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Economic and Institutional Trajectories in Nineteenth-Century Latin America

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The economic history of modern Latin America addresses two fundamental questions. First, why did the region fail to achieve sustained economic growth before the last quarter of the nineteenth century? Second, why has the region failed to grow fast enough to catch up since then? This chapter addresses only the first of these questions.

Latin America fell into relative backwardness between roughly 1700 and 1900. At the beginning of this period, the economies of the Iberian colonies in the New World were roughly as productive as those of the British. For most of the ensuing 200 years, the Latin American economies stagnated while those of the North Atlantic achieved sustained increases in productivity. As early as 1800, most of the Latin American economies had already fallen well behind the United States. A century later, most had fallen far enough behind to qualify as "less" (or "under-") developed by contemporary standards.

In the twentieth century, the Latin American economies have achieved respectable rates of economic growth, equal on average to that of the United States. Thus, the relative gap between Latin America and the United States has not changed at all in the past 100 years, though the relative positions of individual countries have shifted. To understand how the Latin American economies fell into relative backwardness, therefore, it is crucial to look at the region's pre-1900 economic history.

Latin America stagnated for most of two crucial centuries because economic institutions distorted incentives and high transport costs left most of the

region's abundant natural resources beyond the frontier of profitable exploitation. Early in the colonial era, comparatively high *levels* of productivity were achieved in economies that managed, despite these constraints, to specialize in export production. The successful cases were those that combined relatively scarce supplies of free or slave labor with accessible natural resources and a favorable policy environment. In contrast, colonial economies that relied on relatively cheap indigenous or slave labor to produce exportables in less accessible regions with high tax and regulatory burdens tended to have smaller export sectors and to be less productive. Cycles of export growth and decline, linked to market fluctuations or to freshly discovered and subsequently depleted natural resources, produced variations on these patterns well into the twentieth century in some areas.

Once the opportunities created by more (or less) favorable initial conditions were seized and exploited in a given colony, further economic *growth* usually depended on some combination of institutional modernization and transport innovation. Not until the late nineteenth century did liberalism (or, in some cases, modernizing conservative regimes) and railroads remove the two fundamental obstacles to growth in Latin America and push most of the region's economies onto new trajectories—and thus beyond the scope of this chapter.

After reviewing long-term trends in the productivity of the major Latin American economies, this chapter will summarize what is currently known about the causes of the region's dismal pre-1900 economic performance. It will argue that variations in factor proportions, opportunities to engage in external trade, and government tax and regulatory policies help most to explain variations in productivity levels among the stagnant Latin American economies at the outset of the nineteenth century. It also analyzes the contradictory evidence on inequality in this era. The chapter concludes by emphasizing the significance of transport innovation and institutional change in facilitating economic growth in the twentieth century.

COLONIAL AND NINETEENTH-CENTURY TRENDS

As the first permanent English settlers in North America set about chopping down trees to make crude cabins in December of 1620, the Spanish and Portuguese empires in the New World had already passed their first century. It would take the English more than 200 years to catch up to the most prosperous of Spain's possessions. In 1650, Cuba had a gross domestic product (GDP) per capita of roughly $60; the British North American colonies did not reach that level until more than a century later. By 1800, Cuba's GDP per capita was near $90, whereas that of the United States had barely reached $80. The United States did not close the gap with Cuba until the 1830s.[1]

The U.S. performance looks much better in comparison with Spain's mainland colonies. The 13 British colonies probably caught up to Mexico before 1700. Over the eighteenth century, Mexico stagnated as the U.S. economy grew at perhaps a half a percent a year. In 1800, Mexico's per capita GDP of $40 stood at half that of the United States. Brazil, recovering finally from the collapse of its short-lived gold boom (1750–1780), had fallen well behind.

The race ended long before the nineteenth century was over. By 1900, the United States had become a formidable economic power with a GDP per capita, adjusted for purchasing power parity (PPP), nearly four times higher than the mean of Latin America's eight largest economies. Even Argentina, slightly ahead of the United States in 1800 and growing rapidly by the 1870s, had fallen far behind, with a GDP per capita not much more than half that of the United States.

These comparisons are summarized in Table 1.1. Estimates for benchmark dates before 1900 are available only for six of the major economies: Argentina, Brazil, Chile, Cuba, Mexico, and Peru. Twentieth-century figures for Colombia and Venezuela are also included. The table shows GDP per capita, where available, as a percentage of the U.S. level for each of six benchmark dates. The estimates for 1700 and 1800 range from crude guesswork to fairly reliable calculations, but are not adjusted for PPP.[2] They are thus not strictly comparable with the estimates of Maddison and Mulder for later years. The possible effect of a PPP adjustment on the estimates for the two earliest dates is difficult to judge, but would not in any case alter the estimates enough to affect the trends indicated in the table.

The estimates in Table 1.1 show a consistent pattern of failure from as early as 1700 until at least the end of the nineteenth century. Every Latin American country for which we have estimates grew more slowly on average than the United States for the two centuries up to 1900. Most simply stagnated; some, like Mexico, experienced prolonged periods of economic decline.[3] There is no reason to believe that this record would look any less dismal with more data. The twentieth-century pattern, however, is more mixed. While Argentina declined toward the regional mean of about 27% of U.S. GDP per capita in 1994, Brazil and Venezuela rose to meet or surpass it.

The gap between the richest and the poorest of the Latin American economies has not varied much over time, though the position of individual countries has changed. The ratio of the richest to the poorest economy in Table 1.1 stood at nearly 3:1 in 1800 and rose to 5:1 by 1900. The 1800 ratio probably

TABLE 1.1

GDP per Capita as Percentage of the U.S. Level, 1700–1994

Country	1700	1800	1850	1900	1913	1950	1994
Argentina		102		52	55	41	37
Brazil		36	39	10	11	15	22
Chile		46		38	40	33	34
Colombia				18	18	19	24
Cuba	167	112	78		39		
Mexico	89	50	37	35	35	27	23
Peru		41		20	20	24	14
Venezuela				10	10	38	37
Mean	128	66	51	27	28	29	27

Note: The last row reports the arithmetic mean of the countries for which there are data for each year. If each country were assigned a weight equal to its share of population, the mean for each year would be lower, since the high-income cases (Argentina and Cuba, for example) had smaller populations. In 1800, the unweighted mean in the table is 66, but the population-weighted mean of the six reported cases would be 51.

Sources: The Mexican estimate for 1700 is from Coatsworth (1990a, chap. 3). The Cuban figure for 1700 extrapolates between estimates for 1650 and 1750 reported in Fraile Balbín, Salvucci, and Salvucci (1993, part II, chap. 3). The 1800 estimates are discussed in the appendix. The 1850 Cuban estimate is from the Fraile Balbín, Salvucci, and Salvucci essay just cited. The 1850 Mexican estimate is for 1845 and is taken from Coatsworth (1990a, chap. 3). The remaining 1850 figures are based on Maddison (1994, appendix D), as are the figures for Peru in 1913, 1950, and 1994. The remaining figures (except Cuba in 1913) are taken from the essay by Hofman and Mulder in this volume. The Cuban figure for 1913 is based on the ratio of Cuban to Argentine GDP per capita in Bulmer-Thomas (1994, p. 439).

comes close to capturing the extent of the variation across the region on the eve of the independence wars. It may be compared with Maddison's suggestion that a gap of 4:1 separated the richest and poorest of the world's economies in 1820.[4] Thus, the variation in the productivity of Latin America's colonial economies in 1800 was almost as great as for the entire world. For 1900 and 1913, the ratio of 5:1 also appears fairly representative since it includes both wealthy Argentina and backward Brazil and pre-oil Venezuela. The 1994 ratio of less than 2.6:1 is another matter. Although the sample of eight cases does show clearly the tendency toward convergence among the larger economies during the twentieth century, it excludes all of the poorer, smaller economies and thus exaggerates the extent of intraregional convergence since 1900. In 1995, for example, the ratio of PPP-adjusted Argentine to Honduran GNP per capita was 5:1.[5] This suggests that the intraregional productivity gap, like the interregional gap between Latin America and the developed world, did not change much in the twentieth century.

