Real Wages and Relative Factor Prices in the Third World 1820-1940: Latin America

by

Jeffrey G. Williamson
Harvard University

Discussion Paper Number 18xx
November 1998

Harvard Institute of Economic Research
Harvard University
Cambridge, Massachusetts

I would like to thank Fausto Alzati, Luis Bertola, Luis Catao, John Coatsworth, Sebastian Coll, Roberto Cortes-Conde, Gerry della Paolera, Aurora Gomez, Steve Haber, Dani Kaufman, Robert Levine and Jaime Reis for their help in guiding me to the data underlying the analysis in this paper. I would also like to acknowledge the excellent research assistance of Davin Chor, Graciela Marquez, Rebecca Rissman and Matt Weinzierl, all of whom have been involved at various points since 1995 when this project started. One of the goals of the project has always been to make the data base available in the paper=s Appendices. In addition, the data can be downloaded from my web site **http://www.economics.harvard.edu/~jwilliam**. This working paper has two **HIER Discussion Paper** companions: AReal Wages and Relative Factor Prices in the Third World 1820-1940: Asia@ [1998a] and AReal Wages and Relative Factor Prices in the Third World 1820-1940: The Mediterranean Basin@ [1998b] which are also available upon request. The data from Asia and the Mediterranean, and the two papers themselves, can also be downloaded from my web site.

Abstract

By 1914, there were huge economic gaps between the Southern Cone plus Cuba and the rest of Latin America. When did the gaps appear? Can they be explained by the varying ability of these countries to exploit the first great globalization boom after about 1870? Or did the gaps appear much earlier, and were they established by different experience with colonialism, war and civil war, or perhaps by geographic isolation? And what about the gaps between Latin America and the Mediterranean Basin, let alone with industrial leaders like Britain? Which countries in Latin America started catching up after mid-century, which fell further behind, and which held their own? What role did globalization and demographic forces, including immigration, play in the process? Conventional quantitative evidence, like current GDP estimates, is much too incomplete to confront these central questions, especially as they apply to the previous century. In an effort to suggest a new research agenda for the region, this essay uses a new data base on real wages and relative factor prices for seven major Latin American regions -- Argentina, Brazil (Southeast and Northeast), Colombia, Cuba, Mexico and Uruguay -- as well as for the three Mediterranean regions which were a source of so many of Latin America=s immigrants -- Portugal, Spain and Italy. These ten regions, plus comparative information from Britain and the United States, form the data base for the paper.

JEL F02 F22 N10 O5

Jeffrey G. Williamson
216 Littauer Center
Harvard University
Cambridge, MA 02138
jwilliam@kuznets.fas.harvard.edu

New Data, Old Questions

Two important features of the world economy after 1950 also characterized the economy after 1850. First, there was rapid globalization a century ago too: capital and labor flowed across national frontiers in unprecedented quantities, and at rising rates; and commodity trade boomed as transport costs dropped sharply. Second, the late 19th century underwent an impressive convergence in living standards, at least within most of what we would now call the OECD club, but what historians call the Atlantic economy. Poor countries around the European periphery tended to grow faster than the rich industrial leaders at the European core, and often even faster than the richer countries overseas in the New World. This club excluded most of what is now called the Third World and eastern Europe, and even around this limited periphery there were some who failed to catch up. Nonetheless, there was convergence.

It was not always that way: unambiguous divergence took place earlier. In the first half of the previous century, the Atlantic economy was characterized by high tariffs, modest commodity trade, no mass migrations, and an underdeveloped global capital market. Two profound shocks occurred in this environment still hostile to liberal globalization policy: early industrialization in Britain which then spread to a few countries on the European continent; and resource "discovery" in the New World, set in motion by sharply declining transport costs linking overseas suppliers to European markets, so much so that real freight rates fell by an enormous 1.5 percent per annum between 1840 and 1910 (O'Rourke and Williamson, 1998: ch. 3). These two shocks triggered a divergence in real wages and living standards across the Atlantic economy that lasted until the middle of the century (Williamson 1996).[1]

[1] Prasannan Parthasarathi (1998) also uses this dating to describe lagging India, and so does

Kenneth Pomeranz (1997) for lagging China. In contrast, Robert Allen (1998) argues that the divergence within Europe started long before the industrial revolution. Elsewhere, I explore these competing views with real wage evidence from the Mediterranean Basin (Williamson 1998b) and Asia (Williamson 1998a), data much like that presented here for Latin America.

