the tertiary sectors of the economy that is also reflected in the well documented decline in the share of wage and salary employment in the total labor force and in the increase in the size of the informal sector, largely made up of low productivity activities in the services sectors (see Bosworth, 1998, and OECD, 2003).

The message of the exercise is that the deterioration in the productivity growth performance of the Mexican economy since 1980 has to be seen as an endogenous consequence of the sluggish economic expansion. It was the slow growth of the economy which explains the disappointing productivity performance. Who really believes that the collapse of productivity in the services sectors of the economy is the cause, rather than a consequence, of the slow growth of the economy since 1980?

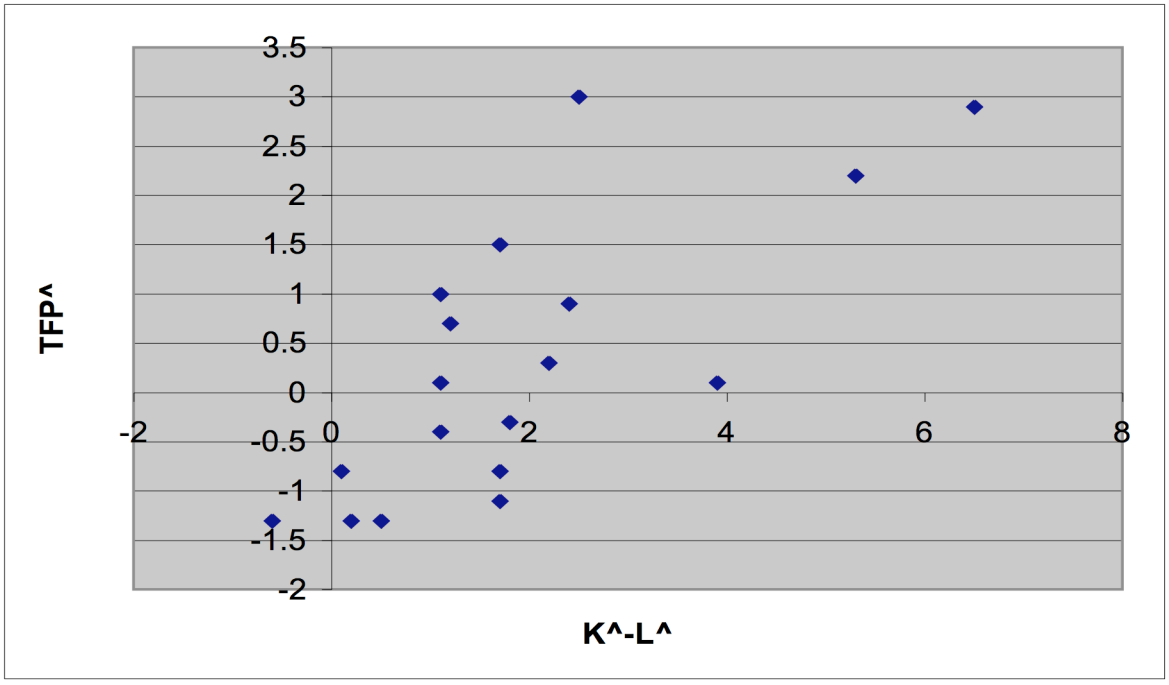
The cross-country evidence also points to the endogeneity of TFP growth. As shown by De Long and Summers (1991, 1992), following an old tradition in economics and economic history

[148] The fall in output per worker in services (weighted by the initial employment share of services) accounts in fact for 120 percent of the decline in output per worker in the economy as a whole. The dominant role of the services sector in the decline of productivity growth after 1982 has been documented in other studies (see Bosworth, 1998, and Escaith, 2006).

[149] This phenomenon would probably reveal itself more clearly had we been able to adjust productivity for hours worked or had we been able to disaggregate the services sector at a high level. In that case, the decomposition exercise would probably show that the increased gap in output per worker is the result of an increasing employment share of the low productivity activities of the services sector and of a decline in hours worked.

regarding the links between capital accumulation and technological change, there is a strong and positive relationship across countries between the output share of investment in machinery and equipment and the rate of TFP growth as well as a positive relationship between TFP growth and the rate of capital deepening. Figure 9.2 illustrates the finding with a recent growth accounting exercise showing that TFP growth is positively correlated with the rate of capital deepening[150]. In other words, countries with a small TFP growth residual had also low rates of capital deepening and countries with a high TFP growth had relatively high rates of capital deepening. If TFP growth was an autonomous process of disembodied changes in technical efficiency why should it be positively correlated with the rate of capital accumulation minus the growth of the labor force? And if TFP growth reflects the role of labor force reallocation, embodied technical progress, increasing returns to scale and learning by doing, then of course it cannot be viewed as a separate factor, independent from capital accumulation, in the determination of economic growth.

Figure 9.2. Total factor productivity growth and capital deepening (1981-2002)



TFP^: Total factor productivity growth rate
K^ - L^: Growth rate of capital-labor ratio

Source: Based on Solimano and Soto (2006)

[150] The figure refers to a sample of 12 Latin American countries and a "reference group" of 6 non Latin American countries in Solimano and Soto (2006).

Slow human capital formation?

Is a slow process of human capital formation responsible for the growth slowdown? There are, we think, three reasons why the answer to this question is negative. First, during the decades of slow growth Mexico has in fact continued to record rapid improvements in educational and health indicators. As shown in table 9.8, enrollment rates have continued to climb at all levels of education and students per teacher ratios, helped by the demographic transition and the reduction in dependency ratios, have been falling since 1980, plummeting in the case of primary education. Illiteracy has continued to fall while average school attainment increased from 4.6 years in 1980 to 8.1 years in 2005. The annual growth rate of average years of schooling increased from 1.4 percent from 1940 to 1980 to 2.3 percent from 1980 to 2005 (see table A.3). Nor is there any evidence that educational indicators are lagging behind the rest of the world (as

Table 9.8. Educational indicators, 1950-2000

	Gross enrollment rates (%)			Students/Teachers				
Year	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary	Years of schooling	Illiteracy rate (%)
1950	53	3	2	na	na	na	na	35
1960	92 1/	17 1/	3	50.0	11.8	7.3	na	35
1970	106	23	5	47.7	16.3	10.8	3.4	26
1980	120	49	14	39.1	18.0	12.7	4.6	17
1990	114	53	15	30.5	17.9	9.4	6.6	13
2000	113	75	21	26.7 2/	17.4 2/	9.7 2/	7.3 3/	8.8

1/ 1965
2/ 2002
3/ 8.1 in 2005
Sources:
Enrollment rates: Reimers (2006) based on different sources
Students/Teachers: Santaella (1998) for 1960 and 1970; Anuario Estadistico de los Estados Unidos Mexicanos, 2005 for 1980-2002
Average years of schooling (population 15 years and more): Table A.3
Illiteracy rate: Reimers (2006) based on different sources

is the case with GDP per capita). As a percentage of the world average, the secondary enrollment rate increased between 1993 and 2003 from 100 to 122 percent, while in higher education the enrollment rate remained constant at 92 percent (Anexo Estadístico al Sexto Informe de Gobierno, 2006). Similarly, life expectancy has continued to increase from 66.2 years in 1980 to 73.6 in 1995 and 75.2 in 2004 (Anuario Estadistico de los Estados Unidos Mexicanos, 2005). If the growth slowdown were to be attributed to the lack of human capital formation, how are we to explain that a more educated and healthier labor force produces less output per worker today than in 1980?

Second, there are also unequivocal signs that slow growth has been constraining the use of human capital in production rather than vice versa. Indeed, there are two worrying trends in the Mexican labor markets. First, the percentage of young people employed in low productivity occupations of the informal sector has increased between 1989 and 2002 for the groups with relatively high educational level (10-12 years of schooling and 13 and more years of schooling), with an increase of almost 50 percent in the case of the second group (see table 9.9). Second, youth unemployment rates have also increased for the groups with higher educational levels, more than doubling in the case of the young people with 13 and more years of education (see table 9.10). In fact, these groups are the only ones for which the unemployment rate increased. Both of these trends suggest that young people are not finding jobs appropriate to their qualifications.

Table 9.9. Percentage of young people (15-29 years old) by educational level in low productivity occupations [1/] [151]

Years of schooling	1989	2002
0-3	41.2	38.9
4-6	31.2	36.9
7-9	18.1	30.6
10-12	15.2	21.5
13 and more	6.8	9.3

1/ Includes non-professional self employed, non-remunerated family workers and domestic service

Source: Based on INEGI, Encuesta de Ingresos y Gastos de los Hogares

[151] We are grateful to Jurgen Weller for providing the data for tables 9.9 and 9.10.

Table 9.10. Unemployment rates of young people (15-29 years old) by educational level

Years of schooling	1989	2002
0-3	2.3	2.2
4-6	5.4	5.3
7-9	7.1	5.2
10-12	4.4	5.7
13 and more	4.5	9.5

Source: Based on INEGI, Encuesta de Ingresos y Gastos de los Hogares

Third, if human capital formation has not been faster this should be partly attributed to the growth slowdown itself. A comparison between Mexico and South Korea illustrates this point (see Birdsall, Ross and Sabot, 1995). In 1970, public expenditure on basic education per eligible child was only slightly higher in Korea than in Mexico. Two decades later, Mexico's expenditure on education was only 25 percent of the Korean level, secondary enrollment rates were twice as high in Korea, and the gap in tertiary enrollment rates had grown even larger (39 versus 15 percent). Public expenditure policy does not explain this divergence: in fact, in the mid 1970s, after an expansion during the first half of that decade, expenditure in basic education *as percentage of GDP* reached temporarily higher levels in Mexico than in Korea. The explanation of these increasing gaps is the fact that Korea's GDP grew at an annual rate of 9.6 percent, compared to Mexico's 3.5 percent. This difference in growth rates meant that, with the same percentage of GDP invested in education, the resources that Korea was able to invest in this sector expanded at a vastly higher rate[152].