In summary, the available quantitative evidence shows that Latin America became an underdeveloped region between the early eighteenth and the late nineteenth centuries. Although all of the Latin American economies fell further behind in this period, the Argentine performance was consistently better than the rest until the twentieth century, that of Brazil almost as consistently the worst. In the twentieth century, these two economies reversed positions, with Brazil consistently outperforming the rest of the region and Argentina far behind. Cuba, with the highest GDP per capita in relation to the United States in 1700, fell furthest in relative terms over this period, though the lack of GDP estimates for the rest of Latin America (except Mexico) for 1700 makes this conclusion more tentative.

FACTOR ENDOWMENTS

The New World factor endowments encountered by the first European entrepreneurs did not matter much. Most of Latin America's potentially exploitable natural resources lay dormant and remained inaccessible throughout the colonial era. Most of the New World's indigenous population died.

Europeans transformed the natural and human resource base of the entire New World, including vast areas they never conquered or even visited. They did so by bringing in pathogens, people, plants, animals, technologies, and institutions hitherto unknown to the Western Hemisphere. The pathogens destroyed most of the New World's inhabitants by the end of the sixteenth century, so the Europeans repopulated the hemisphere with African slaves. Old World plants and animals displaced indigenous species in many areas and in doing so transformed entire landscapes. European technologies and organizational forms, from transoceanic navigation and deep-shaft mining to metal coinage and commercial credit, transformed production and commerce. The Europeans adopted and adapted Amerindian organization, products, and technologies as well, pushing them toward patterns that facilitated money-making in all its forms.

The Europeans did not distribute themselves evenly over the landscape. "Spanish society in the Indies," James Lockhart reminds us, "was import-export oriented at the very base and in every aspect."[6] So, too, was the great Portuguese adventure in Brazil. Publicly licensed but privately financed, the Iberian entrepreneurs who set out to conquer the New World mainly wanted to get rich. Officials and priests in both empires followed them about, careful not to miss any reasonable opportunity to collect a tax, impose a fee, or save a soul. Any exploitable resource, natural or human, that could profitably be turned into silver or gold attracted both private greed and official attention. But vast areas of these New World empires remained unexploited and ungoverned by Europeans or their descendants until long after independence. The "empty spaces" (that is, empty of Europeans) where little or no money

could be made added up to more territory than Spain and Portugal actually managed to control or govern in the three centuries after the conquest.

Location determined which of the New World's people and resources the invaders rushed to exploit. The cost of overland transportation proved to be prohibitive for most commodities, even in the relatively easy terrain of plateaus and pampas. Thus, the Europeans and the slaves they brought in from Africa hardly ever settled far from navigable rivers or the seacoast. Since navigable rivers were few (and the few there were, like the Amazon, did not run past much tradable wealth), they eventually settled mainly on islands in the Caribbean and along coastlines. There they produced a variety of plantation products for European markets, including sugar, cacao, tobacco, rice, cotton, and, later in the nineteenth century, coffee, henequen, and bananas. Not until the advent of the railroad did agricultural production for export shift from seacoasts to the interior of the continent.

When Europeans settled further inland during the colonial era, as in central Mexico and parts of the Andes, it was generally to exploit opportunities to profit from the production of commodities with high value-to-bulk ratios or to supply the producers of these commodities with inputs and consumption goods.[7] High transport costs limited the interior regions of the continent to exporting precious metals, gems (like emeralds and diamonds), and dyestuffs such as cochineal and indigo. Local markets took nearly everything else. Where export production generated market demand for food and other inputs and yielded taxes to support the royal bureaucracy, Europeans specialized in these ancillary activities. In the rest of the Americas, they had to make do with whatever they could extort from indigenous populations whose productivity was too low to generate much surplus.

At the time of the Columbus voyages, as many as 50 million Amerindians lived in the vast territories that became Latin America. By the end of the colonial era, more than half of Latin America's population of perhaps 15 million people consisted of Europeans, Africans, and the descendants of Europeans and Africans. Amerindians and mestizos, most of whom lived in Mexico, constituted less than half of the Latin American population in 1820.[8]

The demographic and economic reorganization of New World spaces caused by Latin America's integration into the two Iberian empires with their links to the developing world market can be glimpsed from the data in Table 1.2 on population densities and productivity in 1800. Argentina, a settlement colony with a huge territory and tiny population, was the most thinly populated. Mexico and Cuba were the most densely populated. In Mexico, as in the Andes, the population figures reflect the partial recovery of the indigenous

populations, though at comparatively low levels of per capita GDP. In Cuba, the high population density reflects the importation of large numbers of slaves toward the end of the eighteenth century, spurred by the island's high export-based GDP per capita.

As the table suggests, African slaves did not always end up where the marginal product of their labor was highest. Backward Brazil, with a low per capita GDP, imported nearly a third of all slaves that came to the New World, whereas the more productive Spanish islands like Cuba imported far fewer until the end of the eighteenth century. This difference was due in part to Portuguese commercial access to slave-exporting regions of Africa and Spanish restrictions on imports (including slaves) from outside the empire. Slaves were far more costly in the Spanish colonies than anywhere else until the crown relaxed restrictions on slave imports beginning in the late 1760s.[9] In the seventeenth century, the Portuguese brought slaves to Brazil and set them to work in activities where their productivity was low, because slaves cost so little. When slave prices rose in response to Caribbean demand in the eighteenth century, Brazilian production declined.[10] In Cuba, where slaves cost two to three times as much as in Jamaica, Europeans purchased them only when certain that they would be productive enough to compensate for their high price.[11]

Europeans migrated to the New World in much smaller numbers than the Africans they forced to come. Migration to the Spanish colonies from Spain

TABLE 1.2
Population Densities and GDP, 1800

Colony	Area (1000s sq km)	Population (1000s)	Density (Pop. per 1000 sq km)	Total GDP (1000s) (current dollars)	GDP per Capita (current dollars)
Argentina	2,777	329	118	26,978	82
Brazil	8,457	3,250	384	94,250	29
Chile	757	535	707	19,795	37
Cuba	115	272	2,365	24,480	90
Mexico	1,967	6,000	3,050	240,340	40
Peru	1,280	1,300	1,016	2,900	33

Note: All estimates exclude indigenous population and economic activity beyond the frontiers of Spanish or Portuguese authority.