Figure 1 shows that the convergence which started in mid-century continued up to 1914: a plot of the dispersion of real wages is given there, documenting what the modern macro economists call beta-convergence. The line with the diamonds on the upper left of Figure 1 is based on a 13-country Atlantic economy sample including Australia, Belgium, Brazil, France, Germany, Great Britain, Ireland, the Netherlands, Norway, Portugal, Spain, Sweden and the United States. The dashed line in Figure 1 documents convergence for an expanded 17-country Atlantic economy sample, now including in addition Argentina, Canada, Denmark and Italy. This measure shows the convergence tide ebbing around 1900. If we exclude Canada and the United States, two Aexceptional@ rich countries which bucked the convergence tide, convergence continues rapidly up to 1914 (the 15-country sample plotted with the triangles). If we exclude in addition two Mediterranean Basin countries which failed to play the globalization game, Portugal and Spain, convergence up to 1914 is faster still (the 13-country sample plotted with the squares).

Meanwhile, how did Latin America do? Based on macro data reviewed by John Coatsworth (1993), it is very difficult to tell. Coatsworth thinks that there was no growth in GDP per capita at all in any of the colonial economies between 1700 and 1820. Since there was hardly much per capita income growth in Europe either during that century, one might conclude that Latin America maintained its relative position vis a vis Europe, and that the economic gaps between regions within Latin America changed but little. The half century between 1820 and 1870 was one of revolution, civil war and early independence. Like Africa today, Latin America was an economic and political basket case. Angus Maddison (1995) offers GDP per capita growth evidence for Brazil and Mexico only, and they both do very badly, Brazil growing by only 10 percent over the five decades as a whole and Mexico declining by 7 percent. Coatsworth guesses that Colombia underwent no growth over the period. This evidence certainly confirms that Latin America fell behind the United States and Britain up to 1870, since those two leaders registered GDP per capita growth rates of about 1 percent per annum. It says very little, however, about growing or contracting gaps between regions within Latin America. Latin American economic performance is better documented between mid-century and the

Great War in Europe (Maddison 1995; Engerman and Sokoloff 1996), and the period offers two notable facts. First, the poorest Latin American countries were growing slowest, illustrated by Brazil and Peru, while the richest Latin American countries were growing fastest, illustrated by Argentina, Chile and Mexico. This limited evidence certainly seems to point to economic divergence within the region. Second, the region as a whole seemed to be holding its own relative to Europe. Indeed, the fast growing richer regions were actually catching up. We would like to be more precise, however. Exactly when and where did the catching up and falling behind take place? We need to know the answers if the correlates of economic success and failure in Latin America are to be identified. This macro data just reviewed will not provide the necessary evidence since it is available only for benchmark years separated by decades, and important regions like Cuba and Colombia are excluded.

In any case, it is not clear that GDP per capita and real wages should have behaved in the same way. So, what happened to real wages and living standards when Latin America responded to the challenge of both the European Industrial Revolution and the First Great Globalization Boom? And what happened to both real wages and GDP per capita during war, interwar and autarky after 1913?

These are the questions that motivate this essay. They are in the tradition of W. Arthur Lewis who was the first to ask whether the core pulled along the periphery during this First Great Globalization Boom (Lewis 1969, 1978a, 1978b). It was he, together with Alexander Gerschenkron (1952), who first tried to break the economic historian=s tenacious fixation on the industrial leaders, Lewis focusing on the Third World and Gerschenkron on European late comers like Italy and eastern Europe. Thus, these questions are not new to Latin American economic history, but they could not be attacked very well even only a decade ago since the data had not been gathered in such a way as to make these comparative judgments possible. Now we have enough to make some real progress.

Latin America and the Atlantic Economy: Overthrowing the Tyranny of Distance[2]

In a book entitled The Tyranny of Distance (1966), Geoffrey Blainey showed how distance shaped Australian history. Distance had the same impact on the rest of Asia until late in the 19th century, isolating Asia from Europe where, after all, the industrial revolution was unfolding. Late in the 19th century, transport innovations started to change all that, although not completely. The appearance of the Suez Canal, cost-reducing innovations on sea-going transport, and railroads penetrating the interior may not have completely liberated Asia from the tyranny of distance by 1914, but it helped enormously.