All this does not mean that substantially improving the quality in Mexico's public education system does not remain a major challenge facing the country. The test for 2003 of the OECD Program for International Student Assessment (PISA), taken by more than a quarter of a million students in 41 countries, ranked Mexico in 38th place for the average of the three sections of the test (mathematics, reading, science and problem solving; see OECD, 2003a), In mathematics, Mexico was placed in the last position with 375 points, way below the top performers, Korea and Finland

[152] The demographic transition that began earlier in Korea than in Mexico also played a role. This explains why during these two decades the number of school age children increased by 60 percent in Mexico while falling by 2 percent in Korea.

(550 points). Moreover, the results of the test showed that only a third of the group of 15-year-old students that participated in it had adequate basic skills in mathematics.

Sluggish investment, slow growth

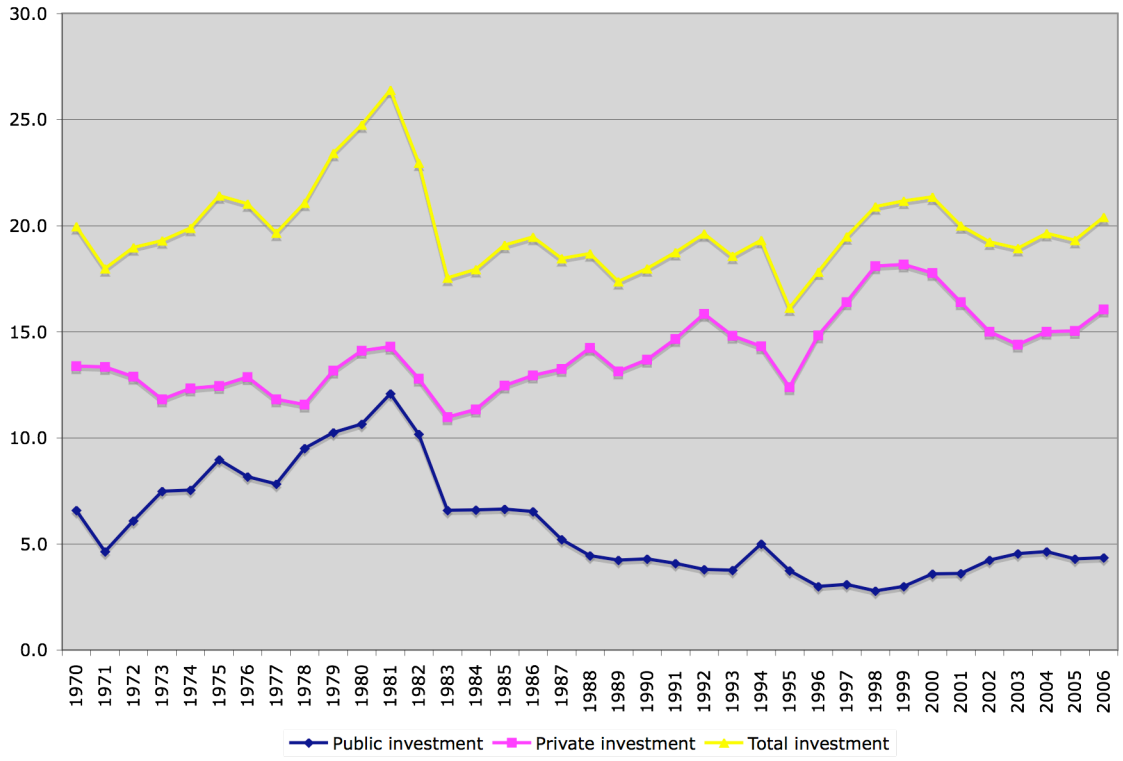
What then? The crucial factor in the slowdown of Mexico's rate of economic expansion appears to have been simply a weak investment performance. As shown in table 9.4, the rate of capital accumulation fell from 6.1 percent per year to 3.8 percent per year between 1965-79 and 1996-2003 (being only 3.4 percent for the whole period 1980-2003). The failure of capital formation to grow at a fast pace — after the years of decline during the debt crisis — has deterred the expansion and modernization of productive capacity and simultaneously restricted the growth of aggregate demand.

This poor performance is evident in the evolution of the fixed investment/GDP ratio (see figure 9.3). During the 1970s and early 1980s this ratio oscillated with the business cycle between 18 percent and 26.4 percent, rapidly increasing towards the end of the period and reaching a historical peak in 1981 in the context of the high rates of economic growth associated to the oil boom. With the debt crisis, the investment rate fell drastically in 1982-83 reaching a value of 17.6 percent in 1983, some 9-percentage points below its value at the 1981 peak. It then hovered around 17-19 percent thereafter during the lost decade of the 1980s and the early 1990s. With the 1995 crisis and recession it dropped by more than 3 percentage points, to reach a low of 16.1 percent. In spite of its subsequent expansion, by 2004-06 it stood at 19-20 percent, still well below its 1980–1981 levels.

What are the causes of the disappointing performance of investment?

The failure of investment rates to recover their pre-debt crisis levels should not be attributed to a sluggishness of foreign direct investment. The assumption that market oriented reforms, and FDI deregulation in particular, would attract large inflows of foreign investment has been validated by recent experience as already discussed in chapter 8. The inflow of foreign direct investment increased from around US$12 billion in 1991-93 to over US$ 46 billion in 2003-2005 (INEGI) while its share in total fixed investment soared from 6.7 percent in 1991-93 to 11.8 percent in 2002-04 (World Bank, World Development Indicators). The record is outstanding in the international context. According to Palma (2005), in the 1990s Mexico's manufacturing sector alone attracted twice as much FDI than the manufacturing sectors of Brazil, Argentina and Chile combined.

Figure 9.3. Fixed investment as a fraction of GDP (percent)



Investment and GDP are at current prices

Source: INEGI

The proximate determinant of the decline in the investment rate is rather the retreat of public investment. As shown in table 9.11 (see also figure 9.3), while total fixed investment fell by 5.2 percentage points of GDP between 1979-81 and 2004-2006[153], public investment actually fell by more (collapsing by almost 6.6 percentage points). Whether or not there are crowding out or crowding in effects of public investment on private investment is subject to controversy (see for opposing views Lachler and Aschauer, 1998, which find a partial crowding out effect, and Ramirez, 2004, which finds an important crowding in effect). There is, however, consensus on the fact that, even if crowding out effects exist, these are at best partial, that is an increase in public investment increases total investment rather than displacing fully an equal amount of private investment. It follows that the decline in public investment is partly responsible for the fall in the

[153] The decline in non-residential investment (machinery and equipment and non residential construction) appears to have been greater as residential construction increased its share in total investment (see chapter 8 and Mogillansky and Bielschowsky, 2001).

overall investment rate and may even have had an adverse effect on private investment (if crowding in effects predominate).

Table 9.11. Fixed investment rates (as a proportion of GDP)

	1979-1981	2003-2005	Difference
Total	24.9	19.7	-5.2
Private investment	13.9	15.3	1.4
Public investment	11.0	4.4	-6.6

Investment and GDP are at current prices

Source: INEGI, Sistema de Cuentas Nacionales

The fall in public investment has partly to do with privatizations but also with the type of fiscal adjustment followed after the debt crisis as discussed in chapter 7. As shown by Giugale et al. (2001), there is a close correlation since 1980 between fiscal deficit reductions and the fall in public investment (the correlation coefficient between the two turning out to be 0.82 between 1980 and 1997). Infrastructure investment, which has the largest potential to affect productivity growth, has suffered in this contraction. By the early 2000s, Mexico was last among the large Latin American economies in infrastructure investment as a fraction of GDP and this applied to both public and private investment (Calderón and Servén, 2004). The fall in investment takes place in road construction, water provision and electricity. Only in the case of telecommunications was there a recovery of investment in the 1990s. However, even in this case Mexico is today lagging behind other Latin American countries such as Chile and Brazil which were behind Mexico in 1980.

The appreciation of the real exchange rate in 1988–1994 and later in the period 2000-2005 further conspired against investment in manufacturing and more generally in tradable goods sectors. While real exchange-rate appreciation can encourage fixed investment in developing countries by lowering the relative prices of imported machinery and equipment, it also shifts relative prices in favor of non-tradable goods sectors, reducing the profitability of the tradable

goods sectors and inhibiting capital accumulation in these activities. There is ample evidence (Ibarra, 2006) that the profitability effect on investment is adverse and very significant in the Mexican case. The connection between investment in manufacturing and the real exchange rate is revealed by table 9.12 which shows the composition of foreign direct investment in alternative periods of undervaluation and overvaluation. As can be seen from the table, the periods of currency depreciations and undervaluation (1982-90 and 1995-99) were associated with a composition of foreign direct investment heavily biased towards the industrial sector (the overwhelming fraction of this investment being in manufacturing). By contrast, the periods of overvaluation 1991-94 and 2000-05 featured a composition of investment biased against manufacturing and in favor of non-tradable goods sectors (commerce and services).

Table 9.12. Composition of foreign direct investment in periods of undervaluation and overvaluation of the real exchange rate

Sector/Period	1982-90	1991-94	1995-99	2000-05
Primary	1.6	1.6	1.3	0.9
Industrial	61.0	41.5	62.5	47.8
Commerce and services	37.5	57.0	36.3	51.4
Real exchange rate	100.5	81.7	93.8	69.4

Source: Based on INEGI

A third factor deterring the investment rate has to do with the reforms themselves which had the explicit goal of eliminating all types of incentives, including measures to promote domestic investment both aggregate and in specific sectors. No attempt was made to orient domestic spending to investment as opposed to consumption expenditure. The elimination of sectoral incentives had an especially strong adverse impact on manufacturing investment, given that manufacturing had traditionally been the most favored sector under the previous development model based on import substitution and state led industrialization. The adverse incentives, exacerbated by the intense and sudden competition from imports, reduced manufacturing's relative rate of return, which in turn curbed investment.

The lack of bank finance for productive activities is an additional factor that has been constraining investment in recent years. At the end of 2003, bank lending as a ratio of GDP was only 14% compared to 100% in a typical OECD country and to a ratio of 24% in 1991 at the time the banks were privatized. Moreover, the ratio of bank lending for non-governmental purposes was still lower (11%) as banks reduced over time their real credit to private firms and households (Haber, 2005). Between 1996 and 2006 bank credit to productive activities has shrunk by more than 15 points as a proportion of GDP and today stands at one of the lowest levels in the whole of Latin America. Thus, Mexico's privatized commercial banking system, especially after the 1994-95 financial crisis, has been unable to provide sufficient credit for productive purposes so that with the exception of the few large conglomerates that have close ties with the international capital markets, the large majority of Mexican enterprises — especially the small and medium ones — have faced acute bank credit rationing and had to rely on their suppliers for their financing. According to a 2002 Central Bank survey, only 15 percent of small firms, 19 percent of mid-sized firms, and 24 percent of large firms reported that banks were their main source of financing. Moreover, these ratios have been declining over time (Haber, 2005).