Sources: Areas correspond to modern political boundaries. Population estimates are from a variety of sources. For Argentina, see Maeder (1969, pp. 22–23). For Brazil, see Graham and Merrick (1979, pp. 26–30), but note that Alden (1987, p. 287) accepts a much lower (though admittedly undercounted) total of only 2.1 million. For Chile, see Mamalakis (1978, vol. 2, p. 9). For Mexico, see Coatsworth (1990a, p. 46). On Peru, see Gootenberg (1991). For GDP estimates, see the appendix to this chapter.

reached a peak at the end of the sixteenth century, but revived somewhat in the eighteenth. Throughout the colonial era, Spain tried to control and limit immigration to the New World and refused permission for the citizens of other countries (except for naturalized Irish Catholics) to settle in its possessions. By the eighteenth century, low wages on the Spanish American mainland and rising slave imports to the islands kept the flow of Europeans low and made Spain's efforts at controlling immigration fairly easy. Portuguese emigration to Brazil followed a somewhat different trajectory. Like Spanish emigration, that of the Portuguese fell during the seventeenth-century depression, but revived more strongly in the eighteenth century due to the pull of high earnings in the gold and diamond booms in the interior.

In the nineteenth century, slaves continued to arrive in large numbers only in Brazil and Cuba. British pressure finally helped to end the slave trade in the 1850s. Meanwhile, European immigration to Latin America slowed after 1800, reversed during the independence wars from 1810 to the 1820s, and in some cases virtually ceased for up to half a century after independence despite the end of Spanish and Portuguese restrictions. The persistence of slavery tended to discourage European migration to Brazil and Cuba. Low wages compounded by political instability and international war kept numbers down everywhere else. When the slave trade ended, Cuba (for sugar) and Peru (for guano mining as well as sugar) imported large numbers of indentured Chinese laborers. Mass European migration did not begin until the 1870s and 1880s and when it did, most of the immigrants went to Argentina and the southern half of Brazil.[12]

Paradoxically, the most productive economies in Latin America at the beginning of the nineteenth century were the two, Cuba and Argentina, where labor was most costly. No free person would go to Argentina without some assurance of gain; the few that went were not disappointed (especially in high-wage Buenos Aires). In Cuba, no one bought slaves at the high prices prevailing for most of the colonial era without some highly productive use to make of them. The high cost of labor in these two colonies resembled the pattern established in British North America. Most of Latin America, however, consisted of far less productive, low-wage territories with limited access to the sea. None of the Iberian colonies or the nation states that succeeded them, not even the most prosperous in 1800 like Cuba and Argentina, managed to achieve rates of growth comparable to the United States until the nineteenth century had nearly ended.

ACCESS TO TRADE

Great debates once raged over the impact of trade on the colonial economies. Recent scholarship has tended to reverse the once widely held notion that external trade is necessarily (or even often) harmful to backward economies. Of course, colonial restrictions on trade, such as the commercial monopolies that prohibited direct trade with foreign countries, did impose costs on colonies throughout the New World, but did so precisely because they reduced the gains such regions would otherwise have enjoyed from external trade.

The Latin American case suggests that the static gains from trade can be large, even in economies that experience little or no sustained economic growth. The cross-section data in Table 1.3 compare the export performance of the six major colonial economies in 1800. Note that the colonies are listed in the table in rank order of GDP per capita. The data demonstrate that the Latin American colonial economies with the largest export sectors tended to have the highest GDP per capita. This is because productivity was higher in export industries than in other sectors of the colonial economies, though the gap between export and domestic-use agriculture and industry must have varied considerably. The colonial economies that managed to specialize more did better.

As in the case of the GDP estimates, some of the figures in this table are subject to larger error margins than would be acceptable in such data today. For most of the years between 1796 and 1812, international warfare disrupted shipping and inflated export prices. Since exports from the Spanish colonies fluctuated considerably from one year to the next, the export figures in the table were constructed to approximate "normal" conditions, either by taking the mean of several years or by using data from a year just prior to the outbreak of warfare.

TABLE 1.3
Export Performance, circa 1800

Colony	Total Exports (current dollars)	Exports per Capita (current dollars)	Exports as % of GDP	GDP per Capita (current dollars)
Cuba	5,000,000	18.35	20.4	90
Argentina	3,300,000	10.03	12.2	82
Mexico	12,640,800	2.11	5.2	40
Chile	874,072	1.63	4.4	37
Peru	2,998,000	2.31	7.0	33
Brazil	15,526,750	4.78	16.4	29

Source: See appendix.

Cuba and Argentina were the most successful exporters in per capita terms by 1800. Argentina also had the largest export sector in relation to GDP, followed by Brazil and Cuba. The mainland economies that produced mainly silver for export (or, in the case of Chile, foodstuffs for export to mining colonies) had much smaller export sectors both in per capita terms and in relation to total output.

Mexico's relative failure as an exporter is perhaps the most surprising. For most of the eighteenth century, Mexico served as the cash cow of the Spanish American empire, regularly exporting huge quantities of silver along with substantial amounts of cochineal and other products. In per capita terms, however, only Chile had a smaller export sector. Although the income generated by the mining industries in Mexico and Peru was substantial, the productivity effect was limited by the relatively small proportion of the labor force employed in mining and the relatively slow growth of silver production even during boom periods.[13]

Throughout the Caribbean, by contrast, exports accounted for a relatively high proportion of GDP.[14] Brazil's export sector was also quite large, despite its regional concentration in the northeast (except during the gold and diamond export booms further south). The most striking aspect of Brazil's performance, however, is the low level of per capita exports and GDP per capita in comparison with Cuba. This may be explained in part, as mentioned above, by lower slave prices that may have encouraged more marginal producers to enter the market. By the early nineteenth century, Brazil's sugar plantations were notoriously inefficient producers in comparison with those in the Caribbean. In addition, Brazilian sugar was excluded from the markets of the European countries with sugar islands of their own.

Perhaps most surprising is the relative success of Argentina. Table 1.3 includes exports from Buenos Aires that were produced within what became the national territory. They consisted chiefly of cattle hides and salted beef, derived mainly from exploiting the wild herds of the pampas. The table also includes an indirect measure of Argentine exports to Bolivia. There are no direct data on these exports. Instead the table assumes that all of Bolivia's privately owned silver exports to Buenos Aires consisted of payments for the cloth, sugar, mules, yerba mate, and other Argentine products imported each year. Some of this private silver actually went to pay for European goods that eventually made their way to Bolivian consumers and should thus be excluded, but these amounts must have been small in comparison with the silver earned by Argentine producers. In addition, Argentines supplied commercial and transport services and paid taxes on European products transshipped to Bolivia.[15]

The patterns revealed in the cross-section data in Table 1.3 persisted into the nineteenth century. Table 1.4 shows exports per capita at intervals over the course of that century. As the data show, nothing much happened to alter relative positions until after 1850, except for the beginnings of Chile's copper boom and a blip from Peru's short-lived guano windfall between 1840 and 1870. Even by the end of the century, Cuba and Argentina still led the region in exports per capita, though Chile had risen fast, with nitrates replacing copper after the War of the Pacific (1879–1883) as the driving force of its export success. The trade data in Table 1.4 offer some support to the notion of path dependence, at least through the nineteenth century. With the notable exception of Chile, the less successful exporters did not improve their relative positions, while the successful exporters continue to lead the region.

