

THE DECLINE OF THE MEXICAN ECONOMY, 1800-1860

John H. Coatsworth

The economic decline that accompanied Mexico's independence probably began in the 1780s. It lasted nearly a century. As industrial revolutions stimulated economic advance in the North Atlantic countries, Mexico slipped farther and still farther behind. Mexico's decline in this era determined the magnitude of the productivity gap that has separated the Mexican economy from the developed world ever since. If Mexico had managed to achieve a rate of economic growth equal to that of its northern neighbor between 1800 and 1860, then the country's 1950 per capita income would have been achieved by 1900 and Mexico would now rank among the world's most developed economies with a per capita income comparable to that of Italy or even the United Kingdom. Instead, Mexico's per capita GDP fell from roughly half that of the United States in 1800 to less than one seventh by 1860 and has fluctuated around that level ever since (Coatsworth 1978: 82).

Major institutional changes accompanied Mexico's economic decline. The Spanish Cortes enacted legislation between 1811 and 1813 that took the Bourbon assault on corporate privilege to a new stage by disestablishing the guilds, ending ethnic restrictions on employment, and abolishing the Indian head tax (*tributo*). With independence came proclamations of the legal equality of citizens (save clerics and military officers) and the abolition of entail and titles of nobility. Public enforcement of the Church tithe ended in 1833. Corporate property and the ecclesiastical and military *fueros* were abolished in 1856 and 1857. The liberalization of trade that began under the Bourbons was extended to open direct trade with allies and neutrals during the wars of the French Revolution and Napoleon. Independence opened Mexico to the commerce of the world, ended enforcement of laws restricting immigration and foreign residency, and reduced colonial restrictions on the importation of capital. Internal monopolies, like the tobacco *estanco*, were maintained and revived from time to time, but without success; by the 1850s, these, too, had disappeared. In short, Mexico took major steps toward eliminating insti-

tutional obstacles to modern capitalist development during this period of economic decline. In fact, economic decline actually encouraged experimentation and undermined all attempts to revive colonial institutions and policies (Walker 1984).

This essay will analyze changes in the Mexican economy from the late colonial period to approximately 1860. Its purpose is to contribute to knowledge of the dimensions of Mexico's economic decline and to understanding of its causes. The analysis will rely, in part, on new estimates of Mexico's gross domestic product (GDP) in 1800, 1845 and 1860. The estimates are based partly on fact and partly on disciplined guesswork. They provide rough indicators of sectoral output for each of these benchmark years. While the estimates inevitably contain substantial error margins, they mark an advance over the implicit quantification of literary accounts by providing explicit and testable calculations upon which future research can improve as more and better data become available.

In the first section below, the origins of Mexico's economic decline are located in the late colonial era. The second section reviews the demographic and territorial changes that followed independence. The following sections present the new GDP estimates and discuss the changes in output and structure they reveal. The final sections analyze the development of the external sector and contain some concluding comments.

I. THE ORIGINS OF DECLINE

It has become commonplace to contrast the "harmony and prosperity" of the colonial era to the conflict and depression of independent Mexico (Rodríguez O. 1983). This contrast is essentially inaccurate. The research of the past two decades points clearly to a sustained economic decline in the last decades of the colonial era. Indeed, nearly all of the factors cited by historians to explain post-independence economic trends were powerfully at work decades before the Grito de Dolores.

The second half of the eighteenth century witnessed important changes in agricultural production and productivity. In the Guadalajara region, the Bajío, the Central Valley, and elsewhere as well, population growth and urban demand caused a widespread shift from extensive agriculture and livestock production to more intensive production of food grains, especially maize and wheat (Van Young 1981: chap. 10; Brading 1973; 1978: chap. 8; Konrad 1980: chap. 8). The livestock frontier moved north of the

Bajío, and the land thus freed went under the plough. Costs rose as yields declined and producers had to pay for transportation from more distant fields to urban markets. The earlier gains from regional specialization were lost, and the agricultural sector began to experience a steady decline in productivity. The famine of 1784-85, and the crop failures that occurred with increasing regularity thereafter, were due not only to climatic vicissitudes but to the greater variability of crop yields as more and more marginal land was put into production (Florescano 1969).

To declining productivity in agriculture, it is necessary to add the evidence of trouble in the mining industry. I have already pointed to the problem of rising marginal costs, that is, to the increasing cost of producing each ounce of silver and gold (Coatsworth 1986; Garner 1980). Government subsidies, in the form of tax relief, soft loans, and lower prices for the mercury and gunpowder supplied by government monopolies prolonged the life of many mines. But the prosperity of the industry depended more and more on government aid, and Spain's capacity to continue the subsidies disappeared in the decade after Hidalgo's revolt. The collapse of production in 1811 may be attributed to Hidalgo; the industry's failure to recover in the final years of colonial rule had more to do with economic factors and declining government aid.

Foreign competition began its long war against Mexico's artisanal and industrial producers long before independence, too. Salvucci (1986) has documented the collapse of woolen textiles by the end of the eighteenth century. Cotton textile production faced foreign competition as early as the American War for Independence. Competition intensified during the wars of the French Revolution and Napoleon, and output began to suffer well before independence, as Thomson (*Ms.* 1978: chaps. 2 and 3; 1986) has shown. In a declining economy, alternative employment for the resources idled in textile production were simply unavailable.

The chief malady attributed to Independence has been political instability and the attendant evils of arbitrary taxation and the lack of security for enterprise. Neither of these evils was new. Nostalgia for a colonial era of peaceful productivity can only be sustained by failing to notice that the colony was part of a vast empire sustained only by war against increasingly powerful European competitors (Rodríguez O. 1983). The fiscal extortions of the Bourbon reforms and the increasingly destructive economic regulation required to enforce them were compounded by Spain's desperation after 1796. In the decade after 1800, the full range of arbitrary taxes and forced loans that so cursed the Independence era were im-

posed by the colonial authorities to support the war effort. The most destructive of these measures, the *consolidación de vales reales*, did as much to destroy the colony's incipient capital market as any of the measures imposed by warring caudillos in the half century after independence. Moreover, the colonial government provided virtually no services to its constituents, not even internal security. Order collapsed almost as soon as it was challenged. Banditry, largely a product of economic distress, escalated after the famine of the 1780s and again in the period following the Hidalgo revolt. Colonial officials were virtually powerless to stop it.¹ In short, most of the ills associated with Independence, both economic and political, had their origins in the colonial era.