Why shouldn=t this account about economic isolation apply to Latin America as well? It is certainly consistent with the Anew economic geography@ (Krugman 1991a, 1991b). After all, the economic distance to the European core varied considerably depending on location in Latin America. The Panama Canal was not completed until 1914, and before then the Andean economies -- Peru and Ecuador -- must have been very seriously disadvantaged in European trade. And prior to the introduction of a railroad network, which didn=t really start until the 1870s, the landlocked countries of Bolivia and Paraguay were at an even more serious disadvantage. This was also true of the Mexican interior (Coatsworth 1981), the Colombian interior, and the Argentine interior (Newland 1998). A close observer of early 19th century Latin America, Belford Hinton Wilson reported in 1842 the costs of moving a ton of goods from England to the following capital cities (in pounds sterling): Buenos Aires and Montevideo 2; Lima 5.12; Santiago 6.58; Caracas 7.76; Mexico City 17.9; Quito 21.3; Sucre or Chuquisca, 25.56; and Bogata 52.9. The variance is huge, with the costs to Equador (Quito), Bolivia (Sucre or Chuquisca), New Granada (e.g., Colombia, Bogata), and Mexico nine to twenty-seven times that of Buenos Aires and Montevideo, both well placed on either side of the Rio de la Plata (Brading 1969: 243-4).

Geographic isolation helps explain much of the subsequent poor growth performance in these (mostly poor) parts of Latin America in the 19th century. Even after the Latin American late 19th century railroad boom, much of the region=s interior was still isolated: for example, railway track per 1,000

population in Bolivia, Ecuador, Paraguay and Peru was still only about a tenth that of Australia, New Zealand and Canada in 1912 (Bulmer-Thomas 1994: Table 4.4, p. 107). Furthermore, the tyranny of distance did not disappear as a development obstacle in these poor and initially-isolated parts of Latin America even after 1950. Indeed, economists have shown that poor growth performance today is still associated with whether a country is landlocked, whether the length of its coastline is limited, and whether its distance from Tokyo, New York or Rotterdam is long (Radelet, Sachs and Lee 1997). Bolivia, Ecuador, Paraguay, Peru, the Argentine interior and the Mexican interior all face a trade disadvantage, and if trade matters to growth, those regions face a growth disadvantage as well.

In contrast, the Latin American regions bordering on the Atlantic, with long coastlines and with good navigable river systems, have always been favored by a trade advantage and thus a growth advantage as well. These include Argentina, Brazil, Venezuela, Central America, Cuba and the other Caribbean islands. Of course, these regions may have failed for other reasons, but geographic isolation certainly wasn't one of them.

Transport cost declines from interior to port, and from port to Europe or to the East and Gulf Coast of the United States, ensured that Latin American economies became more integrated into world markets after around 1850. Price gaps between Britain and both Americas were driven down and trade stimulated as a consequence. True, transport costs and price differentials involving trade between Europe and North America are far better documented than are those between Europe and South America. Yet, the qualitative literature suggests that the same was happening south of the US border.

Prior to the railway era, transportation was either by road or water, with water being the cheaper option by far. Thus, investment in river and harbor improvements increased briskly everywhere in the Atlantic economy. Steamships were the most important 19th century contribution to shipping technology. The *Claremont* made its debut on the Hudson in 1807; a steamer had made the journey up the Mississippi as far as Louisville by 1815; British steamers had traveled up the Seine to Paris by 1816. In the first half of the century, steamships were mainly used on important rivers, the Great Lakes, and inland seas such as the Baltic

and the Mediterranean. A regular trans-Atlantic steam service was inaugurated in 1838, but until 1860 steamers mainly carried high-value goods similar to those carried by airplanes today, like passengers, mail and gourmet food.

The switch from sail to steam may have been gradual, but it accounted for a steady decline in transport costs across the Atlantic (Harley 1988). A series of innovations in subsequent decades helped make steamships more efficient: the screw propeller, the compound engine, steel hulls, bigger size and shorter turn-around time in port. Before 1869, steam tonnage had never exceeded sail tonnage in British shipyards; in 1870, steam tonnage was over twice as great as sail, and sail tonnage only exceeded steam in two years after that date (Fletcher 1958: 560).