In sum, Argentina and Cuba managed to prosper in the colonial era, despite high labor costs, in part because their well-located natural resources allowed them to specialize in export production. The less successful agricultural economies like Brazil managed to substitute cheaper labor for location, pushing export production further from the sea by using low-cost labor to compensate for higher transport costs. The remaining colonies produced small quantities (in relation to GDP) of high-value metals in primitive surroundings, especially in the Andes. Even in ostensibly opulent Mexico, at least 80% of the population in 1800 worked in domestic-use agriculture at low levels of productivity.[16]

INSTITUTIONAL CONSTRAINTS

The Iberian colonial regimes and their successor states imposed a wide array of institutional constraints on productive enterprise in the New World. These constraints distorted incentives by raising the private costs and risks of productive enterprise that could have contributed to economic growth. Three

TABLE 1.4

Exports per Capita, 1800–1913 (in current U.S. dollars)

Country	1800	1850	1870	1890	1913
Argentina	10.0	10.3	16.5	32.4	62.0
Brazil	4.8	5.0	8.6	9.6	14.2
Chile	1.6	7.8	14.2	20.3	44.7
Cuba	18.3	22.2	44.3	55.7	64.7
Mexico	2.1	3.2	2.3	4.4	10.7
Peru	2.3	3.7	10.1	3.3	9.4

Sources: Table 1.2 and Bulmer-Thomas (1994, p. 69).

were particularly harmful: the political risk associated with unpredictable policies and policymakers; the costs due to inefficient property rights and burdensome tax and regulatory systems; and the opportunities lost for lack of public goods, especially investment in human resources and material infrastructure.

Political risk stemmed from the arbitrary character of Iberian regalism and succeeding personalist and military dictatorships, the discretionary authority exercised by colonial and national officials whose private gain often took precedence over the public interest, and the social conflicts that erupted constantly in the slave and caste societies that constituted most of the region. Political risks increased steeply with the outbreak of the independence wars in the Spanish possessions after 1808 and remained high for decades in many of the new nations. Particularly troublesome was the persistence of slavery and of certain caste privileges, which in most cases could neither be maintained nor abolished without turmoil.

The costs and associated risks of engaging in productive economic activity, including commercial and other services, in the Iberian New World were substantially higher than in the British colonies and former colonies. In part, this was due to Iberian legal norms, the lack of well-defined or needed property rights, inefficient and often corrupt judicial systems, and the persistence of archaic forms of property holding, such as entail and the "corporate" (inalienable) property rights of the Church, the *ayuntamientos* (town councils), and indigenous villages. In part, it was also due to the primitive tax systems of the two empires, which relied on burdensome regulations, monopolies, licensing fees, and the like to generate revenues.

The two empires and successor governments provided few public goods. Neither of the colonial powers and few of the successor states managed even to define and provide for the defense of land borders. None exercised a secure monopoly on the legitimate use of violence and all relied on militias and other irregular forces to maintain order. Governments throughout Latin America consistently failed to invest in their human resources and physical infrastructure. Colonial governments left schooling and social services to the Church, delegated road maintenance to merchant guilds, left major ports and fortifications to decay, and paid consistent attention to little beyond collecting taxes. The national governments that followed took decades before they began to perform such basic public functions.

Taken together, these institutional constraints constituted powerful obstacles to economic growth throughout the Iberian New World. Not all of the colonies suffered equally, however. Levels of taxation, for example, varied considerably from one colony to another. Table 1.5 provides rough estimates of

TABLE 1.5

Tax Revenues per Capita and as Percentage of GDP, circa 1800 (in current U.S. dollars)

Colony	GDP/capita	Revenues (1000s)	Revenues/capita	Revenues as % of GDP
Cuba	90	1,500	5.51	6.1
Argentina	82	1,121	3.40	4.2
Mexico	40	31,618	5.27	13.2
Chile	37	2,003	3.74	10.1
Peru	33	2,455	1.89	5.7
Bolivia	[33]	2,644	2.93	(8.9)
Brazil	29	4,200	1.68	4.9

Sources: See appendix and text.

government revenues, revenues per capita, and revenues as a proportion of GDP in the major colonies in 1800. Government revenue estimates for mainland Spanish America are based on data in the Klein and TePaske compilations adjusted to eliminate double counting, funds carried over from previous years, deposits (to be returned later), transfers from other treasuries, and loans.[17] Bolivia is included by assuming its GDP per capita was equal to that of Peru. Comparable data for Cuba, but not for Brazil, are also available. The most commonly cited and earliest figure for Brazil is for 1805 and may understate revenues somewhat. Later figures for Brazil are available only for the years after 1808, when expenditures rose considerably as a result of the transfer of the Portuguese court from Lisbon to Rio de Janeiro. Data for other colonies are not available.

In absolute terms, Mexico with its large population and rich silver mines paid the most in taxes; in 1800 tax revenues amounted to $31 million, far larger than any other colony. In per capita terms, Mexico also paid more than any other colony but Cuba, followed by Chile, Argentina,[18] Bolivia, Peru, and Brazil. Variation in tax levels was considerable; in per capita terms, Mexico paid roughly three times as much as Brazil and Peru.[19]

The data in Table 1.5 show that no linear relationship existed between GDP per capita and tax revenues, either in per capita terms or as a percentage of GDP. Colonies with relatively productive economies could afford to pay a higher proportion of GDP in taxes; in poor colonies, the surplus available for taxation was much smaller. The data show, however, that the most heavily taxed colonies were neither the richest nor the poorest. The two most productive economies bore relatively light burdens. Cuba, with the highest per capita GDP, paid the highest per capita tax revenues, but this represented a smaller

proportion of GDP than in much poorer colonies.[20] Argentina, with the second most productive economy of all, was the most lightly taxed of all the colonies in relation to GDP.

Table 1.5 actually understates the variation in tax burdens in the Spanish empire. That is because substantial portions of the taxes paid by the relatively poorer colonies of Bolivia and Mexico were exported each year to subsidize civil administration and defense in the richer colonies of Argentina and Cuba, respectively.

Though relative tax burdens were not well correlated with GDP per capita, it is reasonable to hypothesize that they were correlated with the size of the colonies' export sectors. To test this hypothesis, Table 1.6 reproduces the figures on per capita exports, tax revenues, and GDP. The data in this table show a strong correlation between tax revenues and the size of the export sector, but contrary to what one might expect, the correlation is negative. That is, the tax burden (taxes as a proportion of GDP) rises as the export sector shrinks in both relative and per capita terms. Successful exporters bore a smaller tax burden than colonies with smaller export sectors. This negative correlation is not perfect, but it is strong enough to compel explanation.

It is worth noting that the substantial variations in tax burdens registered in Table 1.6 occurred (except for Brazil) within a single political unit, the Spanish empire, in which tax policy, structure, and administration were theoretically governed by one sovereign authority and one set of rules. Tax rates and incidence, however, varied from one colony to the other. The Cuban treasury, for example, did not collect mining taxes or Indian tribute, major sources of tax revenues on the mainland, because there were no mines or (by the eighteenth century) Indians in Cuba. In Argentina, a portion of the Indian population survived, but mainly outside of Spanish control, so little tribute was collected

TABLE 1.6

Exports, Revenues, and GDP per Capita, circa 1800 (in current dollars)

Colony	Exports per Capita	Exports as % GDP	Revenues per Capita	Revenues as % GDP	GDP per Capita
Cuba	18.35	20.4	5.51	6.1	90
Argentina	10.03	12.2	3.40	4.2	82
Mexico	2.11	5.2	5.27	13.2	40
Chile	1.63	4.4	3.74	10.1	37
Peru	2.31	7.0	1.89	5.7	33
Brazil	4.78	16.4	1.68	4.9	29

Source: See text.

in that colony either. Mining taxes passed through Buenos Aires from Potosí, but were not collected within the boundaries of modern Argentina. Most of the taxes collected in Mexico and the Andes came from sources other than export production and imports. By contrast, most of the taxes collected in Cuba, and probably Argentina as well, were levied on external trade.