In sum, our argument is that the proximate determinant of Mexico's slow growth since the early 1980s is a reduced investment rate and that four factors are constraining investment: the low level of public investment (particularly in the area of infrastructure), an appreciated real exchange rate for most of the period since 1990, the dismantlement of industrial policy during the reform period, and the lack of banking finance. The first factor contributes directly to a slower rate of capital formation in the public sector and possibly also in the private sector. The second and third have affected private investment profitability particularly in the manufacturing sector with deleterious effects on the process of economic development. The fourth has prevented the realization of potentially profitable investment projects[154].

[154] It is worth finally pointing out that our emphasis on the investment rate is quite consistent with the empirical literature on economic growth where in cross sections of countries the investment rate is found to be the most systematic and statistically significant determinant of growth (Levine and Renelt, 1992; see also De Long and Summers 1991, 1993, for the role of investment in machinery and equipment).

10. Social policy and the paradox of poverty reduction in the midst of slow growth

As in the rest of Latin America, economic reforms in Mexico were accompanied by a shift in both the goals and instruments of social policies. Traditionally, social policies in Mexico had been centered on gearing public expenditure and subsidies to expand the supply of health, education and other basic services with the ambitious — though far from being achieved — goal of guaranteeing social access for wage earners and eventually universal access (as the share of wage earners in the population increased). With the market oriented reforms these policies were gradually reoriented to subsidizing demand, with an emphasis on focalization of social spending on a targeted segment of the poor population. Also, social spending began to rely more on the provision of conditional cash transfers in order to alleviate poverty, increase the human capital of the poor and ameliorate their long-term employment and economic prospects. The results so far of this shift in social policies have been apparently positive: despite the growth slowdown since the early 1980s, Mexico has continued to see an improvement in some social indicators and has also recorded a reduction in its poverty rate in recent times. This chapter describes the social policies adopted in the recent past, the trends in poverty and inequality and addresses the question of whether the strengthening of social policy, a dividend from the transition to democracy, can help explain the paradox of poverty alleviation in the midst of slow growth.

The increase in social spending and the strengthening of antipoverty programs

After the cancellation of social programs put in place during the oil bonanza[155] and drastic cuts in public social spending throughout the severe external and fiscal crises faced by the De la Madrid administration (1982–88), social policy became a key axis of the president's political strategy during the Salinas administration (1988–94). A national antipoverty program, *Pronasol*, was established, offering funds for public works with its assistance being conditioned on the beneficiary communities' active participation and cooperation to carry out different tasks in building them. With this program, marked by a rather discretionary and highly publicized fiscal allocations of public spending on the poor, President Salinas, even more than his predecessors, exploited the political assets of the welfare budget. The government attempted to legitimize its revolutionary credentials through this antipoverty program with the strategy becoming one component of the political machinery exercised through the budget.

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[155] The two social programs that were put in place during the oil boom were COPLAMAR (*Coordinación General del Plan de Acción de Zonas Deprimidas y Grupos Marginados*), launched in 1977, and the *Sistema Alimentario Mexicano*, started in 1980. See chapter 6 on the subject.

The transition to democracy in the late 1990s and early 2000s went together with a strengthening of social policy and poverty alleviation programs. Table 10.1 shows selected indicators of Mexico's public expenditure on social development and poverty alleviation for the Zedillo and Fox administrations. Social spending rose as a share of GDP from 1995-2000 to 2000-06 going from an average of 8.9 percent to 10.1 percent[156]. This increase in social spending has not been concentrated only in the programs earmarked for poverty alleviation. These expenditures have risen from an average of 1.1 percent of GDP in the Zedillo administration to an average of 1.4 percent in the Fox *Sexenio*.

Table 10.1. Public expenditure on social development
(percentage of GDP)

	1995-2000	2001-2006
Public expenditure for social development	8.9	10.1
Public expenditure on poverty alleviation	1.1	1.4

Source: Cabrera (2007), based on official data.

In the poverty alleviation front, the Zedillo administration launched *Progresa* in 1997, a multidimensional scheme that combined cash transfers to poor households in rural areas on the conditions that their children attend local schools and the family undergoes regular checkups at regional health clinics. These cash transfers are given to the woman, independently of whether she is or not the head of the household.

When president Fox took office in December 2000, he adopted *Progresa*, changing its name to *Oportunidades*. The program retained the multidimensional approach developed under the Zedillo administration of targeted subsidies combined with obligatory school attendance and medical clinic visits. Like *Progresa*, *Oportunidades* represents an effort to implement a long-term strategy, independent of the political party that controls the government. At the same time, the new administration introduced some changes. It widened the program's coverage to include urban areas too, and also to subsidize three more years of education, thus covering elementary, junior high and high school (12 years of education) just short of university. A third change was the

[156] The increase in social spending from the early 1990s to 2003 was slightly higher than in Latin America as a whole. However, despite this increase, social spending as a proportion of GDP in Mexico is currently below the Latin America's average and also below that of the other medium or large economies in the region (see Moreno-Brid and Pardinas, 2007).

creation of the subprogram *Jovenes con Oportunidades,* committed to opening a savings account for the beneficiary family's youngsters enrolled and performing satisfactorily in the last three years of high school. The funds may be used only after graduation hopefully in order to help them meet the costs of university or of opening a small business. The number of beneficiaries of *Oportunidades* jumped from 2.5 million families in 2000 to 5 million since 2004, with 68.8 percent of the beneficiaries located in rural areas, 17.2 percent in semi-urban regions and 14 percent in urban centers. By 2006, the beneficiary households were receiving an average transfer of $US 45 per month. The program also provided nutritional supplements for pregnant and breast-feeding mothers, as well as for children under the age of five.

Independent evaluations have systematically confirmed the positive and significant impact of *Oportunidades* in improving the nutrition, health and education of its beneficiaries (see, inter alia, De Janvry and Sadoulet, 2002, 2006; Behrman et al, 2002). In 2006, Mexico's National Institute of Public Health prepared an independent evaluation of the Program whose major findings are summarized in Table 10.2.

Table 10.2. Evaluation of *Oportunidades*, 2006

Area	Achievements
Education	Reduced fail rates and drop out rates in general, and improved the likelihood of students (especially female ones) to continue their education cycles: from elementary to high school and from high school to college Improved educational achievement and greater disposition from parents to promote continuous schooling for their children and the fulfillment of their school obligations. Effects usually larger on girls than on boys.
Health	Reduced mortality rates in mothers and children. Municipalities incorporated to the program had, on average lower rates (11% and 2%, respectively) than other municipalities. Vast increase in the use of public outpatient health services for all ages and reduction in the use of private services, thus generating saving in this area for beneficiaries.
Nutrition	Reduction in the high proportion of anemia and increase of height and weight of children in their early years. Children 24 to 71 months of age in the beneficiary communities grew on average somewhat more than the control group, and the high proportion of low weight was reduced by 12.4%. Incidence of anemia was reduced in rural kids of 2 and 3 years. The motor abilities of girls and boys from 3 to 6 years increased by 10 and 15% respectively, and there was an improvement of 9% in the social behavior of girls. Improvement in the diet of beneficiary households, allowing them to buy products of animal origin and provision of nutritional supplements for a large proportion of children.

Source: Torres et al (2006).

Other recent social policy initiatives include the *Ley de Desarrollo Social* (LDS), unanimously approved by the Mexican Congress in November 2003. This is a federal law with the ambitious goal of guaranteeing the Mexican population's access to social development. Perhaps its most important characteristic is that it established that annual public expenditure on social development measured at constant prices must not be reduced neither in absolute nor in per capita terms from one fiscal year to another (article 20) and states that the government budget should program an increase in social expenditure so that it does not decrease as proportion of GDP. These provisions aim at establishing a lower limit to social expenditure while at the same time trying to insulate it from political pressures or the impact of adverse economic shocks.

In addition, to enhance the legitimacy and efficiency of social expenditure policies, the law also created the *Consejo Nacional de Evaluación de la Política Social* (CONEVAL). This Council would operate as part of the Ministry of Social Development, with the responsibility of putting forward a methodology to measure poverty as well as identifying criteria that will allow the evaluation of social policies[157]. The LDS also gave birth to the Inter-Secretarial Commission for Social Development (*Comisión Intersecretarial de Desarrollo Social*) to coordinate government's actions aimed at poverty alleviation, — until then typically centralized in the executive power — and putting forward the budget proposals for the amount of public expenditure that should be allocated to social improvement. As part of this effort, the Fox administration made the commitment to implement a disclosure of the government's methodology for measuring poverty and a Technical Committee for Poverty Measurement was established with the participation of renowned economists and experts. This committee put forward three consistent and complementary measures of poverty based on a combination of indicators of basic needs and income: i) Nutritional poverty, the most extreme level, covering people who live in households whose income is not enough to cover basic nutritional needs; ii) Poverty in access to basic services, which includes all the people classified under nutritional poverty plus those who lack access to basic health and education services; iii) Poverty in overall resources, which encompasses the population living under nutritional and access poverty, while also covering

[157] The introduction of a systematic and compulsory evaluation mechanism in the design and implementation of social policies, if correctly implemented, is a major contribution to begin to fill a crucial and long standing institutional gap in Mexico's public administration practices. Indeed, although Mexico has decades of relevant experience in implementing social policies, the assessment of their impact has been the exception and not the norm. There has been simply no accurate measurement of the actual benefits and costs of the initiatives that the government undertakes to alleviate poverty or to improve the population's social and economic welfare.

individuals whose incomes are insufficient to meet their clothing, shoes, housing, and public transportation needs.