Refrigeration was another technological innovation with major trade implications. Mechanical refrigeration was developed between 1834 and 1861, and by 1870 chilled beef was being transported from the United States to Europe (Mokyr 1990: 141). In 1876, the first refrigerated ship, the *Frigorifique,* sailed from Argentina to France carrying frozen beef. By the 1880s, South American meat was being exported in large quantities to Europe. Not only did railways and steamships mean that European farmers were faced with overseas competition in the grain market, but refrigeration also deprived them of the natural protection distance had always provided local meat and dairy producers. The consequences for European farmers of this overseas competition would be profound (O'Rourke 1997; O'Rourke and Williamson 1998: Chp. 6).

What was the impact of these transport innovations on the cost of moving goods between markets? Certainly trade boomed in Latin America. While the estimates offered by Victor Bulmer-Thomas (1994: Table A.2.1, p. 439) may be rough, they certainly prove the point. The share of Latin American exports in GDP was around 10 percent in 1850, while in 1912 it was 25 percent. But when economists look at this period, they tend to ignore the fact that the decline in transAtlantic transport costs after mid century was enormous, and focus instead only on trade. This is a mistake. The volume of trade is not by itself a satisfactory index of commodity market integration. It is the cost of moving goods between markets that

counts. The cost has two parts, that due to transport and that due to trade barriers (such as tariffs). The price spread between markets is driven by changes in these costs, and they need not move in the same direction. It turns out that tariffs in the Atlantic economy did not fall from the 1870s to World War I; the globalization which took place in the late 19th century cannot be assigned to more liberal trade policy. Instead, it was falling transport costs which provoked globalization. Indeed, rising tariffs were mainly a defensive response to the competitive winds of market integration as transport costs declined (O'Rourke and Williamson 1998: Chps. 3 and 6).

The impact of these productivity improvements on transport costs around the Atlantic economy can be seen graphically in Figure 2. What is labeled the North index (North 1958) accelerates its fall after the 1830s, and what is labeled the British index (Harley 1988) is fairly stable up to mid century before undergoing the same, big fall. The North freight rate index among American export routes dropped by more than 41 percent in real terms between 1870 and 1910. The British index fell by about 70 percent, again in real terms, between 1840 and 1910. These two indices imply a steady decline in Atlantic economy transport costs of about 1.5 percent per annum, for a total of 45 percentage points up to 1913, a big number indeed. There is another way to get a comparative feel for the magnitude of this decline. The World Bank reports that tariffs on manufactures entering developed country markets fell from 40 percent in the late 1940s to 7 percent in the late 1970s, a 33 percentage point decline over thirty years (Wood 1994: 173). While impressive, this spectacular postwar reclamation of "free trade" from interwar autarky is still smaller than the 45 percentage point fall in trade barriers between 1870 and 1913 due to transport improvements.

What was the impact of changing transport costs and tariffs on trans-Atlantic price gaps in the late 19th century? Did they produce significant commodity price convergence between Latin America and world markets? If they behaved anything like Anglo-American price differentials, they certainly must have. Liverpool wheat prices exceeded Chicago wheat prices by 58 percent in 1870, by 18 percent in 1895, and by 16 percent in 1912.[3] Moreover, these estimates understate the size of the price convergence because they

ignore the collapse in price gaps between farm and interior railhead. Was the experience in Anglo-American wheat markets repeated for other foodstuffs? The second biggest tradable foodstuff consisted of meat and animal fats such as beef, pork, mutton and butter. Based on London-Cincinnati price differentials for bacon, there was no convergence across the 1870s and 1880s, but the price convergence after 1895 was even more dramatic for meat than it was for wheat: price gaps were 93 percent in 1870, 92 percent in 1895, and 18 percent in 1913. The delay in price convergence for meat has an easy explanation: it required the advances in refrigeration made towards the end of the century. Anglo-American price data are also available for many other non-agricultural commodities. The Boston-Manchester cotton textile price gap, which had been 14 percent in 1870, completely vanished by 1913; the Philadelphia-London iron bar price gap fell from 75 to 21 percent, while the pig iron price gap fell from 85 to 19 percent, and the copper price gap fell from 33 percent to almost zero. More relevant to Argentina and Uruguay, the Boston-London hides price gap fell from 28 to 9 percent, while the wool price gap fell from 59 to 28 percent.