This seemingly paradoxical result is explained by the much smaller foreign trade sectors of the Mexican and Peruvian economies. Had Spain taxed only exports and imports in Mexico or Peru, government revenues would have dropped precipitously. During the era of the Bourbon reforms, the Spanish authorities actually lowered taxes and other charges on silver production to boost output. At the same time, new taxes, fees, monopolies, and regulations to enforce them struck hard at most other nonagricultural activities.[21] In Mexico, exports grew but the economy stagnated. A similar process occurred in the Andes, where economic life was further disrupted by the massive revolts, linked to increases in taxation and other exactions, that erupted in the 1780s.

Taxpayers in Argentina and Cuba paid low to moderate taxes because the colonial government had virtually no sources of revenue that could be taxed outside of the export sector itself. As in Mexico and the Andes, the authorities recognized that higher taxes on exports would simply discourage the production of taxable exports. In all of its colonies, Spain raised import and excise (*alcabala*) tax rates in the late eighteenth century, hitting mainly urban entrepreneurs and consumers. However, without a subject Indian population to pay tribute and a sizable nonexport sector to tax, Spain could not do much more to raise the tax burden in Argentina and Cuba without diminishing the sources of the wealth it sought to tax.

The magnitude of colonial tax burdens probably mattered less than the debilitating regulatory regimes that enforced them. Legal impediments to productive activity and trade tended to vary with the number and weight of the taxes collected. Worse yet, these burdens were heaviest in the poorer colonies with the smallest export sectors. The sociology of this pattern is equally clear. Colonies with large indigenous populations paid more taxes not only because the Indians were subjected to a tax not levied on others (the head tax or *tributo*), but also because large indigenous populations raised the value to creoles and mestizos of the privileges and the protections guaranteed by Spanish colonial rule.

The achievement of independence in most of Latin America in the early 1820s created opportunities for political and institutional modernization. Most of these opportunities were squandered. Though caste systems were attenuated or legally abolished and external trade was freed from colonial fetters, most of

the countries in the region fell into internal civil strife and multiple international wars that lasted for decades. Insecurity tended to swamp the otherwise positive effects of independence.

The weight of the colonial institutional legacy after independence proved to be heaviest in those regions where pressures for modernization confronted entrenched interests attached to caste systems and the regimes of privilege and regulatory intrusiveness linked to them. In the mainland conquest colonies, the creole population and even many mestizos had become enmeshed in a web of corporate and caste privileges that tied them to the colonial regime and thus facilitated the imposition of the most burdensome fiscal and regulatory systems in the empire. Even the indigenous population, which could be moved to rebellion by new taxes and intrusive officials, paid the tribute and accepted Spanish authority in exchange for minimal autonomy and protection of its inalienable communal land titles. In Mexico, the conservatism of the Church and the great creole magnates with their provincial allies delayed institutional modernization for decades after independence. In Peru, protected from change by geographic fragmentation, by the prolongation of a colonial compact that traded social peace for indigenous autonomy, and by the resistance of landed elites who controlled provincial governments, liberal modernization failed to outlast the midcentury guano boom and remained a fragile and mostly foreign aspiration that seldom penetrated the sierra until late in the nineteenth century or even later.

Chile's attachment to managed trade (the basis of its successful wheat exports to Lima in the eighteenth century) dissolved after independence, and the discovery of rich copper ores just as prices skyrocketed with the onset of the industrial revolution promoted economic recovery earlier than in most of the rest of Latin America. Nothing was accomplished quickly or cheaply, of course, but institutional modernization faced fewer obstacles there than almost anywhere else but Argentina.

Argentina suffered least. The struggles between Buenos Aires and the interior provinces over constitutional principles, tariffs, and tax revenues took many years to resolve, but in most of the years between 1808 and 1865 the country was actually at peace and its exports growing.[22] Moreover, the complex class, ethnic, and institutional issues that so intensified civil strife in Mexico and the Andes, and later in Cuba and even Brazil, played virtually no role in Argentina. Export-based economic growth began shortly after independence and took off with the unification of the country after 1865.

Cuba and Brazil enjoyed the benefits of peace during the tumultuous decade of the independence struggles elsewhere. Cuba, of course, remained a

Spanish colony until 1898, a fate linked in part to the island's dependence on sugar exports produced by slave labor. Although the island's economy expanded in the first half of the nineteenth century, productivity appears to have stagnated, despite impressive efforts by planters and the Spanish government to modernize transportation and sugar milling. By midcentury, the Cuban economy had fallen far behind that of the industrializing United States and fell still further behind as a consequence of the civil strife over slavery and independence that struck the island in the Ten Years' War (1868–1878) and the subsequent renewal of the independence struggle (1895–1898). Brazil's peaceful achievement of independence helped to consolidate the country's commitment to a minimally productive slave-based export agriculture and to the inherited pattern of a simultaneously weak and highly centralized government. State and slavocracy collaborated, but neither had the resources, interest, or will to invest adequately in modernizing the colony's antiquated institutions and infrastructure.

In the second half of the nineteenth century, virtually every Latin American country carried out a series of similar (occasionally identical) reforms that eliminated or substantially reduced the most important of the institutional constraints inherited from the colonial era. In most cases, the process began with the elimination of state monopolies, Church and military *fueros* (exemptions from ordinary civil and criminal jurisdiction) and other privileges, a wide array of domestic taxes and fees, and archaic property rights (entail, ecclesiastical and indigenous mortmain, and slavery), and continued with the privatization of public lands, the enactment of new civil and commercial codes, and efforts to attract foreign capital and labor to the development of railroads and other public works as well as a wide range of productive activities. The timing and sequence of the reforms varied with the political fortunes of contending parties and factions in each country. In those that took longer, economic growth was delayed until later than elsewhere.

INEQUALITY

The distribution of legal and civil rights, assets such as landed wealth, income from wages and property, and human capital such as education or health, affects and is affected by the economic performance of nations. Latin America lagged behind the North Atlantic in equality of rights and in human capital formation throughout much of the modern era. On the other hand, the region does not appear to have become markedly more unequal in the distribution of assets or income than the developed world until the onset of economic growth at the end of the nineteenth century.

The caste and slave systems of the colonial era made inequality in legal and civil rights fundamental to the juridical structure of the two empires. Most individuals of indigenous or African descent were legally defined as inferior to Europeans and to people of mixed ancestry. In Mesoamerica and the Andes, indigenous people alone paid the hated *tributo.* They were excluded by law from high-status occupations and from holding important posts in government or the Church. They were also forbidden to bear arms or ride horses, needed the permission of both political and ecclesiastical authorities to move to another town, had to observe a legislated dress code, and suffered from numerous other restrictions and rules. At the same time, however, Spanish colonial rule provided for the election of indigenous political leaders at open village meetings and left most villages wide latitude to manage their own affairs. Spanish magistrates supervised and sometimes interfered, as did local priests, but in the complex local politics of colonial rule, indigenous leaders, customs, and resources were often decisive. The crown's interest lay in preserving the indigenous population and its economic base for taxation. The crown also sought to prevent indigenous labor and organizations from falling under the sway of colonial elites, the better to keep both groups dependent on Madrid and its agents.

Caste restrictions on physical and occupational mobility were removed by the Spanish Cortes in 1811, partly in response to the independence revolt in Mexico. Most of the new nations adopted constitutions that proclaimed equality of legal rights for citizens, but restricted the franchise in national elections, reimposed the *tributo* under various guises (usually as a head tax on all citizens), and allowed for the continuation of inalienable communal property holding and a large degree of political autonomy for indigenous communities.