II. POPULATION AND NATURAL RESOURCES

The colony administered from Mexico City covered nearly 4.5 million square kilometers, twice the area of the newly independent United States of America. The Mexican republic which administered this vast territory after 1821 was the largest of the new nations to emerge from the wreck of Spain's empire in the New World.

In the three decades after independence, Mexico lost half its national territory to its aggressive northern neighbor. The loss of Texas encompassed more than a million square kilometers. An additional 1.4 million square kilometers were ceded by the Treaty of Guadalupe Hidalgo in 1848. In 1853, 80,000 square kilometers were sold to the United States (the Gadsden Purchase) to assure North American entrepreneurs that a new transcontinental railroad to California could be constructed entirely on U.S. territory. In that year, the territory of the Mexican republic fell below two million square kilometers, while that of the U.S.A. reached nearly 8 million. From twice as large in 1800, Mexico fell to one-fourth the size of her northern neighbor.²

The loss of Texas, the New Mexico territories and Upper California deprived the Mexican nation of immense natural resources. The full extent of this loss first came to light in the year Mexico lost the war with the United States. The California "gold rush" began in 1848. Within two

1 William R. Taylor describes the rise of banditry in the Guadalajara region (Taylor 1988).

2 Data on the territorial expansion of the United States are found in *Historical Statistics* (1960: 236).

decades, the lost territories were producing more precious metals than all the fabled "silver mountains" of old Mexico. By 1900, the mineral output alone of the lost territories exceeded the national income of the Mexican republic.³

Since the territories lost were sparsely populated, Mexico's human resources were little affected. In 1800, Alexander von Humboldt estimated the population of New Spain and the northern provinces at more than six million.⁴ Table 1 presents population estimates for Mexico from 1800 to 1862.

At the end of the colonial era, Mexico's population was growing slowly. The slow pace of population growth continued into the Independence era. Between 1800 and the 1860s, the annual average increase was only 0.6 percent. As Mexico lost vast natural resources, the country's stock of human capital stagnated. Neither in numbers, nor in skills or education, did the country's population increase much in the first four decades of independence.

III. TRENDS IN GDP

Table 2 presents the new estimates of Mexico's gross domestic product mentioned above. Detailed estimates for each sector may be found below in the text and in Table 14. In 1800, gross domestic product stood at roughly 240 million pesos at current prices, or 333 million pesos of 1900. In comparison to the United States and Great Britain, Mexico's per capita product was low, one half that of the United States and barely one third of British per capita product (Coatsworth 1978: 82). Large as it was in 1800, however, the gap between Mexico and the developed countries would never be so narrow again.

Between 1800 and 1845, Mexico's real national income stagnated, falling some two percent. In per capita terms, however, the fall was much larger (21.6 percent). This decline continued through 1860 (and probably to the end of 1860s).

In comparison to 1800, Mexico's total GDP had fallen by five percent in

3 In 1850, total U.S. production of gold and silver amounted to U.S. \$ 55,148,730, nearly all of it produced in the former Mexican territories (*Historical Statistics* 1960: 371). In the same year, less than 20 million pesos were minted in Mexico; see Table 10 below. Mineral output of the United States is reported in *ibid.* (1960: 360-369).

4 See Table 1.

1860. Population growth in the meanwhile brought per capita real income down to a level nearly 30 percent below that of 1800.

When it becomes possible to construct estimates for the intervening years, a more precise view of short-term fluctuations will be possible. It is likely, for example, that per capita income in the colony began to decline as early as the 1780s. When the independence movement broke out in 1810, the short-term decline, especially in mining and government revenues was especially sharp.⁵ Partial recoveries probably took place in the late 1820s and again in the late 1830s and early 1840s.⁶ From 1845 to 1860, economic activity declined again, in part due to the U.S. invasion (1846-48) and the internal War of the Reform (1858-61). Between these two wars, another partial recovery may have occurred, only to be reversed. Between 1845 and 1860, total income fell 3.5 percent, while per capita product fell nine percent. By 1860, Mexico's economy had reached the lowest point for which estimates are available.

These estimates of gross domestic product are the result of efforts to reconstruct output sector by sector. The results of these efforts are presented in Tables 3, 4 and 5.

The sector that suffered least as the economy declined after 1800 was probably agriculture. The estimates of agricultural production are based on scattered data that make it possible to calculate per capita production or consumption. They are thus intended to include all output, whether marketed or not. Table 6 presents the data on which the maize estimates are based. The earliest national estimate is that of Quirós (1973) listed for 1800, but actually estimated by the author as an "average" for the period before the Hidalgo revolt. The Quirós estimate is consistent with later data on national consumption per capita, as the table shows. The 1845 and 1860 figures (125 kilos per capita) embody the assumption that staple production could not have declined much, given low income elasticity of demand for basic foodstuffs. For 1860, however, Pérez Hernández (1862: 103) gives a figure which is far lower (approximately 70 kilos per capita). This figure is much closer to the consumption per capita in Mexico City, where a substantial minority of the population consumed wheat rather

⁵ See Table 10 below.

⁶ The evidence available to document short-term trends is limited. Foreign trade and government revenues increased in the 1820s, and mining production also recovered somewhat; see below, Tables 10 and 12. For government revenues, see Carmagnani (1982). Thomson (Ms. 1978: chap. 3) documents increased activity in Puebla's cotton textile industry in the late 1830s and early 1840s.

than maize. For the nation as a whole, higher estimates for 1845 and 1860 are more reasonable.

Table 7 presents the per capita consumption and production data on which the estimates for wheat, rye and sugar are based. For wheat, consumed mainly in cities, the urban data contain a bias opposite to that encountered in the maize data. Quirós estimated national wheat consumption at 25 kilos per capita, less than one fifth the 1792 census estimate of 138.1 kilos for Mexico City.⁷ An independent estimate of wheat production, that of Ortíz de Ayala based on Guadalajara data for 1802, put national output close to the Quirós estimate, viz., 1,400,000 cargas, or 21.47 kilos per capita (Ortiz de Ayala 1968: 49-53). The data from the Porfirian era are also quite close to the Quirós estimate, fluctuating around 20 kilos per capita between 1892 and 1907.