The three main candidates during the 2006 presidential campaign assured, with different degrees of emphasis, the continuity of *Oportunidades* under their eventual governments. Certainly, it is too early to know what will be the approach of Calderón's government (2006-2012) to social development and poverty alleviation. After six months in office, and the approval of his first budget, there is no sign of a radical policy change regarding *Oportunidades*. In addition, the emphasis on the need to evaluate social policies has been present in his rhetoric, and CONEVAL has gained more political and media presence. Moreover, in April 2007 the Secretary of Social Development of the new government announced the launching of the *Programa de Apoyo Productivo* a new program to help poor families engage in income generating activities or businesses (La Jornada, April 11, 2007). The details of it — and of the whole social development strategy — are to yet to be defined but, in any case, the budget so far announced is in our view rather low to have a national impact. The other new program of the current administration is the *Programa para la Generación del Primer Empleo*, launched in March 1, 2007, that grants subsidies to induce firms to expand formal employment of youngsters. The subsidies are equivalent to the corresponding social security contribution of the firm associated with the new jobs thus created. According to information from the Ministry of Labor, the program is expected to create 300,000 jobs in its first twelve months of operation, an estimate that seems rather overoptimistic (Pedrero, 2007).

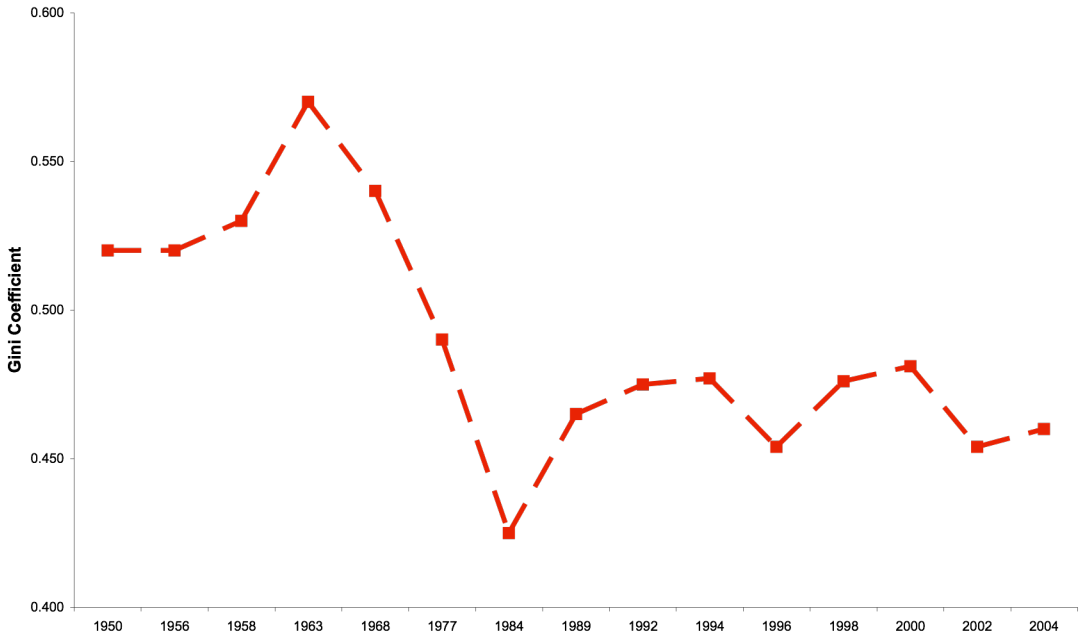
Trends in inequality and poverty

As discussed in previous chapters, during the 1950s and up to the early 1960s, the distribution of income became more unequal (see figure 10.1). Since then and until the mid 1980s inequality declined. For the next fifteen years, coinciding with the implementation of economic reforms, the Gini coefficient again followed an upward trend with minor fluctuations and by 2004 it stood at 0.46. This figure is above the minimum reached in 1984, and also above the world's average (0.40)[158]. A major cause of persistent inequality in the distribution of personal incomes has been a

[158] Other sources suggest a similar pattern. Lustig (2002) shows that income inequality measured by the Gini concentration coefficient increased quite sharply from 1984 to 1989 (around four percentage points) and then fell from 1989 to 1994 (although remaining slightly above its 1984 level). Then from 1994 to 2000, the OECD (2002) estimates show a slight increase in income inequality (the Gini rises from 47.7 to 48.1). From 2000 to 2004, Székely (2005), the source of figure 10.1, estimates a decline in the Gini coefficient (from 48.1 to 46.0) but inequality remains higher than in 1984.

substantial increase of the wage premium on skilled labor with a resulting relative decline in unskilled labor incomes. This development, as discussed in chapter 8, appears to be related to greater international integration whether as a result of skill biased technological change or of the direct effects of trade liberalization.

Figure 10.1. Inequality in the distribution of income, 1950-2004
(measured by Gini Coefficient)



Source: Székely (2005)

Like in other developing countries, in Mexico the concentration of wealth is probably much higher than the concentration of income, although there is no reliable data to confirm this hypothesis. In addition, income disparities among the population are also reflected regionally. On the one hand, in general Southern states are much poorer than those in the North. The economic and social backwardness of the Southeast relative to the rest of the country is illustrated in table 10.3. On the other hand, there is also considerable intra-state inequality, with acute differences in income and socioeconomic indicators within the same state, frequently associated to the rural-urban polarization. Such differences are mirrored to some extent in the indicators of access to basic services, health, schooling and in general the indicators of human development (UNDP, 2004).

Table 10.3. Economic and social indicators of the Southeast (c. 2000)

(Percentages)

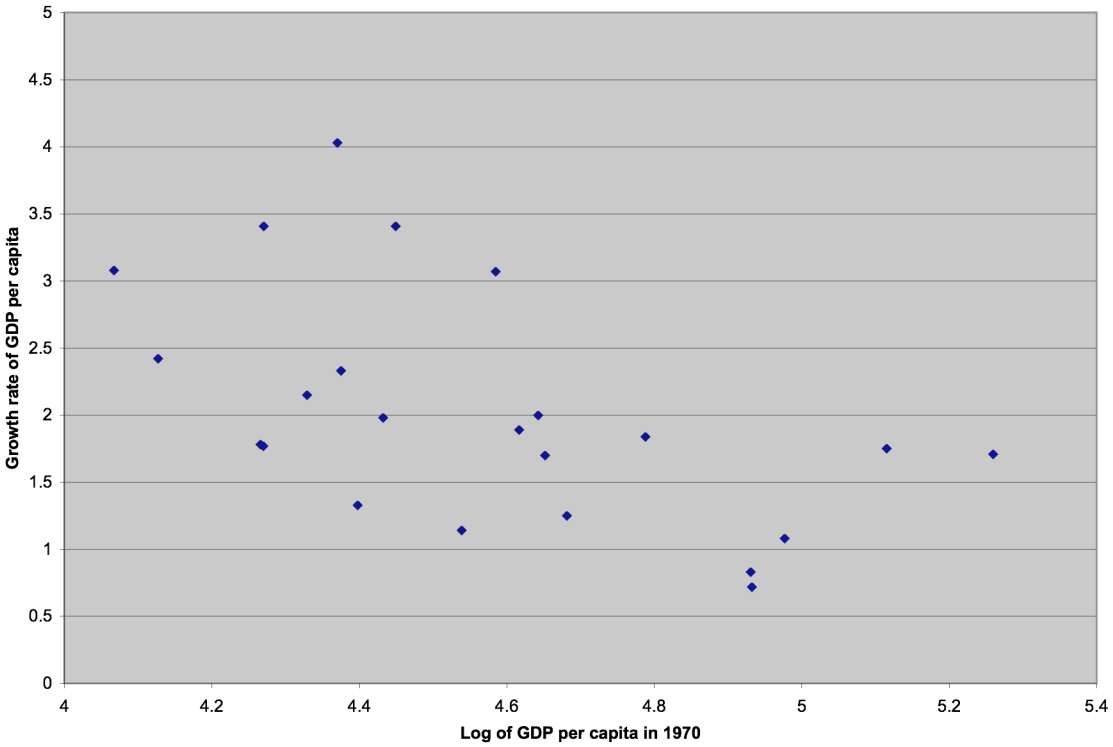
	Southeast	Rest of the country
Share of total population	23.0	77.0
Share of GDP	14.0	86.0
Share of manufacturing	6.9	93.1
Rural population 1/	43.5	19.9
Poverty index 2/	36.0	17.6
Dwellings without water	32.8	15.4
Dwellings without electricity	15.2	7.2
Literacy	80.8	91.7
Population not speaking Spanish 3/	2.7	0.2

The Southeast comprises the states of Campeche, Chiapas, Guerrero, Oaxaca, Quintana Roo, Tabasco, Veracruz and Yucatan
1/ Population living in localities of less than 2,500 people
2/ Foster-Greer-Thorbecke index
3/ Population between 15 and 49 years old

Source: Dávila, Kessel and Levy (2002)