Quantitative work on the distribution of wealth and income in colonial and nineteenth-century Latin America is scarce and fragmentary. In the predominantly rural economies of the region, landownership probably constituted the main asset of most wealth holders. Trends in the distribution of landownership can serve to illuminate trends in the distribution of wealth and income as a whole, at least until the urbanization and industrialization of the twentieth century.

Indigenous status allowed Indian villagers in the colonial era to invoke Spanish law and policy to defend communal lands from usurpation by outsiders. Isolation also helped; much of the land occupied by indigenous villages could not have been turned into profitable *haciendas.* Thus, in most of the mainland colonies, widespread indigenous landownership survived three centuries of Spanish rule. In many regions, such as southern Mexico, the Guatemalan highlands, and major portions of the Peruvian altiplano, indigenous communities and entrepreneurs owned most of the exploitable land until long after independence. Even in the areas adjacent to major towns and cities, where land values were highest, Indian landownership persisted. After independence, the economic decline and insecurity that accompanied independence in most countries reduced the profitability of the existing estates. Many were broken up into leaseholds, sold off in parcels to tenants, or simply abandoned. Images of vastly wealthy *patrones* lording it over armies of landless peons bear little resemblance to most of the Mesoamerican or Andean countryside until the onset of economic growth in the second half of the nineteenth century.

The liberal economic reforms that accompanied and sustained economic growth at the end of the nineteenth century facilitated and in some cases provided special incentives to encourage widespread assaults on peasant (and Church) landownership as well as the alienation of vast quantities of public lands to large, politically connected landowners. Liberal regimes everywhere made formerly inalienable village lands subject to private ownership and sale. Railroad construction often precipitated waves of privatization of landholding by linking hitherto isolated tracts of village or public lands to distant markets, thus increasing their potential value to powerful outsiders. Often, small holders sold their lands at attractive prices to outsiders who had better access to information and capital. The concentration of landholding was also facilitated by the region-wide trend toward more stable governments. Economic growth produced increases in revenues. Telegraphs and railroads helped governments to learn of trouble and suppress it more quickly. In many countries, elected local governments were suppressed in favor of appointed governors and mayors; elected local governments did not reappear throughout the region until the last decade of the twentieth century. The legal status of women actually deteriorated in the nineteenth century and did not recover until the second half of the twentieth century. Universal manhood suffrage in national elections did not reach Latin America until well into the twentieth century, beginning in Argentina in 1912 and moving in stages across less homogeneous ethnic terrain until even women, mostly after World War II, received the franchise.

In slave regions of Latin America, the slaves themselves were deprived of the right to their own labor. Their owners appropriated a portion of the returns to labor that would have been paid as wages had they been free. Thus, slave regions probably tended to be more unequal in the distribution of income than nonslave areas, and much more unequal than areas in which rural producers owned their own land. In the subset of countries where slavery predominated, both legal rights and wealth or income tended to be more equally

distributed in less productive areas and eras. In boom periods, such as in Cuba in the early nineteenth century, high prices for slave-produced export commodities and relatively inelastic supplies of slave labor led to increases in work intensity and reductions in leisure time and in access to garden plots as well as the adoption of new, more draconian slave codes and assaults on the rights of freedmen intended to push them into plantation employment. Conditions in more backward Brazil in the colonial era seem to have varied considerably but are generally described as less dynamic and less polarized. Landownership, too, was historically more concentrated in Cuba than in backward Brazil.[23]

Between 1803 (Haiti) and 1888 (Brazil), every country and colony in the Western Hemisphere abolished slavery. Postemancipation societies varied dramatically in the extent to which former slaves received full civil rights and access to economic opportunity. In the earliest emancipations in Haiti, the remaining French islands, and the British colonies, emancipation dealt a severe blow to sugar plantation agriculture, which suggests that the distributional effects of ending slavery were relatively high. In Brazil and Cuba, the effects of emancipation on the distribution of wealth or income were probably smaller. These two late emancipators paid a price for their delay in economic growth foregone. In both cases, political regimes linked to slavery collapsed soon after emancipation; had these transitions occurred earlier, the Brazilian and Cuban economies might have begun growing earlier, rather than later than the rest of Latin America.

In Argentina, the concentration of landownership developed in cycles of "conquest"—military campaigns against indigenous nomads that culminated in the early 1880s. After each of the campaigns, large tracts of land became available to reward the participants and their friends or for sale at low prices to wealthy investors. Thus, the process of concentration in Argentina was linked directly to government policy and, unlike elsewhere, largely anticipated the late-nineteenth-century acceleration of economic growth. However, since land was relatively cheap in Argentina in relation to scarce supplies of labor, the early concentration of ownership appears to have had minimal impact on the distribution of wealth. Lyman Johnson found that the distribution of wealth in the province of Buenos Aires in the decades after independence was at least as egalitarian as in the nonslave regions of the United States in the same era.[24] Not until railroads, immigrants, and rapid economic growth spread throughout the pampas in the late nineteenth century did landownership provide the basis for a more unequal social order.

Throughout the Spanish and Portuguese empires, and in the nation states that succeeded them, the accumulation of human capital lagged behind the North Atlantic. Since the colonial era, Latin America's public and private investment in education, public health, nutrition, and health-related infrastructure (e.g., potable water) has lagged far behind the North Atlantic at comparable levels of GDP per capita. Lack of human capital can retard economic growth, while pronounced inequality in human capital investment sharpens inequality in the distribution of income. Both of these effects appear to have had an impact on the economic performance of the Latin American economies, though possibly more in the twentieth century than earlier. Nearly every Latin American country has made serious efforts to catch up in human capital over the past 100 years, but convergence to the standards of the developed world has lagged because of past neglect, high rates of population growth, and the frequent breakdown of democratic regimes in this century.

The contradictory but positive and cumulative evolution of legal and civil rights in Latin America contrasts with the sharp increases in inequality of wealth and income that occurred as growth began in the late nineteenth century. Kuznets' suggestion that income or wealth inequality increases in the early stages of modernization seems amply confirmed by the history of land tenure patterns in much of Latin America, though Kuznets would also have predicted a countertendency back toward greater equality long before the region attained its current level of per capita GDP. The relative equality that characterized much of colonial and early-nineteenth-century Latin America did not promote rapid economic growth, though it did perhaps help to foster a kind of penny capitalism, that is, widespread participation in commercial activity even among slaves and indigenous groups. At least in the countryside, the distribution of wealth seems not to have been unusually skewed until after economic growth began.

Inequality of rights and civil status, inherited from the colonial era, persisted into the postindependence era, especially in the case of slaves. Though abolition finally brought legal equality, civil rights like the franchise and access to government generally took much longer to attain. Long periods of authoritarian rule in most countries persisted until the 1980s. These difficulties may help to explain the debilitating failure of governments in Latin America to invest adequately in human capital and physical infrastructure.

CONCLUSIONS

For most of two crucial centuries, from the early 1700s to the late 1800s, virtually all of the Latin American economies stagnated. Since sustained growth was occurring at the same time in the United States and parts of western Europe, Latin America fell behind. Physical and institutional barriers blocked

growth throughout the region, though some colonies, like Argentina and Cuba, managed to reach comparatively high levels of productivity before stagnation set in.