For 1845 and 1860 wheat output there are no reliable figures. Pérez Hernández (1862: 103) estimated wheat production per capita at 27.9 kilos, a figure that seems overly optimistic (in contrast to his low estimate of maize production). Instead, national wheat consumption per capita is set at much lower levels for the two missing years. Lower levels are consistent with widespread evidence of decline in estate agriculture (especially during the 1850s); since wheat was an exclusively estate product that required irrigation and special care, these lower levels appear to be more plausible.⁸

The estimates of output for the remaining agricultural products are based on similar sources and methods. The most problematical are the estimates of sugar production for 1845 and 1860. While there is no evidence to suggest a notable increase in production, and the estimates employed are consistent with contemporary sources, the "boom" in the 1870s is unlikely to have raised output from the 60,000 tons indicated by Pérez Hernández for 1860 to the 600,000 tons estimated for 1877.⁹ The 1860 figure is probably too small, and the 1877 estimate too large, but evidence is lacking to determine the amount of the correction required.

The sectoral estimates of GDP in Table 3 suggest that the agricultural sector withstood the turmoil of the Independence period better than any other. The share of agriculture in GDP rose from 21.9 to 27 percent, according to the estimates; while GDP declined by nearly 30 percent per

7 Quirós (1973: 236); the Revillagigedo census data are in Orozco y Berra (1973: 71).

8 On the fragmentation of the large estates, see Brading (1978: chap. 8) and Bazant (1971).

9 On the boom in sugar production in the 1870s, see Calderón (1965: 47-49).

capita, agricultural output declined only 12.5 percent between 1800 and 1860. Caution is needed, however, in interpreting the data, since the estimates of agricultural output actually embody the assumption that food production per capita did not decline by much.

Livestock production appears to have suffered far more than agriculture. Table 8 presents data on per capita meat consumption similar to those used for the agricultural estimates. The data suggested sharp declines in the consumption of mutton and pork and a smaller decline in beef consumption. These estimates are little more than guesswork. The 1800 estimates are based on Quirós (1973: 236). The 1860 beef estimate takes the ratio of Mexico City consumption in 1792 to national consumption in 1800 and applies it to 1860 when only Mexico City data are available. The 1845 estimate merely interpolates a round number. The estimates for mutton and pork production employ the same method. The Pérez Hernández (1862: 117) estimates for 1860 for all three products are higher (see table), but are rejected again for their urban bias.

A variety of sources were used to construct estimates of other livestock products. Quirós and Pérez Hernández provided the starting point in each case.¹⁰ In most cases, independent sources and data from the Porfiriato established reasonable boundaries for the estimates.

In contrast to agriculture, the estimates of livestock production suggest a sharp decline, much sharper in the case of *ganado menor* than in beef cattle production. Cattle production did not fall until after the U.S. invasion. As a proportion of GDP, livestock production fell from 19.4 to 12.4 between 1800 and 1860. The weight of agriculture and livestock together remained virtually unchanged over this period, as the decline in the livestock share was roughly matched by the rising share of agriculture. Together, these two sectors accounted for roughly 40 percent of GDP throughout this period: 41.3 percent in 1800, 44.4 in 1845 and 39.4 in 1860.

Artisanal and industrial production, the manufacturing sector, accounted for a far larger share of Mexico's GDP than most accounts have suggested. Table 9 provides detailed data on the estimates constructed industry by industry. A number of industrial activities are not included in the estimates for this sector because they could not be distinguished in the data on agricultural and mineral output. Flour milling, one of the country's important industries, cannot be estimated apart from the value of the agricultural input. The estimates of wheat production in the agricultural sector above actually include the value added by this processing

10 See Table 8.

industry. Even without it, however, the food processing industry emerges as the single most important industrial sector. Next in importance was the "chemical industry" that produced soap, gunpowder, vegetable oils and candles, among other products.

The manufacturing estimates are based on a number of sources and represent value-added estimates constructed by subtracting the value of raw materials inputs (that is, the corresponding estimates of agricultural or livestock production). Most of the figures are adjusted from the data in the Quirós and Pérez Hernández works.¹¹ The 1845 data are based on official sources that only provide information on the textile and iron, steel and munitions industries.¹²

Except for parts of the textile industry that began a short-lived modernization process in the 1830s and early 1840s, the manufacturing sector consisted chiefly of small-scale artisan workshops or cottage "industries". Little technological change occurred during this period, save for those enterprises that received Banco de Avío aid to import equipment in the 1830s.¹³ The effects of this conservative program were not impressive. Most of the textile mills that modernized in this period went bankrupt.¹⁴ The largest establishments, outside the sugar and flour mills and the mine smelters were the tobacco "factories". In the late eighteenth century, the Royal Tobacco Factory in Mexico City employed over 3,000 people. After independence, tobacco processing continued as a public sector monopoly leased to private entrepreneurs under various contracts until 1856. Tobacco factories did no more than unite under one roof the processing activities formerly carried out in scores of individual tobacco shops. No technical advance was created by factory production (Walker 1984).

As a proportion of GDP, manufacturing remained virtually unchanged from 1800 to 1860, fluctuating around 20 percent. Manufacturing activity declined at about the same rate as GDP during this period.

11 Quirós (1973: 262-263); Pérez Hernández (1862: chap. 9). See also Rosenzweig Hernández (1963). I have followed Rosenzweig's approach closely; this work is the pioneer in historical reconstruction of economic activity for Mexico.

12 *Memoria de Industria* (1845 [1846]: 52-57). I have accepted the conclusion of Keremitsis that the estimates in this report understate textile production; the Keremitsis revisions are thus employed in the GDP estimate. See Keremitsis (1973: 38-39).

13 See also Burks (Ms. 1952: chaps. 9-10); Potash (1959: chaps. 3-4); Bazant (1964b). The best discussion of the textile industry, however, is in Thomson (Ms. 1978: chaps. 2-3).

14 The most detailed account of the losses suffered by entrepreneurs in the textile industry can be found in Walker (1986: chap. 6).

The same was true for the mining industry, which accounted for a much smaller proportion of GDP than either agriculture or manufacturing. Official estimates of the production of gold and silver are displayed in Table 10. The official estimates only include the output that reached the mints. Literary evidence suggests that small quantities of gold and silver were diverted to contraband before reaching the mint. Actual output may have been higher than the official figures indicate. In some years, the government legalized the export of unminted gold and silver. This was true for 1845 and 1860, for example, so data on exports of unminted gold and silver are added to the mint figures in the GDP estimates.¹⁵

The mining sector also produced small quantities of copper, lead, tin, iron, mercury, and such non-metallic minerals as salt. Estimates of these items are also included in the mining sector totals.