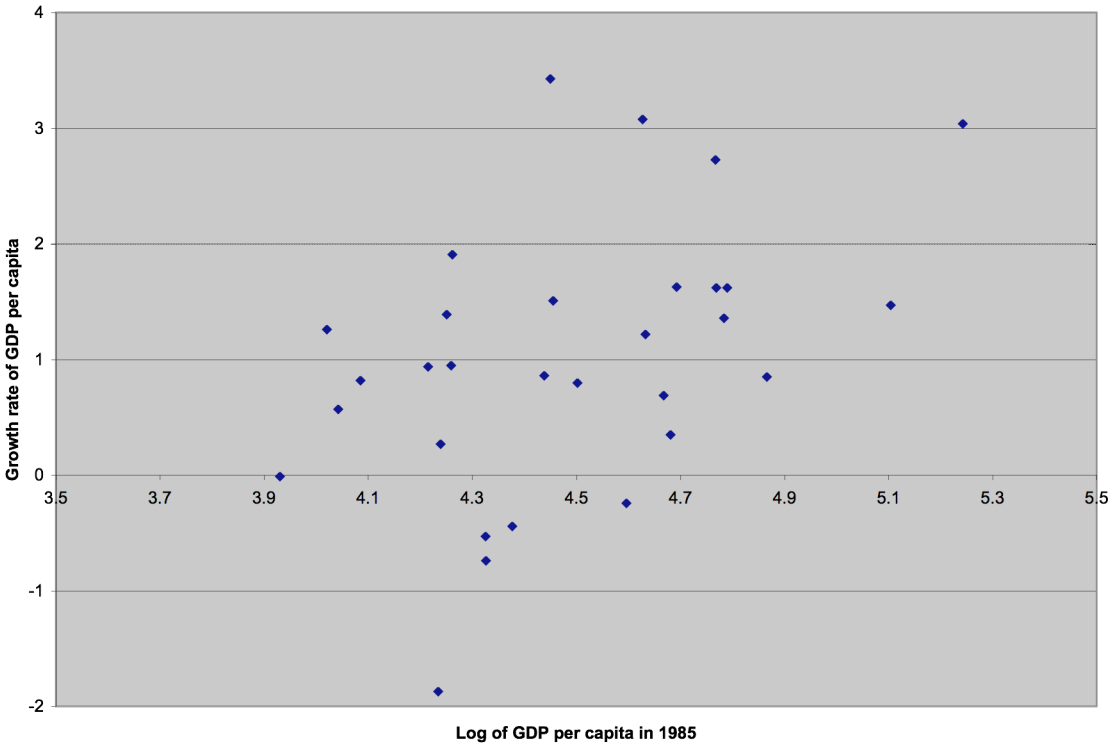
Regional inequalities have been on the rise. As documented by Esquivel (1999) for the period 1940-1985 and by Godínez (2000), Dussel (2000) and Chiquiar (2005) for 1970-85, general regional trends had pointed towards a de-concentration of economic activity (away from the main industrial centers in the metropolitan areas of Mexico City, Nuevo León and Jalisco) and convergence of income levels with the poorest states growing faster than the richest ones (see figure 10.2). This process of convergence was interrupted in the mid 1980s (Esquivel and Messmacher, 2002, Sánchez-Reaza and Rodríguez-Pose, 2002), Chiquiar, 2005). Since then, a process of divergence has been taking place — with the richest states growing faster than the poorest ones (see figure 10.3) — especially as the Northern States linked to export activities have been rapidly increasing their share in national income. By contrast, the relatively poor South (with the exception of Quintana Roo that benefited from the expansion of tourism) has been lagging behind. These regional trends are clearly linked to the economy's structural changes, such as the lagging cereal agriculture, expanding export sectors of agro-industrial products, fruits and

Figure 10.2. Growth rate of GDP per capita (1970-1985) and (log of) GDP per capita in 1970



Source: Based on Chiquiar (2005)

Figure 10.3. Growth rate of GDP per capita (1985-2001) and (log of) GDP per capita in 1985

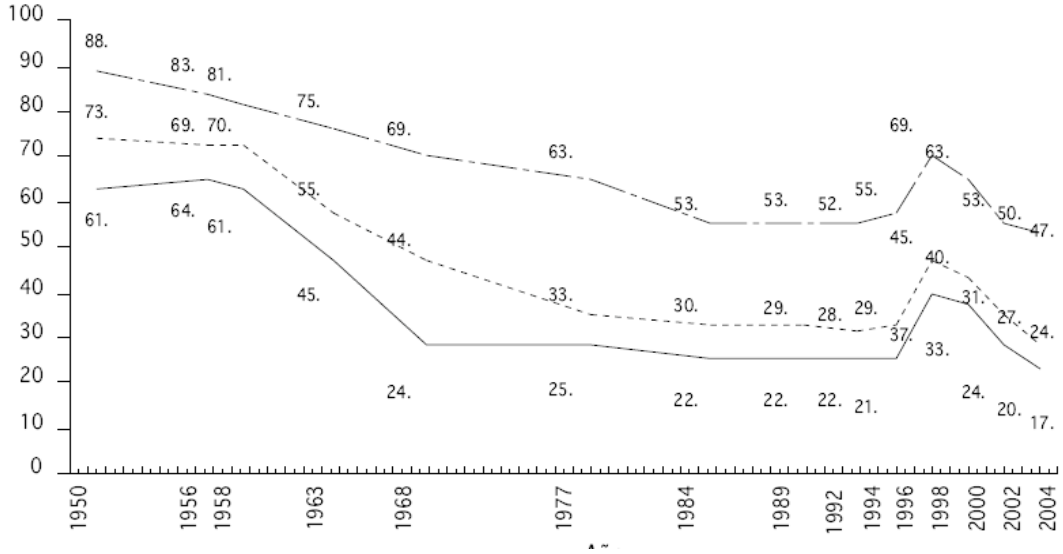


Source: Based on Chiquiar (2005)

vegetables and the rapidly growing export-oriented manufacturing activities in the Northern and Central areas.

The persistence of inequality and the insufficient growth rates have prevented, except for the very recent period, a sustained reduction in the poverty rate and have led to an increase in the number of poor. The long term decline in poverty rates observed before the 1980s (see figure 10.4) was interrupted in the aftermath of the international debt crisis in the mid 1980s. From then onwards, until the mid 1990s, there was virtually no progress in the struggle against poverty. This is not surprising given that for quite a number of years in this period the Mexican economy remained practically stagnant. The tequila crisis in 1995 — when real GDP shrunk nearly 7 percent — had a brutally adverse impact on the socioeconomic conditions of vast proportions of the Mexican

Figure 10.4. Poverty rates, 1950-2004



Source: Székely (2005)
Note: The three graphs presented refer, from bottom to top, to nutritional poverty, poverty in access to basic services and poverty in overall resources.

population. In fact by 1996, that is one year after the crisis, the incidence of poverty as measured by each of the three distinct indicators put forward by CONEVAL jumped more than 15 points relative to 1994, reaching levels comparable to the ones of the early 1960s. The more recent period has witnessed an improvement in the poverty front. The ministry of social development

(SEDESOL) explains these changes as the result of an expansion of social programs such as *Oportunidades*, among other factors[159].

Meanwhile, health and educational indicators have continued to improve from the early 1980s to the present. As we saw in chapter 9, human capital formation does not appear to have decelerated in the recent period. As shown again in table 10.4, between 1980-85 and 2000-2005, life expectancy is up more than five years and infant mortality fell by almost half. Gross enrollment ratios — except for the primary enrollment ratio which was already above 100 percent in the 1980s — have increased substantially (by over 40 percent at the secondary and tertiary levels from 1985 to 2004).

Table 10. 4. Mexico: Health and educational indicators.

	1980-85	2000-05
Life expectancy at birth (years)	67.7	73.4
Infant mortality rate 1/	47.0	28.2
	1985	2004
Gross enrollment ratios (%)		
Primary level	117.6	109.2
Secondary level	56.5	79.7
Tertiary level	15.9	23.4

1/ Per 1,000 births

Source: CELADE, Boletín Demográfico n. 69, and World Bank, EdStats

[159] These other factors include a slight improvement in real incomes, increased macroeconomic stability and an increase in family remittances, i.e. money orders sent home by Mexican workers in the United States. In 2006, the money sent as family remittances from abroad exceeded $US 23 billion, most of it destined for the low income groups of the population.

Poverty reduction, slow growth, and the demographic dividend

Are the recent downward trend in the poverty rate and the continued improvement in social indicators a result of economic growth combined with a firmer commitment of social policy to poverty alleviation goals? There are reasons to doubt that this is the whole explanation. Growth has been very sluggish and well below the rate required to reduce poverty (in the absence of changes in social policy and demographic factors) (see Ros, 2007). While *Oportunidades* has no doubt improved the human capital of many poor families, as we have seen earlier, its impact on reducing poverty, as evidenced by the low rates of "graduation" of poor families among its beneficiaries, is far from adequate. Indeed, the most recent verification process — undertaken every three years to assess whether the families being protected by the program still meet its focalization requirements — took place in 2006 and concluded that 20,000 families had, so to speak, graduated from *Oportunidades*[160]. In other words, they had stopped living under conditions of extreme poverty and had now incomes high enough to satisfy their food, health and education needs. This represents barely 0.4 percent of the total of five million families then covered by *Oportunidades*. This percentage is too low for *Oportunidades* to really be considered as an effective instrument to eradicate poverty. It implies that, ceteris paribus, if progress continues at such rates Mexico would need more than two centuries to eliminate poverty and even then only among its initial group of targeted beneficiaries.

This discussion suggests that other factors must be at work in the reduction of poverty rates. Our argument is that the main factor explaining the puzzle of poverty reduction in the midst of slow growth is the completion of the demographic transition to low fertility rates and population growth rates that has taken place in recent decades, that is, the demographic dividend (see, in particular, Ros, 2007). How can the demographic transition, described in chapter 9, explain the puzzle of slow growth with social progress? We stress the following mechanisms. First, the fall in the dependency ratio and the resulting increase in the activity rate produce the traditional demographic dividend, i.e. imply that the increase in income per capita has been higher than what it otherwise would have been. In fact, as we have seen in chapter 9, practically the whole increase in income per capita since 1990 is explained by the increase in the activity rate (given the near stagnation of output per worker, which grew at 0.3 percent per year). As shown by López (2007), the increase in household incomes has been largely the result of an increase in the number of employed workers per household rather than an increase in the income per employee. Second, the sharp reduction in the growth rate of the number of children allows for an inertial

[160] Figures given by the Coordinator of Oportunidades in an interview (see Rea, 2007).

increase, resulting from past investments in education, in enrollments and teacher-students ratios at the primary and secondary levels. Third, the change in the age structure of the population has a positive composition effect on the poverty rate given that the incidence of poverty is higher among children than for the population as a whole. Fourth, the completion of the demographic transition probably partly explains the expansion in social spending itself: with the ageing of the population, the increased demand for secondary and higher education has forced an expansion of public spending in education while at the same time putting pressure on the spending on health.