Beginning in the last quarter of the nineteenth century, railroads, steamships, and eventually motor vehicles (and future *hidrovías*) helped the Latin American economies overcome the physical barriers to improved productivity. The sweeping institutional changes that began at the same time removed old obstacles and created new incentives for productivity advance. These changes moved the Latin American economies onto new trajectories. On average, the Latin American economies in the twentieth century have grown as fast as the economy of the United States, but more slowly than the more dynamic economies of Europe and Asia.[25]

Abrupt increases in inequality, particularly in landownership, appear to have accompanied Latin America's transition to economic growth in the late nineteenth and early twentieth centuries. The region's historic neglect of human capital was reinforced by the relatively low cost of importing technology and technicians (as opposed to producing it or training them) from other countries. Eventually, economic growth allowed for higher wages, physical welfare improved, and schools and clinics were built, but (with the exception of Argentina, Costa Rica, and Uruguay—the most ethnically homogenous of the former Spanish colonies) much more slowly than in other world regions.

Persistent inequality has had a doubly negative effect on economic growth in twentieth-century Latin America. The direct effects include the reduced productivity of perhaps a third of the contemporary Latin American workforce due to malnutrition, illness, and lack of education. The indirect effects include the substantially higher risks of political and social upheaval that have discouraged investment and further dampened growth.

Appendix

Quantitative data on the colonial economies of Spain and Portugal, often fragmentary and unreliable, were collected with greater consistency and care as the eighteenth century advanced. Nonetheless, estimates of aggregate economic performance even for the late colonial economies are inevitably subject to fairly wide margins of error.

Estimates of GDP in the late colonial era are available for Cuba and Mexico and for Peru in the 1820s. Still cruder approximations can be constructed for Argentina, Brazil, and Chile. The figures are reported in Table 1.1. With two exceptions, the population figures and GDP estimates refer to regions that corresponded to the national territories of the independent states established later. The exceptions are Argentina, where the estimate excludes the Chaco, Misiones, and the areas of the pampas and Patagonia outside European control, and Chile, where it omits the population and economic activity beyond the Araucanian frontier in the south.

In the case of Mexico, Cuba, and Peru, the figures in the table correspond to direct estimates of GDP at some point in the late eighteenth or early nineteenth century. Mexico's GDP per capita in 1800 stood at about 40 pesos, according to various estimates, while that of Peru was probably somewhat lower.[26]

Fraile Balbín and the Salvuccis put Cuba's GDP per capita at 66 pesos in 1690, 90 pesos in 1750, and 98 pesos by the mid-nineteenth century. Choosing the lower of the latter two figures for circa 1800 still places Cuba's GDP per capita above the United States in that year. Cuba's ranking here is consistent with that of the other Caribbean export economies. Estimates of GDP per capita for the Caribbean sugar islands of Britain and France are actually higher than for the United States in the late eighteenth century.[27]

The Argentine and Chilean figures are based on more fragmentary evidence. In both cases, the GDP figures in the table are really income estimates based on extrapolations from wage data. In the case of Argentina, Lyman Johnson's Buenos Aires study cites an average monthly wage of 17 pesos or 204 pesos per year for urban unskilled construction laborers in the first decade of the nineteenth century,[28] while various sources put rural wage levels at 6 pesos per month plus food rations, for a total of 76.5 pesos per year.[29] This implies a per capita income of roughly 94 pesos for the province of Buenos Aires; using the same wage rates for the remaining provinces brings down the colonywide per capita income to 82 pesos.[30]

I am not aware of any comparable work on urban wages in late colonial Chile, though fragmentary data suggest urban unskilled wage levels at about two reales (0.25 pesos) or so per day.[31] Using Bairoch's empirical observation that a rough measure of income per capita may be derived by multiplying the urban unskilled daily wage rate by 200 puts Chile at 50 pesos.[32] Using the same ratio for other colonies, however, yields figures substantially above known levels. Bairoch's ratio and the Mexico City wage rate of 0.375 pesos, for example, yield a per capita income of 75 pesos, well above the accepted figure of 40 pesos. Buenos Aires wage data yield an estimate of 142 pesos for Argentina, far above the more cautious estimate in the table.[33] The Chilean figure in the table is reduced by 25% to correct for the upward bias in the Bairoch method.

Finally, the estimate for Brazil in Table 1.1 is based on extrapolating Leff's estimates of nineteenth-century growth rates back to 1800.[34] The result may be too low; applying the ratio of U.S. to Brazilian GDP per capita estimated by Maddison for 1820 would yield an 1800 estimate of $38 in current dollars (versus the $29 accepted here).[35]

The estimates of GDP per capita in Table 1.1 are not intended to do more than establish rough orders of magnitude. All of the estimates in the table are subject to substantial error margins, even the Mexican figure, which is based on considerable research and has survived much scrutiny. Even if the precise numbers are fragile, however, the ranking among the colonies seems relatively robust. Argentina and Cuba probably had the most productive economies, with the remaining mainland colonies well behind.

Bolivia is omitted from Table 1.1 for lack of data, but would probably rank toward the bottom, probably below Peru. The sharp decline in silver output in Potosí in the 1790s coupled with scattered evidence on the decline of manufacturing and persistently low levels of productivity in agriculture suggest that the Bolivian economy lagged behind most others in the colonial era.

The population estimates in Table 1.1 are taken from a variety of sources cited in the table.[36]

The trade data in Table 1.2 are subject to smaller error margins than the GDP estimates. For Argentina, the figure in the table refers to the year 1796 and is based on Cortes Conde and Moutoukias.[37] This was the peak year for exports via Buenos Aires until after independence. Total exports amounted to $5.5 million, but have been reduced to eliminate public exports of silver (net tax revenues) from Bolivia. This adjustment was made by assuming half of all silver exports from Buenos Aires consisted of public revenues that should not count as exports. Also omitted from the estimate in the table are Argentine exports to Bolivia. For Brazil, exports to Portugal are taken from Alden's work.[38] Alden's figure for 1800 is raised 10% to account for smuggling and converted to pesos at $1.363 to the milreis. For Chile, the export figure in the table is the average for 1790–1799 from Carmagnani.[39]

For Cuba, the figure in Table 1.2 may be a bit low. Guerra y Sánchez puts exports in 1794 at "more than five million," while Marrero cites figures for 1805 to 1807 that range from $5.1 to $8.1 million.[40] For Mexico, the figure in the table is the average for exports from Veracruz during the years 1796 to 1805; the figures were collected by *consulado* officials at the time and reproduced in a report by Lerdo de Tejada, first published in 1853.[41] I have added 20% to the Veracruz figures to take account of exports from other ports. For Peru, the export figure takes peak silver production of 637,000 marks in 1799, assumes that half of this total was exported (as was the case in New Spain), and uses the 1791–1794 ratio of silver exports to total exports (85%) to reach the figure in the table.[42]

NOTES

1. For the Latin American data, see Table 1.1. The U.S. figures are from Atack and Passell (1994, p. 4).
2. See appendix.
3. Between 1800 and 1860, Mexican GDP per capita declined by nearly 30% (Coatsworth 1990a, chap. 5).
4. Maddison (1994), p. 23.
5. World Bank (1997), Table 1.
6. Lockhart (1991), p. 103.
7. Exceptions there were, such as the missionary efforts of the various regular orders in remote locations, but these were often displaced (sometimes violently) upon the discovery of opportunities for private gain.
8. Plausible estimates have ranged from 8.4 to 112 million. See Newson (1985) for a survey.
9. Slave prices in Cuba for most of the eighteenth century were two to three times as high as in Jamaica and the other English islands. See Eltis (1987), pp. 35, 40.
10. Schwartz (1985), chap. 7.
11. Even after the Spanish crown relaxed restrictions on importing slaves in the late 1760s, unsettled international conditions drove prices back up. This was especially evident in periods of international war. Slave prices skyrocketed during the conflict that accompanied the U.S. War for Independence (1776–1783) and again

during the wars of the French Revolution and Napoleon (1796–1815).