This sector suffered a sharp decline in output after 1810, but by 1845 the 1800 output of precious metals had already been equalled. In per capita terms, however, mining output was substantially lower than in 1800 (16.3 percent) as late as 1860. This sector did not regain its 1800 level of per capita output until the late 1880s. As a proportion of GDP, mining fell from 8.2 percent in 1800 to 6.2 percent in 1845. Modest growth thereafter, while the economy was still declining, raised the figure to 9.7 percent of GDP in 1860, higher than in 1800.

Together, mining and manufacturing represented between a quarter and a third of GDP in this period. In 1800, these two sectors together accounted for 30.5 percent of GDP. Both fell faster than the economy as a whole, reaching 24.5 percent in 1845 and recovering to 31.3 percent in 1860.

Estimates reported in Table 3 for the forestry, fish and game, construction, transportation, and commercial sectors of the Mexican economy in this period represent more guesswork than hard data. Forestry and fish and game estimates are found in both Quirós (1973: 262) and Pérez Hernández (1862: chap. 5). The 1845 figures are interpolated. The construction, transportation and commercial sectors are calculated on the basis of the weight of these sectors in Mexico's GDP after 1895.¹⁶ It is likely that this procedure underestimates the output of these sectors. The largest of them, commerce, could have accounted for more than a quarter of GDP,

15 The export of metals *en pasta* is described in Mayer (1853, II: 99). Pérez Hernández gives a figure for unminted precious metals exports for 1857; this is added to the mint figures for 1860 and in the GDP estimate; see Pérez Hernández (1862: 135).

16 Sectoral weights beginning in 1895 may be found in Solís (1969: 12).

if Mexico's economy followed patterns familiar in the less developed world.¹⁷ The trend after 1895 was up, with the commercial sector rising from 17 to nearly 20 percent within the next two decades (Solís 1969: 12). Altogether, the three sectors for which data is totally lacking account for 20.1 percent of the GDP estimates in each of the three years.

The public sector of the Mexican economy in this period represented a smaller proportion of GDP than in Europe at the same time.¹⁸ In 1800, however, the GDP estimate excludes nearly half the revenues collected by the viceregal government because they were exported from the colony as net fiscal revenues to subsidize Spanish administration in other parts of the empire or to swell the coffers in Madrid (Humboldt 1966a, IV: 224-229). Revenues actually spent in New Spain amounted to only about 2.35 pesos of 1900 per capita, lower than in 1845 or 1860. As a proportion of GDP, government spending *inside the country* increased dramatically, from 4.2 percent in 1800 to roughly seven percent thereafter (7.4 percent in 1845 and 6.8 percent in 1860). In terms of the government's capacity to extract resources, the data suggest a small decline (from 7.8 percent in 1800). It should be noted, however, that between 1800 and 1809 the colonial regime resorted to draconian tax measures and forced loans which may have raised revenues from 18.7 million pesos in 1794 to as much as 68 million in 1809.¹⁹ Even taking into account the marked inflation of the intervening years, the 1809 figure could have represented as much as 25 percent of GDP.

Caution should be exercised in interpreting the data on colonial government revenues and expenditures. Both sides of the ledger contain sums carried over from previous years and may thus exaggerate the actual flow of funds. For this reason, the GDP estimate for 1800 takes the somewhat lower estimates of government revenues and expenditure reported by Humboldt (1966a). For the republican period, well-known data on federal government activity is used in estimating GDP, but the public sector

17 See Maddison (1983). Maddison notes that the contemporary service sector of LDC economies averages between 24.6 and 44.2 percent of GDP, depending on the method used to estimate national income.

18 See Maddison (1983) and Bairoch (1976); Deane and Cole (1962: 282, 329-330); Ardent (1975: 200-204, 220-221). The public sector of the U.S. economy did not spend more than five percent of national income for most of the nineteenth century, a lower ratio than that of Mexico; see *Historical Statistics* (1960: 709-730).

19 Klein (1985: Table I). Data from the Mexico City treasury are found in TePaske (1976). Data from all 23 Mexican treasuries will be found in TePaske and Klein (Ms.).

data also contain estimates of municipal and state expenditures (based on their proportion of federal outlays in the Porfirian era).²⁰

IV. THE EXTERNAL SECTOR

As Mexico's GDP fell during the nineteenth century, the country's economic ties to the rest of the world actually grew in importance. That is, Mexico's foreign trade declined more slowly than GDP after 1800. Table 11 measures the significance of foreign trade by estimating the weight of the external sector in GDP. Total foreign trade increased from 8.1 percent of GDP in 1800 to 12.3 percent in 1845 and then declined to 9.8 percent in 1860.

Precise data on Mexico's foreign trade after independence are only available for scattered years. Table 12 presents this data together with data on the exports of Mexico's principal trading partners during those years when Mexican import data are missing. As this table indicates, Mexico's foreign trade fluctuated after independence as violently as the country's relations with the major foreign powers.

In the period after 1860, the external sector assumed far greater importance to the economy than at any point before. In assessing the impact of the external sector during the colonial and early Independence period, therefore, the later data provide a much needed perspective. Trade was important to the Mexican economy even before the restoration of the republic in 1867, but the liberal trade and tariff reforms in the 1870s and foreign investments that stimulated export production during the Porfiriato made Mexico a far more dependent country at the end of the nineteenth century than ever before. While trade averaged about ten percent of GDP before 1870s, by the end of the Porfiriato the significance of the external sector had tripled to more than 30 percent of GDP.

While the perspective suggested by the Porfirian trade figures tends to reduce the significance of the export sector in earlier periods, the fact that foreign trade increased in relative importance after independence is at least as interesting a result of these estimates. Moreover, the dependence of government revenues on foreign trade increased even more rapidly than the GDP ratio. The burden of national taxation shifted from inter-

20 State government expenditures for 1860 are reported in Pérez Hernández (1862: 193). In the period 1893-1903, municipal and state government expenditures amounted to approximately 38.4 percent of federal government outlays (Macedo 1905: chap. 3.).

nal productive and commercial activity to the external sector. Thus, the political significance of foreign trade tended to increase even faster than its share of GDP.