The results presented in Ros (2007) suggest that neither the change in inequality nor the change in social spending[161] help to explain the change in the poverty rate in Latin American countries once we control for growth and the demographic bonus. Both indicators are all very far from being statistically significant in all the specifications of the regression equations and have at times the wrong sign. In addition, the results show that between 1989 and 2005, without the demographic bonus poverty in Mexico would have increased by 7.7 percentage points despite the increase in GDP per worker. On the other hand, in the absence of growth, and as a consequence of the demographic transition, the poverty rate would have fallen by 12.8 percentage points (compared to an actual decline of 13.6 percentage points between the early 1990s and 2005 and a decline predicted by the regression equation of 14.7 percentage points, see table 10.5). Thus, the major contributor by far to the reduction in the poverty rate is the demographic dividend, just as in Latin America as a whole and unlike the case of Chile where the demographic transition was already well advanced at the beginning of the period and growth is the major contributor to poverty

Table 10.5. Changes in the poverty rate under alternative assumptions

	Mexico	Latin America	Chile
Change in the poverty rate in the absence of:			
Growth and demographic bonus	9.6	9.6	9.6
Demographic bonus with recorded growth	7.7	8.2	-7.5
Growth with recorded demographic bonus	-12.8	-9.0	-0.4
Actual change in the poverty rate	-13.6	-8.5	-20.0
Predicted change in the poverty rate	-14.7	-10.4	-17.5

Source: Ros (2007)

[161] Measured as the change in social spending as a percentage of GDP, the percentage increase in social spending per capita or the change in public spending in education and health as percent of GDP.

reduction (see table 10.5). These results should not be surprising given that growth was far below the pace necessary to reduce the poverty rate. Indeed, in the absence of the demographic bonus GDP per worker would have had to grow at 2 percent per year in order to prevent an increase in the poverty rate (Ros, 2007). This is far more than the 0.3 percent per year recorded from 1990 to 2005[162].

In contrast to the estimated effects on the poverty rate, increases in social spending turn out to have significant effects on health indicators (life expectancy and infant mortality) and on the secondary school enrollment ratio. However, around two thirds of the improvement in these social indicators is still attributable to the demographic dividend (see table 10.6).

Table 10.6. Contributions to the improvement in social indicators

	Actual change [1/]	Percentage contributions of:	
Change in:		Demography	Social spending
Life expectancy (years)	3.6	72.2	27.8
Infant mortality (per 1,000 births)	-11.3	63.5	36.5
Secondary enrollments (percentage points)	26.4	67.6	32.4

1/ Between early 1990s and mid 2000s

Source: Ros (2007)

These results have implications for the present and future of social progress in Mexico. For the present because they suggest that had the demographic dividend been absent poverty would be high and rampant in the country and progress in social indicators much slower. For the future because the demographic transition is now largely over: the fertility rate at around 2.5 is near the 2.1 replacement level and is not expected to go below replacement levels in the future while the dependency ratio will not fall more than a few percentage points and will eventually start rising (towards 2025) as the elderly represent an increasing fraction of the population. Thus, from now on the effects of the demographic dividend on poverty and social indicators will largely disappear. The resumption of high economic growth, in the context of redistributive policies, becomes an imperative if Mexico is to continue to record a reduction in poverty rates.

[162] Why should the rate of growth of output per worker be above a positive threshold for the economy to be able to reduce the poverty rate in the absence of a demographic dividend? The reason is that given a trend increase in productivity in the high productivity sectors of the economy, the stagnation of overall output per worker would imply a reallocation of the labor force from the formal to the informal sectors of the economy and thus a relative expansion of employment in low productivity occupations with the consequent increase in the poverty rate.

11. Conclusions

The last two decades have witnessed a radical shift in the state-market balance not unlike previous similar episodes in the economic history of independent Mexico. Just as in those episodes, the reforms implemented this time have had mixed results. On the positive side, the fiscal deficit and inflation were drastically cut down, and have remained at low levels for years. FDI inflows increased and, together with trade liberalization and NAFTA, helped trigger an export boom in manufactures that transformed Mexico's insertion in the world economy. On the negative side, underemployment has increased massively, poverty and inequality persist, and overall productivity performance has lagged behind, as the economy has not been able to grown fast enough. Recurrent real exchange rate appreciation has had negative effects on competitiveness and investment. Fiscal reform has aborted, as it had done repeatedly in the past, leaving the state heavily dependent on oil revenues. Despite the modernization of the banking system, credit is severely rationed for productive activities. The economy's growth path has been marked by sharp, short-lived upswings that exert excessive pressure on the trade balance and are followed by slowdowns and/or even foreign exchange crises that prevent the consolidation of a sustained and robust economic expansion. The explanation of this failure lies in the fact that, as we saw in chapter 9, an overall upturn in investment simply did not accompany the liberalizing reforms and the new macroeconomic environment. It is now time to recapitulate and discuss the challenges ahead.

A weak state

The other side of the market reform process reviewed in chapters 7 and 8 is the retreat of the state and its restructuring. By shrinking in size, the chances improve that it will be able to do a better job in its priority tasks. Or so the argument goes. However, while the state is smaller, it is not necessarily more effective. As we have seen in chapter 7, the tax burden continues to be extremely low by international standards (OECD, 2002). At 11-12 percent of GDP in the early 2000s, tax revenues are well below those of OECD countries and even below those of Latin American countries with similar income per capita. Besides constraining much needed public investment, one implication of the low tax burden is that the fiscal accounts continue to be highly vulnerable to changes in volatile oil revenues. In fact, the share of oil income in total government revenue has been increasing in recent times, as the capacity of the state to collect taxes appears to have been declining. Together with the reorientation of monetary policy from growth to purely price stabilization objectives and the volatility of external capital flows, this vulnerability to oil revenues is the source of a major macroeconomic problem: the fact that it contributes to

procyclical macroeconomic policies that exacerbate the negative effects of shocks on economic activity with deleterious effects on long term growth.

Some second-generation reforms, such as fiscal responsibility legislation, have further contributed to the procyclical character of macroeconomic policy. As well known, keeping a fiscal deficit constant throughout the business cycle leads to exacerbate the cycle. Yet this is exactly the principle that inspires today's fiscal policy management and which has been incorporated into the fiscal responsibility legislation passed in 2006. The most frequent explanation to justify the adoption of a fiscal policy that turns out to be procyclical makes reference to the problems of credibility generated by governments that in the past were characterized by their "fiscal excesses". As discussed in Casar and Ros (2004), in the case of Mexico this argument seems an exaggeration after four six-year administrations in which the principal banner of economic policy has been the achievement of "healthy public finances". Moreover, even if the diagnosis of a lack of credibility was true, the response should be to establish credibility rather than to continue with a practice that contributes to deepen recessions. One can think for example of institutional arrangements, such as a multi-year fiscal rule that sets a ceiling to public indebtedness as a proportion of GDP, that guarantee the stability of public finance over the medium term without eliminating the room for maneuver for fiscal policy in the short run. The growth benefits of a countercyclical fiscal policy should not be underestimated as recent research suggests (Aghion and Marinescu, 2006; Aghion, Barro and Marinescu, 2006).

Nor is the state necessarily more efficient. Mexico's fiscal adjustment did not encourage a greater internal efficiency of the public sector, despite, or perhaps because of, its massive character. Especially before 1985, fiscal adjustment was, by and large, achieved through deep cuts in public investment and the real salaries of public employees, hardly a useful means to improve the efficiency of the state and its bureaucracy. Moreover, the retreat of the state has gone well beyond areas where the private sector has a comparative advantage. In fact, as we have seen in chapter 9, public infrastructure investment has been a major victim of fiscal adjustment. It is also clear that, despite some positive recent trends in social spending, state disengagement has not primarily served its main stated purpose: the rapid expansion of social infrastructure. The main contribution of privatization revenues was to reduce public debt (see chapter 7) and to support (very effectively, no doubt) stabilization efforts by temporarily compensating for the fall in the inflation tax and strengthening the capital account of the balance of payments through the financial assets that the private sector had to bring back home to purchase the public enterprises on sale.

The growth imperative[163]

The implications of all this are more important than generally acknowledged because the priority tasks of the state, growth and social policy in particular, are today more formidable than in the past. Consider, first, growth policy. As we have seen in chapter 10, with the demographic dividend largely over the resumption of high economic growth becomes an imperative if Mexico is to continue to record a reduction in poverty rates.

With macroeconomic stability (narrowly defined) having been achieved, the current dominant viewpoint, in the government and international financial institutions alike, is that structural reforms in the fiscal area, the energy sector, and the labor market are the major development tasks and constitute the key necessary conditions to resume high and sustained growth. To this a wider list of so-called second-generation reforms is often added ranging from the educational and health systems to the judicial system and the rule of law (see, for example, Werner, Barros and Ursúa, 2006).

We believe that the currently dominant agenda among policy makers largely misses the point. We discuss fiscal reform below. With respect to the reform of the energy sector, there are three relevant aspects to determine its possible contribution to growth. The first has to do with the mobilization of additional resources for investment in the sector. Indeed, the simple substitution of private investment for public investment would not have a major effect on the growth potential of the economy as past experience with privatization suggests. Second, a condition for the reform to improve the economy's growth potential is that it leads to a fall in the relative price of electricity and fuels which, as inputs of general use, decisively affect the competitiveness of the economy. Third, the positive effects should not be negated by the temptation of taking advantage of an improved competitiveness by letting the real exchange rate appreciate. This would be equivalent to generate a higher level of consumption rather than a higher level of investment, which is what is required for a higher rate of growth.

In the case of labor market reform, two points should be made. First, there is a multiplicity of institutional arrangements in the labor market that have shown to be compatible with the achievement of a high level of economic development, so that it is far from clear why a reform in a given direction is indispensable to the achievement of high levels of economic growth. Second, a clear relationship between labor market flexibility and job creation is far from having been shown,

[163] This section draws on joint work with José Casar and Luis Miguel Galindo. See, in particular, Casar and Ros (2004) and Galindo and Ros (2007).

let alone a relationship between flexibility and productivity and growth (see, for a recent study, Chor and Freeman, 2005).

In the area of other second generation reforms, progress in the solution to these problems is equivalent, in fact, to achieving an advanced stage of development in a two-way relationship of causality in which undoubtedly the impact of economic development on the solution to these problems will be much greater than the effect that solving them will have on economic development. In other words, it is difficult, if not impossible, to achieve say Swedish standards of health, education and public services when one has a per capita income that is three times lower. This does not mean that one cannot, and much less that one should not, make progress in those areas. It simply points to the fact that its definitive solution requires as a necessary condition, although possibly not sufficient, to solve the problem of economic growth (see on the subject, Rodrik, 2004).