12. Sánchez Albornoz (1989), p. 89. Between 1853 and 1874, 124,000 Chinese coolies entered Cuba, while 87,000 went to Peru between 1859 and 1874.
13. On the output of Mexico's mining industry, which rose at an annual average rate of 0.7% between 1775/79 and 1805/09, see Coatsworth (1990a, chap. 4). The rate of increase in silver production at Potosí slowed considerably after 1791 and fell sharply in the first decade of the nineteenth century, according to Tandeter (1993, p. 116).
14. In addition to Cuba, see Eltis (1995, pp. 328–330) on Barbados. Exports amounted to one-third of Barbados's total product in the mid-1660s.
15. The creation of the viceroyalty and the "free" trade decree that followed in 1778 also affected the interior provinces that supplied Potosí and the rest of Upper Peru with a variety of products, including mules, sugar, wine, and yerba mate. Although it legalized and facilitated this commerce, increasing imports of manufactured goods through Buenos Aires adversely affected some local industries in the northwest. For a recent revisionist view on this question, see Amaral (1990).
16. See Coatsworth (1990a), chap. 5.
17. See Klein and TePaske (1982, 1986). In one case, that of the *caja* of Lima, revenues from the excise tax, or *alcabala*, were reported as coming from *otras tesorerías*, a line item amounting to $1.7 million that probably included surplus tax revenues shipped in from other *cajas*. To avoid underestimating revenue, this sum was included in the Peruvian data, though it introduces a small upward bias in the estimates in Table 1.5.
18. The Argentine figure in the table requires some explanation, since accounting procedures in the Buenos Aires *caja* make it especially difficult to use the Klein and TePaske data. Aside from distinguishing internal and external transfers from actual revenue, the main problem is that the receipts of the Buenos Aires customs house and from the collection of the *alcabala* are lumped together with tax revenues from Potosí in the account labeled *otras tesorerías* (a practice that began in early 1780s). In 1800, the year represented here, the total reported received from *otras tesorerías* exceeded $2.4 million. The figure in the table assumes that approximately $200,000 represented *alcabala* and customs revenues originating in Buenos Aires. Though consistent with earlier years, this figure may be too low. On interpreting the Buenos Aires data, see Amaral (1984, pp. 287–295) and the comments by Javier Esteban Cuenca, John J. TePaske, Herbert S. Klein, J. R. Fisher, and Tulio Halperín-Donghi that follow.
19. An additional case for which such estimates have been constructed is Ecuador. Andrien (1994, p. 178) has estimated that per capita tax burdens in the late eighteenth century ranged from less than half a peso in the relatively backward highland district of Cuenca to six pesos per capita in the port of Guayaquil; in Quito, the burden amounted to $1.62. Given their relative populations, the average for the entire colony was probably closer to the Quito figure than to that of Guayaquil.

20. The revenue estimate in the table is the average for 1795–1800 (annual figures are not reported) in Marrero (1985, vol. 4, p. 323).
21. Nonagricultural, because throughout the Spanish colonies and Brazil, taxes on land did not exist or went largely uncollected and the tithe, a tax on agricultural output, went mainly to the Church.
22. Newland (n.d.) estimates that Argentine exports grew at an annual average rate of 5.5% per year (3.0% per capita) between 1811 and 1870.
23. See Schwartz (1985), chaps. 11 and 16.
24. See Johnson (1994), pp. 197–214.
25. See Maddison (1994), Appendix D.
26. For Mexico, see Coatsworth (1990a, chap. 3). For Peru, see Gootenberg's rough calculation for the late 1820s (1985, p. 53n).
27. For Cuba, see Fraile Balbín and the Salvuccis (1993, part II, chap. 3). The productivity advantage of the Caribbean sugar islands had its origins in the seventeenth century and persisted until the abolition of slavery in Haiti in 1803 and in the British empire in 1832. For a recent discussion, see David Eltis, "The Total Product of Barbados," pp. 321–338. U.S. per capita GDP in 1800 was roughly $80. The Spanish American peso and the U.S. dollar exchanged at roughly 1:1 in this era.
28. Johnson (1990), pp. 137–172.
29. See, for example, Brown (1979), pp. 43, 164 and Chiaramonte (1991), pp. 108–112.
30. For the predominantly urban population of Buenos Aires province, this figure multiplies the urban wage rate ($204) times the Buenos Aires urban labor force of 25,600 (assumed to be 64% of the Buenos Aires population of 40,000) and applies the rural wage rate ($76.50) to the rural labor force of 32,168 (64% of the remaining population of 50,262). According to Maeder's account (1969, chap. 1), roughly a third of the total Argentine population (including the province of Buenos Aires) lived in towns and urban areas. Again assuming a labor force participation rate of 64% for both rural and urban populations, the same wage rates yield a per capita income estimate of $81.50. This colonywide estimate excludes the Chaco, Misiones, and the areas of the pampas and Patagonia outside European control. The per capita income of the colony without Buenos Aires province comes to $69.
31. Vicuña MacKenna (1938, vol. 2, 228n) cites a 1792 Santiago construction proposal in which peons' wages are calculated as two reales per day, comparable with

Guadalajara at the same time. The Santiago proposal is likely to have understated wages and other costs.

32. Bairoch (1977); a summary with additional data is in Bairoch (1993, chap. 8).
33. Van Young's study of wages (1987) in late colonial Mexico cites wages for unskilled construction workers in 1794–1804 of two to two and a half reales per day (0.25 to 0.31 pesos) in Guadalajara and three reales (0.375 pesos) per day in Mexico City. Living costs are likely to have been higher in Mexico (though not in Santiago) than in Buenos Aires, but not so much as to eliminate a wage gap of the magnitude suggested by these data.
34. For Brazil, the estimate is based on Leff's "most likely" estimate of Brazilian growth between 1822 and 1913 (1982, vol. 1, appendix). Leff's estimate is converted to current pesos using the Warren-Pearson and Bureau of Labor Statistics Wholesale Price Indexes to deflate from 1950 dollars. It is likely that Brazil's GNP grew slowly if at all between 1800 and 1822. The price indexes are in U.S. Bureau of the Census (1958, pp. 115–117).
35. See Maddison (1994), Table 1-3.
36. For Argentina, see Maeder (1969, pp. 22–23); for Brazil, see Graham and Merrick (1979, pp. 26–30), but note that Alden (1987, p. 287) accepts a much lower (though admittedly undercounted) total of only 2.1 million; for Chile, see Mamalakis (1978, vol. 2, p. 9); for Mexico, see Coatsworth (1990a, p. 46); for Peru, see Gootenberg (1991, pp. 109–157).
37. Cortes Conde (1985), Table 1, p. 359, and Moutoukias (1992).
38. Alden (1997), p. 335.
39. Carmagnani (1973), pp. 59, 76, 96.
40. See Guerra y Sánchez (1964), p. 197; Marrero (1985), p. 72.
41. Lerdo de Tejada (1967, no pagination).
42. See Fisher (1986), pp. 49–55.

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