V. CONCLUSIONS

The new GDP estimates presented in this paper document the decline of the Mexican economy from 1800 to 1860, but evidence from the last decades of the eighteenth century indicate that the decline started well before that date. The GDP estimates depict a stagnant economy, with a modest decline of five percent in total product between 1800 and 1860. In per capita terms, however, the decline reached nearly thirty percent. This decline in the productivity of the Mexican economy occurred as the industrializing nations of the North Atlantic were achieving unprecedented rates of increase. Thus, Mexico fell even further behind the industrial nations.

The sectoral product estimates for the period from 1800 to 1860 record no significant shifts in the structure of the economy. The most severely depressed sector after independence was livestock production, the most resilient was agriculture. Mining and manufacturing output shares of GDP were lower in 1845 than in 1800. By 1860, however, manufacturing had nearly recovered and the mining sector exceeded its 1800 share of GDP. In short, the independent economy virtually replicated, at a lower level of production, the structure of the colonial economy.

Two sectors did experience a modest increase in GDP share. Public sector expenditures declined absolutely and the proportion of GDP extracted in revenue declined slightly, but real government expenditures within the country increased both absolutely and relative to GDP. Foreign trade also declined more slowly than GDP. Suggestions in the historical literature that the external sector lost importance after independence are not confirmed by the data which show a marked increase of foreign trade as a proportion of GDP between 1800 and 1860.²¹ While this increase was

21 Enrique Florescano y Alejandra Moreno Toscano suggested, in a paper written in 1972, that the decline of the external sector after independence caused a significant shift in economic activity, trade routes and the like. See Florescano and Moreno Toscano (1976). The argument of this paper remains sound, because it rested on analysis of the effects of an absolute decline in foreign trade; the *relative* importance of the external sector *increased*, however, even as the volume of transactions fell.

not as dramatic before 1860 as afterwards, it was nonetheless substantial by the standards of the period.

It is not possible to estimate the value of the income foregone as a result of the loss of half the national territory. Nor is it feasible to estimate the benefits that could have been reaped by a diversion of public spending from military purposes to investment in human capital. Both would appear to have been very large indeed.

As a trading partner, Mexico cannot be described as particularly significant for the countries of Western Europe or the United States. Nonetheless, the end of Spain's commercial monopoly did increase the country's trade with Western Europe and the United States significantly. Spain's share of Mexico's imports fell to insignificance following independence (Herrera Canales 1977: chap. 3). Moreover, opportunities for participation in internal as well as external trade increased, as some Spanish merchants left or were expelled from the country while English, German, and French merchant houses established branches or developed close trading relations with independent firms established by immigrants from these countries.²² The protections offered by their respective embassies replicated the advantages Spanish-born merchants enjoyed in the colonial era.

The decline in economic activity after independence adversely affected conservative projects which depended on the creation of a strong centralized state endowed with sufficient resources to defend the nation's sovereignty over farflung territories and impose social and political peace. Although government revenues available to cover domestic expenditures actually increased after independence, they were not sufficient to confront international competition and domestic conflict on a far larger scale than colonial governments had faced.

While conservative centralism was doomed to failure, liberalism was weakened by the economic decline as well. Liberal schemes to liquidate inherited institutional obstacles to capitalist economic modernization lacked both the plausibility and the dynamic social base that could have insured an easy victory. Mexico's political stalemate reflected the stagnation and decline of the economy.

22 See, for example, Tenenbaum (1979). It is interesting to note that, unlike other Latin American countries, Mexico imposed no major obstacles to the participation of foreign merchants in the internal economic life of the country. For a contrary case, see Gootenberg (1982).

Table 1
Population Estimates for Mexico, 1792-1862 (in Thousands)

Year	Population	Year	Population
1793	5,229	1834	7,000
1803	5,837	1854	7,850
1808	6,500	1862	8,396
1810	6,122	1869	8,743
1820	6,204		

Sources: *Anuario Estadístico, México* (1966-67 [1969]: 27); see also Navarro y Noriega (1820: 30); Humboldt (1966a, I: book 2, chap. 4).

Table 2
Gross Domestic Product, 1800-1910

Year	Current Pesos		Pesos of 1900	
	Total (1000's)	Per Capita	Total (1000's)	Per Capita
1800	240,318	40.06	333,057	55.51
1845	268,746	35.78	326,455	43.52
1860	292,371	36.54	314,865	39.36
1877	349,442	36.13	456,220	47.19
1895	736,467	58.30	903,214	71.50
1910	2,179,024	143.73	1,600,413	105.57

Source: See text.

Table 3
Sectoral Output Estimates (Thousands of Pesos of 1900)

Sector	1800	1845	1860	1877	1890	1910
Agriculture	72,891	87,498	84,987	113,937	179,660	339,170
Livestock	64,488	56,442	39,051	62,118	162,630	195,130
Forestry	10,088	9,744	4,673	10,789	2,470	5,590
Fish and Game	341	3,247	3,904	5,434	-	-
Mining	27,318	20,331	30,535	47,649	56,940	135,070
Manufactures	74,306	59,823	68,104	74,005	115,700	238,680
Construction	2,018	1,948	1,857	2,801	5,330	13,260
Transport	8,311	8,117	7,737	11,308	29,640	42,770
Government	14,123*	24,111	21,402	51,198	80,704	114,513
Commerce	55,670	55,194	52,615	76,981	152,100	309,010
Miscellaneous	3,503	-	-	-	118,040	207,220
Grand Total	333,057	326,455	314,865	456,220	903,214	1,600,413
Pesos Per Capita	55.51	43.52	39.36	47.19	71.50	105.57

* Excludes uncompensated overseas remittances of fiscal revenues amounting to 13,750,000 pesos.

Source: See text.

Table 4
Sectoral Output Per Capita, 1800-1910 (Pesos of 1900)

Sector/Year	1800	1845	1860	1877	1895	1910
Agriculture	12.15	11.67	10.62	11.79	14.22	22.37
Livestock	10.75	7.53	4.88	6.43	12.87	12.87
Forestry	1.68	1.30	0.58	1.12	0.20	0.37
Fish and Game	0.06	0.43	0.49	0.56	-	-
Mining	4.55	2.71	3.81	4.92	4.51	8.91
Manufacturing	12.39	7.97	8.52	7.66	9.16	15.74
Construction	0.34	0.26	0.23	0.30	0.42	0.87
Transportation	1.38	1.08	0.97	1.17	2.35	2.82
Government	2.35*	3.21	2.68	5.29	6.39	7.55
Commerce	9.28	7.36	6.58	7.96	12.04	20.38
Miscellaneous	0.58	-	-	-	9.34	13.69
Total	55.51	43.52	39.36	47.19	71.50	105.57

* Excludes uncompensated overseas remittances amounting to 2.29 pesos per capita.