The current dominant agenda also misses the point because, as discussed in chapter 9, the direct constraints on growth are today derived from the low level of public investment, an appreciated real exchange rate and the dismantlement of industrial policy. These are then the three areas in which growth-oriented reforms efforts should concentrate.

Of course, removing the constraints on public investment leads directly to the question of fiscal reform, a major item in the dominant agenda. However, the Fox administration largely focused on increasing the value added tax base, by eliminating tax exemptions on foodstuffs and medications, aiming at increasing tax revenues by only about 2 percentage points of GDP[164]. A 10-dollar per barrel drop in the price of oil would be enough to practically negate the effect of such a fiscal reform. To make a significant difference in the state's capacity to invest in infrastructure projects, as well as in the area of social spending, would require an increase in the tax burden of about 8 percentage points of GDP. A priority area for investing these increased resources is of course the development of the poor South. A "New Deal" that created the conditions to take advantage of the productive potential of the South, and to allow it to reach the medium development level that the rest of the country has, would generate by itself a considerable additional impulse to the growth process, in addition to the reduction of regional inequalities. This requires eliminating and reverting the bias against these regions that most policies in the area of public capital or development incentives have shown so far. Infrastructure investment in these

[164] Current proposals by the Calderón administration are slightly more ambitious (aiming at increasing tax revenues by 2.8 percent of GDP) but their implementation and results remain to be seen.

regions and the introduction of positive discrimination in their favor in other policies would open up new areas of investment and new markets thus liberating a growth potential that would contribute, for a considerable period, to a higher rate of growth of the economy as a whole (see on the subject, Dávila, Kessel and Levy, 2002).

Establishing a competitive real exchange rate calls for the reform of monetary policy. In this respect, if one accepts that price stability is consistent with multiple configurations of interest rates, exchange rate and real wages, and that some of them are more favorable than others to economic growth, it follows that, without violating the constitutional mandate that requires the Central Bank to pursue price stability, monetary policy should seek such stability within the set of configurations favorable to growth. Moreover, given that the configurations of relative prices that inhibit growth have often proven to be unsustainable, prudence dictates seeking price stability only within a context that is favorable to growth. This requires systematically avoiding exchange rate overvaluation especially at times of recession which implies the implementation of a procyclical monetary policy, as happened in the early 2000s. This would involve combining the current inflation targeting framework with real exchange rate targeting. More precisely, the central bank could promote a competitive exchange rate by establishing a sliding floor to the exchange rate in order to prevent excessive appreciation (an “asymmetric band” as in Ros, 1995). This would imply intervening in the foreign exchange market at times when the exchange rate hits the floor but allow the exchange rate to float freely otherwise. Thus, under this alternative the central bank does not target a particular real exchange rate but only establishes a floor on it is value.

The orthodox objection to such a proposal is that by defending the floor the central bank loses control of the money supply and this could imply giving up the achievement of the inflation target (for a fuller discussion, see Frenkel and Rapetti, 2004). The problem arises at times of excess supply of foreign currency as a result, in particular, of massive capital inflows. It is worth noting, however, that speculative capital inflows will tend to be deterred to the extent that the central bank clearly signals that it will prevent the appreciation of the domestic currency thus stabilizing exchange rate expectations. If necessary, however, the central bank can impose capital account regulations on short-term capital flows in order to recover control over the money supply.

The third area of reform concerns industrial policy in order to create the conditions for a rapid process of structural change. If Mexico is to succeed in its so far failed quest to achieve high and sustained economic growth, there is urgent need to rethink key elements of its overall strategy and industrial policies. Mexico’s economy is at a crossroads. It cannot further base its international insertion on low wages and labor-intensive maquiladoras but, at the same time, it

has not yet successfully entered the international markets based on high value added processes and products. The transition towards a new pattern of trade specialization based on activities with higher technological intensity and greater human capital intensity will require the reform or abandonment of existing policies and the undertaking of new tasks. The first category includes, in particular, the reconsideration of the incentives currently in place to induce the tax-free entry of imported inputs for export purposes. In place of these incentives, priority should be given to the integration of productive chains that allow taking advantage of the competitiveness of certain activities in order to strengthen the competitiveness of other activities upstream or downstream while at the same time enhance the capacity of the export sector to generate growth in the rest of the economy. If special programs to promote the development of selected industrial sectors are implemented, as is the case in the current administration, they should be supported by sufficient financial and human resources as required by the daunting magnitude of the challenge. In this regard, the institutional framework should be tailored to guarantee, as best as possible, that all subsidies are granted in a temporary, transparent, accountable and goal-oriented way.

There are also several new areas in which public action is indispensable. This includes the development of long term capital markets, technology policies focused on innovation and the development of new sectors, investments in training and acquisition of new abilities and direct support to strategic industrial sectors, understanding by strategic those that generate strong positive externalities on other sectors. The task is, in short, to design policies that creatively address market failures in the factor markets, coordination problems among producers, and information externalities in new activities, all of which generate less than socially optimal rates of investment in activities that are decisive for the successful transition towards a new pattern of specialization and development (see on the subject Ros, 2003, Shapiro, 2006, Hausmann and Rodrik, 2006, and, for a skeptical viewpoint, Pack and Saggi, 2006).

The difficult tasks of social policy

The tasks of social policy are also very demanding especially if the growth imperative is not fully met. This is so for several reasons. There is, first, the legacy of increased inequality from the 1980s and the accumulated backlog of unmet social needs. As we have seen in chapter 10, income inequality remains higher than at its low point in 1984 and the persistence of inequality together with the insufficient growth rates have prevented a sustained reduction in the poverty rate, except in the very recent past, and have led to an increase in the number of poor.

Secondly, as discussed in chapters 8 and 10, there are a number of ways in which the present development pattern, as has happened in other episodes in the past, is exacerbating economic and social disparities. The state's retreat from agriculture and the reform of the land tenure system may have brought private capital and prosperity to some rural areas, but have also inadvertently tended to impoverish large masses of rural workers in a similar way that agricultural modernization under the *Porfiriato* did on purpose and on a much more massive scale. The benefits of a greater integration with the international economy, and with the US in particular, are also being very unevenly distributed within the country. Wage inequality has increased as a result of a higher wage premium on skilled labor that has accompanied greater international integration. Regional inequalities are also increasing, reverting earlier trends. Just as in the late 18th century the 'opening of North Atlantic trade' exacerbated the 'fragmentation of regional markets', there is today a tendency towards a deepening of regional disparities, especially between a prosperous north increasingly integrated with the US economy and a poor and backward south plunged into agricultural stagnation.

Finally, and no less fundamentally, by abandoning, without effective replacement, the trade and industrial policy instruments that have worked successfully in the past, current development strategy encourages the exploitation of present rather than potential comparative advantages. The basic task of development policy — the task of changing and enhancing the present endowment of resources and, over time, shifting the pattern of comparative advantages towards higher value-added, technology-intensive activities — falls now fully, in the absence of industrial policy, upon social policies. A proportionate response to this challenge could actually make things better than otherwise (that is, than, say, under an active industrial policy with little social policy), but our point is that the challenge itself is immense and the response remains to be seen. A less than proportionate response would lead to freezing the present stage of development — of getting stuck in the relatively unskilled and low-pay tasks of the production processes of capital-intensive industries. This is a far from desirable prospect for a country that needs to grow fast and rapidly to increase the living standards of its more than 100 million people.

All this leads us to a final and most important aspect of the overall reform process, on which we can only raise the relevant questions. Is the shift in the market-state balance a sign that, after having reduced economic backwardness by state-sponsored industrialization, use of a different set of ideas becomes more suitable in the new stage, a shift that is the natural companion of the transition from Gerschenkronian to Schumpeterian entrepreneurship? Or is it still the case that "to break through the barriers of stagnation in a backward country, to ignite the imaginations of men, and to place their energies in the service of economic development, a stronger medicine is

needed than the promise of better allocation of resources. . ." (Gerschenkron, 1952)? Dealing with these questions falls outside the scope of this book, and of the wisdom of its authors. But on their answers depend Mexico's longer-term prospects for rapid economic development.

What we can say, however, is that the origin of the adjustment problems and the new problems created by the reform process are not being adequately perceived in current development policy. First, the notion that the crisis was brought about by the exhaustion of past development strategies should not be taken for granted, even though we would be very far from defending every single aspect of past development strategies. Secondly, the solution to the new obstacles may require more and better, rather than less, state participation in the economy. As we have tried to show, the source of these new problems has to be found in part in the retreat of the state, in such areas as public investment in infrastructure. But as a result of the shift in ideological climate, very little attention is being given to these problems and to what government policy can do about them while, at the same time, too much is expected from the efficiency gains of market reforms. Is it the case that, just as a century and a half ago, the real obstacles to economic development are being misperceived?