Source: See Table 3.

Table 5
Gross Domestic Product, by Sectors, 1800-1900 (Percentages)

Sector/Year	1800	1845	1860	1877	1895	1910
Agriculture	21.9	26.8	27.0	25.0	19.9	21.2
Livestock	19.4	17.3	12.4	13.6	18.0	12.2
Forestry	3.0	3.0	1.5	2.4	0.3	0.3
Fish and Game	0.1	1.0	1.2	1.2	-	-
Mining	8.2	6.2	9.7	10.4	6.3	8.4
Manufacturing	22.3	18.3	21.6	16.2	12.8	14.9
Construction	0.6	0.6	0.6	0.6	0.6	0.8
Transportation	2.5	2.5	2.5	2.5	3.3	2.7
Government	4.2*	7.4	6.8	11.2	8.9	7.2
Commerce	16.7	16.9	16.7	16.9	16.8	19.3
Miscellaneous	1.1	-	-	-	13.1	12.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

Note: This table is based on the deflated estimates of sectoral output reported on Table 3. See Appendix for current peso estimates (which yield slightly different percentage figures).

* Does not include net fiscal remittances to Spanish treasury. Total government revenues, including these remittances, amounted to 7.8 percent of colonial income.

Source: Table 3.

Table 6
Maize Production and Consumption Per Capita (Kilograms Per Capita)

Year	National Estimates (Output)	Mexico City (Consumption)	Nuevo León Output Estimates		
			Cadereyta	Linares	Montemorelos
1792		123.8			
1800	133.0				
1817-21		89.4			
1824		70.3		210.40	
1825				119.25	73.51
1826			89.52		282.89
1827			86.35		
1828			70.19	80.52	187.84
1829			88.34	80.42	199.93
1830			109.41	123.19	240.75
1831			112.07		248.19
1832			125.08	128.78	153.17
1833			99.38	100.00	137.36
1834				124.53	214.37
1843		67.0		88.33	
1844		77.2			
1845	125.0	65.0			
1848			98.49	116.96	114.15
1849			66.29	101.43	84.77
1850				40.99	
1856				76.66	
1860	125.0	84.3	78.31		
1863			97.79		54.03
1869			79.93	99.72	
1870			60.56	181.47	130.90
1871			38.51	139.19	
1873			91.61	53.45	122.18
1877	144.7				
1879			82.31	138.43	64.63
1881			230.80	166.12	47.57

Table 6 (Cont.)
 Maize Production and Consumption Per Capita (Kilograms Per Capita)

Year	National Estimates (Output)	Mexico City (Consumption)	Nuevo León Output Estimates		
			Cadereyta	Linares	Montemorelos
1886				409.66	
1887			169.22	300.53	90.69
1891			66.00		124.51
1892	114.5				
1893	180.9				
1894	154.3				
1895	145.0		110.16	158.38	230.82
1896	142.8		99.71	62.35	16.60
1897	184.3		136.97	350.58	219.22
1898	175.0		114.60	347.15	528.71
1899	176.4		68.85	318.18	402.76
1900	154.3		205.20	297.47	304.69
1901	172.5		187.70	301.19	304.99
1902	166.9				
1903	159.8				
1904	144.1				
1905	150.0				
1906	160.2				
1907	144.3				

Notes: The 1877 national estimate in the table differs from both Busto and the Colegio de México estimates. The former produced an aggregate estimate of national maize output which implied a per capita output of 549.3 kilos in 1877. The Colegio series (cited above for the Porfirian data which appear reliable) cut the Busto estimate by about half to 282.5. Neither of these estimates seems plausible. Some of the output data for Nuevo León later in the period reach these levels, but only for the three towns which exported large surpluses to other areas. Sindico (1975) reports statewide maize output beginning in 1873 for scattered years; between 1873 and 1903, per capita output for the state as a whole averaged 125.98 kilos and exceeded 158 kilos in only three of 21 years. See Coatsworth (1976).

Sources: For national estimates: 1800 is the Quirós' estimate (see text), 1845 and 1860 are imputed, 1877 is based on the reports submitted to the Ministry of the Treasury and published in Busto (1880, III), and 1892 to 1907 are in *Estadísticas* (n.d.: 62). The Mexico City data are taken from documents in the AAM, Ramo de Alcabalas, vol. 2, which provide monthly data on the quantities of agricultural products entering the city gates. Mexico City population estimates are from Orozco y Berra (1973). The Nuevo León series are based on data in Sindico (1975).

Table 7
Per Capita Production and Consumption of Wheat, Rye, and Sugar (Kilograms)

Year	Wheat	Wheat Flour ¹	Rye	Sugar
1792		138.1 ²	42.5 ²	4.2 ²
1800	25.0			
1802	21.5			
1817		73.4 ²		
1818		70.3 ²		
1819		71.5 ²		
1820		69.9 ²		
1821		49.7 ²		
1822		67.2 ²		
1823		61.8 ²	6.2 ²	
1824		75.2 ²	32.1 ²	
1834-38		83.8 ²	26.3 ²	
1843		79.4 ²	29.5 ²	
1844		78.1 ²	28.3 ²	
1845	17.5	78.0 ²		3.7
1850				
1860	15.0		4.4	8.9
1877	17.3 ³		12.0 ⁴	65.1
1892	17.4		8.6	78.7
1893	18.8		8.6	80.4
1894	18.8		10.1	81.8
1895	19.3		7.6	94.2
1896	15.1		11.3	94.3
1897	18.4		10.8	86.3
1898	19.4		8.6	94.2
1899	19.8		10.1	87.8
1900	20.1		9.3	93.1
1901	18.3		9.4	95.1

1 Pérez Hernández (1862) estimated wheat flour output per capita at 27.9 kilos; the 1860 figure here is discussed in the text.

2 Mexico City consumption; all other data are national estimates.

3 Several estimates of wheat production in 1877 exist; both Busto (1880) and the *Estadísticas* (n.d.) put it at 35 kilos per capita.

4 Rye output is estimated by Busto and the *Estadísticas* (n.d.) at 24 kilos per capita.

Table 7 (Cont.)
Per Capita Production and Consumption of Wheat, Rye, and Sugar (Kilograms)

Year	Wheat	Wheat Flour ¹	Rye	Sugar
1902	19.2		9.1	115.9
1903	19.9		8.3	111.1
1904	17.2		9.7	120.0
1905	19.4		8.7	108.3
1906	20.2		8.9	107.1
1907	19.8		9.8	129.3
1908				140.1
1909				163.7
1910				165.2

Sources: For all products, the series beginning in 1892 are taken from *Estadísticas* (n.d.). For wheat, the 1800 figure is from Quirós (1973), that of 1802 is from Ortiz de Ayala (1968), and the figures for 1845, 1860 and 1877 are explained in the text. For wheat flour, rye and sugar, the 1792 data are from the Revillagigedo census and refer to Mexico City consumption only. The wheat flour series for Mexico City from 1817-23, 1834-38 and 1843-45 is taken from excise tax collection data in AAM, Ramo de Alcabalas, vol. 2, and from data in Orozco y Berra (1973). These sources provided the Mexico City data for rye as well. The 1860 estimates of rye and sugar are from Pérez Hernández (1862).

Table 8
Per Capita Consumption and Production of Livestock (Number of Heads)

Year	Beef Mexico City	Beef National Output	Mutton Mexico City	Mutton National Output ¹	Pork Mexico City	Pork National Output
1756	0.098 ²					
1792	0.125		2.14		0.39	
1800		0.095	0.78		0.43	
1834-38	0.086		1.02		0.34	
1843	0.134		0.80		0.37	
1844	0.130		0.85		0.42	
1845	0.128	0.070	0.76	0.40	0.36	0.20
1849	0.162		0.82		0.31	
1850	0.185		0.82		0.26	
1851			0.71			
1860 ³		0.053		0.37		0.16
1861	0.094		1.39		0.30	
1877 ⁴		0.086		0.11		0.10
1878		0.084		0.11		0.10
1897		0.081		0.11		0.05
1898		0.075		0.14		0.05
1899		0.067		0.12		0.05
1900		0.079		0.12		0.06
1901		0.078		0.11		0.05
1902		0.081		0.12		0.06
1903		0.078		0.12		0.06
1904		0.072		0.11		0.06
1905		0.077		0.12		0.06
1906		0.079		0.13		0.06
1907		0.080		0.13		0.06

1 The mutton data include goats from 1897 to 1907.

2 This figure is for Cuernavaca.

3 Pérez Hernández (1862) gives higher 1860 estimates of 0.118, 0.66 and 0.30 respectively.

4 The *Estadística* (n.d.) reports figures for 1878; we have used their estimate for constructing the 1877 GDP estimate, and thus cite it for this year.

Sources: The 1756 figure (which refers to Cuernavaca, not Mexico City) is from Barrett (1974: 533-534). The rest of the Mexico City data are based on excise tax collections reported in sources cited in Table 3. National output in 1800 is from Quirós (1973). The national estimates for 1865 and 1860 are discussed in the text. The 1877 figures are from the *Estadísticas* (n.d.: 84), as are all the national data from 1897 to 1907. The 1878 figures are from Busto (1880). They appear to be the principal source for the estimates in the *Estadísticas* (n.d.).

Table 9
 Estimates of Manufacturing Output
 (Value Added in Thousands of Current Pesos)

Products	1800	1845	1860
<i>A. Food Processing</i>			
Sugar Products	5534	-	3373
Bread and Baking Flour	4000	-	-
Mezcal	1800	-	2577
Chocolate	415	-	780
Snow and Ice	400	-	-
Pulque	3785	-	1488
Wine and Liquors	-	-	1176
<i>B. Chemicals</i>			
Wax Candles	7403	-	8582
Matches	-	-	4340
Soap	3395	-	2692
Gunpowder	700	-	85
Vegetable Oils	500	-	124
Paints and Dyes	100	-	-
Paper	-	-	6366
<i>C. Textiles</i>			
Cottons	2270	2700	3162
Woolens	6201	2700	2367
Silks	100	500	-
Palm and Agave	350	350	350
<i>D. Tobacco Products</i>			
	7061	-	4320
<i>E. Leather Goods</i>			
Sheepskins and Chamois	5488	-	-
Saddlery	50	-	-
<i>F. Shoes and Hats</i>			
Shoes	3349	-	-
Sombreros	500	-	-
<i>G. Miscellaneous</i>			
Silver Goods	300	-	-
Carriages	200	-	-
Games, Musical Instruments	350	-	73
Lacemaking, Ribbons	150	-	-
Goldsmithing	50	-	-
Wax Chandlers	90	-	-
Porcelain and Crystal	-	-	1638
<i>H. Iron, Steel, Munitions</i>			
	-	7626	-
<i>I. Not separately estimated</i>			
	-	36079	17053
Totals	54,541	49,955	65,866

Sources: See text.

Table 10
Precious Metals Coined in Mexican Mints, 1800-1859 (Millions of Pesos)

Year	Output	Year	Output	Year	Output
1800	18.7	1820	11.7	1840	12.7
1801	16.6	1821	9.4	1841	13.5
1802	18.8	1822	9.8	1842	14.0
1803	23.2	1823	9.8	1843	12.1
1804	27.1	1824	9.6	1844	13.7
1805	27.2	1825	8.9	1845	18.5 ¹
1806	24.7	1826	8.2	1846	15.7
1807	22.2	1827	10.4	1847	16.4
1808	21.7	1828	10.2	1848	19.2
1809	26.2	1829	12.2	1849	19.4
1810	19.3	1830	11.6	1840	19.4
1811	14.2	1831	10.3	1851	18.2
1812	9.6	1832	12.2	1852	18.2
1813	9.4	1833	12.2	1853	17.0
1814	12.2	1834	13.0	1854	17.2
1815	8.6	1835	11.8	1855	18.0
1816	10.7	1836	11.5	1856	18.7
1817	10.3	1837	11.5	1857	23.3 ¹
1818	13.1	1838	13.3	1858	20.0
1819	13.5	1839	12.5	1859	18.8

1 These figures include production of nonminted metals exports; for 1845, the data are in Mayer (1853, II: 99); for 1857, the data are in Pérez Hernández (1862: 135).