Appendix. Historical series of social and economic indicators

Tables and figures

Table A.1. GDP, GDP per capita and population growth, 1820-2003

	1820	1870	1910	1940	1970	1981	2003
GDP per capita[1/]	759	674	1,694	1,852	4,320	6,717	7,137
As % of US level	60.4	27.6	34.1	26.4	28.7	35.6	24.6
Growth rates		1820-1870	1870-1910	1910-1940	1940-1970	1970-1981	1981-2003
GDP		0.4	3.6	1.3	6.2	6.8	2.1
GDP per capita		-0.2	2.3	0.3	2.9	4.1	0.3
Population		0.7	1.2	1.0	3.2	2.6	1.8

1/ 1990 international Geary-Khamis dollars

Source: Maddison (2003, 2006)

Table A.2. Mexico's GDP per capita as percentage of GDP per capita in:

	1820	1870	1913	1940	1970	1981	2003
USA	60.4	27.6	32.7	26.4	28.7	35.6	24.6
Western Europe	63.1	34.4	50.1	40.7	42.4	50.9	35.8
Eastern Europe	111.1	71.9	102.2	94.1	100.1	118.2	110.2
Latin America	109.8	99.7	115.9	95.8	108.3	125.4	123.3
Asia	130.6	121.2	248.9	206.5	282.2	322.9	163.4
Africa	180.7	134.8	271.9	227.8	318.8	444.8	460.7
World average	113.8	77.2	113.5	94.4	115.6	148.2	110.2

GDP per capita in 1990 Geary-Khamis dollars

Source: Based on Maddison (2006)

Table A.3. Population and social indicators, 1895-2000

Year	Population (millions)	Dependency ratio	Rural population (percent)	Life expectancy at birth (years)	Infant mortality (per thousand)	Literacy[1/]	Average years of schooling[2/]
1895	12.6	77.6	71.7[5/]	29.5[6/]	NA	17.9[3/]	NA
1910	15.2	80.0	71.3	NA	NA	22.3	NA
1930	16.6	72.9	66.5	33.0-34.7	156.3	38.5	NA
1940	19.7	79.2	64.9	37.7-39.8	138.6	41.8	2.6
1970	48.2	107.6	42.2	58.8-63.0	76.8	76.3	3.4
1980	66.8	89.0	33.7	63.2-69.4	53.1	83.0[2/]	4.6
1990	81.2	81.0	28.7	67.7-74.0	36.2	87.4	6.6
2000	97.5	64.3	25.4	71.6-76.5	24.9	90.5[2/]	7.3
2005	103.3	66.1	23.5	74.5	24.0 [7/]	NA	8.1

Life expectancy refers to men-women (except for 1985 and 2005)
1/ Population age 10 or above
2/ Age 15 or above
3/ Age 6 or above
5/ 1900
6/ 1895-1910
7/ 2004
Sources: INEGI (1994), INEGI on line; INEGI. Indicadores Sociodemográficos de México; INEGI. Estadísticas Educativas de Hombres y Mujeres; INEGI. Mujeres y Hombres de México 2006

Table A.4. Structure of GDP (percentages), 1895-2005

	1895[1/]	1910[1/]	1926[1/]	1940[1/]	1970[1/]	1970[2/]	1981[2/]	1981[3/]	200
Agriculture[4/]	29.1	24.0	19.7	19.4	11.6	11.2	8.0	7.0	5.
Mining	3.0	4.9	9.3	6.4	4.8	2.6	3.4	1.5	1.
Industry[5/]	9.0	12.3	14.7	18.7	29.7	30.0	29.4	26.2	25.
(Manufacturing)	(7.9)	(10.7)	(11.6)	(15.4)	(23.3)	(23.0)	(21.6)	(18.9)	(19.
Services	58.9	58.7	56.3	55.5	53.9	56.2	59.2	65.3	67.
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100

1/ Based on 1960 prices
2/ Based on 1980 prices
3/ Based on 1993 prices (percentages of gross value added at basic prices)
4/ Includes livestock, forestry and fishing
5/ Includes manufacturing, construction, and electricity, gas and water
Sources: Banco de México, INEGI (on line), Centro de Estudios de las Finanzas Públicas de la Cámara de Diputados, based on INEGI

Table A.5. Composition of the economically active population (percent of total)

	Primary sector	Secondary sector	Tertiary sector
1895	67.0	15.6	17.4
1910	68.0	15.2	16.8
1940	67.3	13.1	19.6
1970	41.8	24.4	33.8
1980	36.5	29.2	34.3
2000	16.3	28.7	55.0

Source: INEGI on line. Estadísticas sociodemográficas, Series históricas

Table A.6. Sources of industrial growth (%)

	Domestic demand	Export expansion	Import substitution
1929-39	56.4	4.3	36.9
1940-45	29.6	78.9	-8.5
1945-50	130.2	-54.0	25.5
1950-58	92.5	2.9	1.7
1960-70	87.4	2.3	10.3
1970-74	102.2	2.5	-4.7
1974-80	105.0	2.2	-7.2
1980-89	-54.9	154.1	0.8

Note: The sum of the three sources of growth may not equal 100 due to changes in the structure of demand.

Sources: Cárdenas (1987), table 5.1; Cárdenas (1994), table IV.8 and V.3; Ros (1994), table 6.4

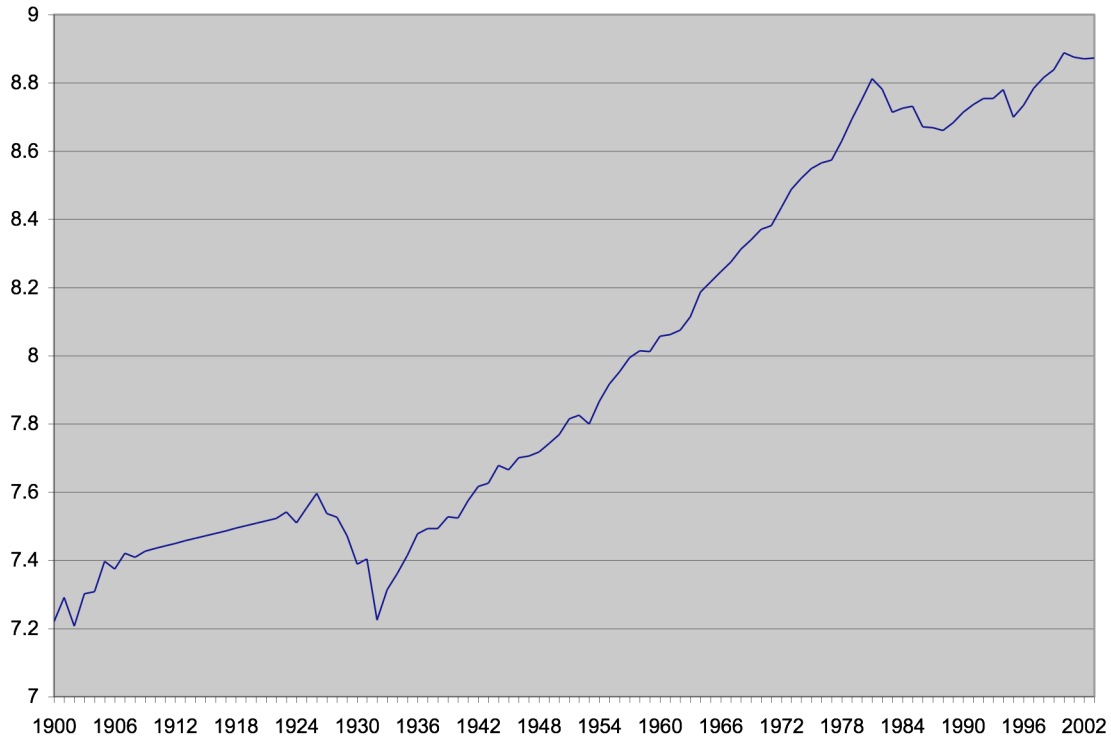
Table A.7. Poverty and inequality, 1950-2004

Year	Number of poor (millions)	Poverty rate	Gini coefficient (percent)
1950	16.7	61.8	52.0
1956	20.7	64.3	52.0
1958	20.9	61.0	53.0
1963	18.5	45.6	57.0
1968	11.6	24.3	54.0
1977	15.7	25.0	49.0
1984	16.9	22.5	42.5
1989	19.0	22.7	46.5
1992	20.0	22.5	47.5
1994	19.4	21.1	47.7
1996	35.3	37.1	45.4
1998	33.2	33.9	47.6
2000	24.3	24.2	48.1
2002	20.9	20.3	45.4
2004	18.3	17.3	46.0

Poverty is estimated using a nutrition-based poverty line

Source: Székely (2005)

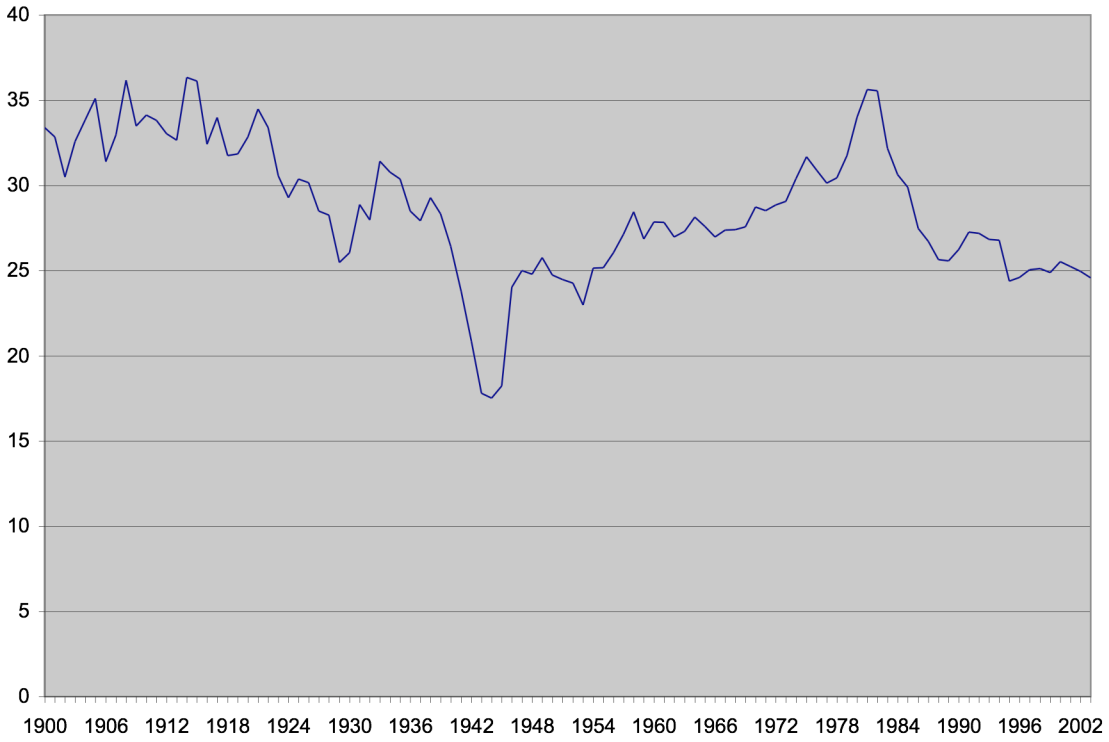
Figure 1. Mexico's GDP per capita, 1900-2003



Natural logarithm of GDP per capita in 1990 Geary-Khamis dollars

Source: Based on Maddison (2006)

Figure 2. Mexico's GDP per capita as per cent of US GDP per capita, 1900-2003



Source: Based on Maddison (2006)

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