Sources: For 1800-1854, Orozco y Berra (1857); for 1855-1859, Pérez Hernández (1862: 135).

Table 11
Expenditures of the Federal Government of Mexico, 1822-1860
(Millions of Pesos)

Year	Expenditures	Year	Expenditures
1822	13.5 ¹	1841	20.3
1823	11.2	1842	26.6
1824	15.2 ¹	1843	29.2
1825	9.8 ²	1844	25.3
1825-26	14.6	1845	19.6
1826-27	13.5	1846	27.8 ⁵
1827-28	11.0	1847	25.0
1828-29	12.2	1848-49	11.6
1829-30	11.9	1849-50	15.8
1830-31	16.4	1850-51	12.6
1831-32	15.7 ³	1851-52	8.6
1832-33	20.6 ⁴	1852-53	14.7 ⁵
1833-34	18.6	1853-54	15.2 ⁵
1834-35	12.7 ¹	1854-55	23.4 ⁵
1835-36	25.0	1855-56	12.9 ⁵
1836-37	17.6	1856-57	13.0 ⁵
1837-38	16.1	1857-58	15.9 ⁵
1839	25.7	1858-59	16.9 ⁵
1840	19.9	1859-60	16.6 ⁵

1 Budget; actual expenditures not available.

2 Six months.

3 May be incomplete; see source.

4 Revenues; expenditure data not available.

5 These figures are rough estimates by Romero for years when no data could be found.

Source: *Memoria de Hacienda, México* (1870: 67 ff.).

Table 12
Foreign Trade as Percent of GDP, 1800-1910

Year	Exports	Imports	Total
1800	4.3	3.8	8.1
1845	4.3	8.1	12.3
1860	4.6	5.2	9.8
1877	9.3	9.3	18.6
1895	13.6	10.3	23.9
1910	17.5	13.0	30.5

1 Average for 1796-1805.

2 Trade data are for 1844.

3 No import estimate available; assumed equal to exports.

Sources: See Table 13.

Table 13
External Trade Data, 1821-1860 (Millions of Pesos)

Year	Total Exports	Total Imports	U.S.A., U.K. and France	U.S.A. only
1821	9.7 ¹	7.2		
1822				
1823	2.3 ¹	3.9		
1824	4.5 ²	11.9		
1825	5.0	19.1		
1826	7.6	15.5		3.9
1827	12.2	14.9	10.6	5.2
1828	14.5	9.9	6.4	4.8
1829			5.8	5.0
1830			14.4	5.2
1831			14.9	5.2
1832			7.1	4.3
1833			10.5	5.5
1834			10.0	8.7
1835			14.5	9.5
1836			9.2	5.6
1837			8.4	5.7
1838			6.4	3.1
1839			7.7	5.5
1840			7.6	4.2
1841			6.7	3.5
1842			5.7	2.0
1843	12.1 ³	23.5	6.9	2.8
1844	11.5	21.7	6.7	2.4
1845			6.4	1.7
1846			5.1	1.8
1847			1.4	0.7
1848				1.6
1849				2.2
1850				2.1
1851	12.5			1.6
1852				2.3
1853				3.6
1854				3.1
1855				2.9
1856	13.6 ⁴	21.6 ⁴		3.7
1857	16.4 ⁴	13.9 ⁴		3.6
1858	16.2 ⁴	11.4 ⁴		3.3
1859	7.9 ⁴	15.3 ²		2.9
1860	13.4	15.2		5.3

1 Veracruz only. 2 Veracruz and Alvarado only. 3 Exports of gold, silver and *palo de tinte* only. 4 Veracruz and Tampico only.

Sources: Herrera Canales (1977: chap. 2); Lerdo de Tejada (1967); *Memoria de Hacienda, México* (1870: 236); Romero (1898: 173-174); Stevens (Ms. 1983: chap. 5); Díaz (1974, I: 302 and Tables 5, 9, 13 and 19).

Table 14
Sectoral Output Estimates, 1800-1877 (Thousands of Current Pesos)

Sector	Product	1800	1845	1860
<i>Agriculture</i>		49,046	67,721	71,049
	Maize	19,000	27,150	28,960
	Wheat	5,000	7,652	9,000
	Sugar	4,500	4,800	2,616
	Cotton	730	2,400	3,667
	Cacao	285	1,200	2,907
	Other Grains	12,000	NES	11,878
	Tobacco	626	NES	6,092
	Other Products	6,905	24,519	5,929
<i>Livestock</i>		44,825	44,002	31,321
	Beef Cattle	2,400	4,125	5,600
	Mutton	13,000	8,250	5,600
	Pork	9,000	12,750	10,800
	Wool	1,200	300	453
	Milk and Cheese	4,500	NES	741
	Chickens, Eggs	9,000	NES	1,860
	Hides	1,725	NES	1,591
	Other Products	4,000	18,577	4,676
<i>Forestry</i>		7,405	8,083	4,519
	Lumber	850	NES	217
	Woods and Charcoal	6,500	NES	4,302
	Dyewoods	55	NES	NES
	Other Products	-	8,083	-
<i>Fish and game</i>		250	2,693	3,776
<i>Mining and smelting</i>		22,870	22,161	34,975
	Silver	17,899	18,128 ¹	23,290 ¹
	Gold	787	-	-
	Other Metals	1,433	NES	6,285
	Non-metallic Minerals	2,751	NES	5,400
	Other Products	-	4,033	-
<i>Manufactures</i>		54,541	49,955	65,866
	Food Processing, Drink	15,934	NES	13,306
	Chemical Products	12,098	NES	22,187
	Textiles	8,921	5,917	7,289
	Tobacco Products	7,061	NES	4,320
	Leather Goods	5,538	NES	NES

Table 14 (Cont.)
Sectoral Output Estimates, 1800-1877 (Thousands of Current Pesos)

Sector	Product	1800	1845	1860
	Shoes and Hats	3,849	NES	NES
	Iron and Steel	NES	NES	7,626
	Miscellaneous	1,140	NES	1,711
	Other Products	-	44,038	9,427
<i>Construction</i>		1,481	1,616	1,796
<i>Transport</i>		6,100	6,733	7,483
<i>Government</i>		10,367	20,000	20,699
<i>Commerce</i>		40,862	45,782	50,887
<i>Miscellaneous</i>		2,571	-	-
Grand Total		240,318	268,413	292,371

1 Includes both gold and silver.
NES = Not estimated separately.