The decline in transport costs created commodity price convergence in the Atlantic economy up to the Great War, and most of Latin America was part of it. Trade boomed. With Latin American globalization forces now on the table, let us turn now to growth in the region.

The Growth of What?

Most economists who have written about the comparative growth of nations have used GDP per capita or per worker to measure catching up and convergence, or falling behind and divergence. This and other essays of mine favor instead real wage rates (purchasing-power-parity adjusted, and typically for urban unskilled workers) and other factor prices (like land rents and skill premia). I can think of at least four good reasons why it is a mistake for the convergence debate to have ignored wages and other factor prices, especially for the previous century and earlier.

First, the pre-1940 real wage data -- certainly for Latin America -- are of far better quality than the GDP per capita data, and they are certainly available for a wider sample. Indeed, Angus Maddison (1995) is able to document real GDP per capita for a surprisingly small part of 19th century Latin America: for 1820, he gives estimates of GDP per capita only for Brazil and Mexico, two countries which based on 1900 population data would have accounted for only 53 percent of Latin America; a half century later, he offers estimates for one more, Argentina, raising the share of Latin America covered to 61 percent (again, based on 1900 population); thirty years later, he offers estimates for four more, but there are still many missing. It seems to me that the available GDP per capita data are not sufficient by themselves to deal adequately with the questions raised in the introduction. As this paper and Appendices 1-7 show, real wages can be documented for the following (so far): Argentina from 1864; Southeast Brazil from 1830; Northeast Brazil from 1855; Colombia from 1863; Cuba from 1905; Mexico from 1877; and Uruguay from 1880. Furthermore, we can begin making statements about PPP-adjusted (purchasing-power-parity adjusted) real wages relative to the European core from each of those dates. In addition, these real wage time series are typically available annually, so that epochs and major turning points can be identified with much greater clarity than is true of the GDP data which are typically reported for every two decades or even longer.

Second, income distribution matters, and wage rates (especially when combined with other factor prices) offer a window by which to look in on distribution issues. Real people earn wages or skill premia or profits or rents, not that statistical artifact known as GDP per capita. GDP per worker hour may sound like a good measure of aggregate productivity, but surely the living standards of ordinary workers as captured by real wages are a better indicator of the economic well-being of the vast majority in any society. By averaging all incomes, macro economists (and economic historians that mimic them) throw away valuable information.

Third, factor price movements help us understand the growth of nations. For example, productivity catch-up in Latin America was more likely to increase all factor prices equally than was mass immigration (increasing population pressure on the land) or an export boom for agricultural products (increasing the

demand for land). The open economy forces which may have been important in driving late 19th century economic change in Latin America -- trade, migration and capital flows -- operated directly on factor prices, and thus only indirectly on GDP per capita.[4] An exclusive focus on GDP per capita misses most of the story.

Fourth, economic change nearly always involves winners and losers, a fact which is crucial in accounting for the evolution of policy, perhaps more so in politically independent Latin American societies than in dependent colonial societies in Asia and Africa. Indeed, distributional effects may even influence the survival of newly independent countries. Changes that would increase GDP per capita but would also cause losses to some politically powerful group are often successfully resisted, and examining the behavior of factor prices is a good way to start the search for the sources of such political resistance.

The Latin American Real Wage Hierarchy Around the Turn of the Century

Table 1 pulls together estimates of the real wage hierarchy around Latin America and between it and the European industrial leader, Britain. The assessment is made around the turn of the century. All of the estimates in Table 1 calculate urban unskilled wages from various parts of Latin America relative to urban unskilled wages in Britain.[5] More importantly, none of the wage relatives in Table 1 are calculated at the prevailing exchange rate. It is well-known that the use of exchange rates, dominated by tradable goods, is inferior to the use of purchasing-power-parity, the latter constructed from workers' market baskets. However, trying to construct PPP-adjusted real wages based on common market baskets and region-specific relative prices would entail another research project. Table 1 uses a shortcut: we take the 1910 PPP-adjusted GDP per capita estimates reported recently by Pablo Astorga and Valpy FitzGerald (1998: Table A-4, p. 31) as our benchmark and project our real wage series forward and backward from that point. To make the comparison with Britain, I use the 1910 PPP-adjusted urban unskilled real wages in Argentina and Britain reported in my previous work (Williamson 1995), and then adjust the remaining Latin American countries accordingly, a

procedure which assumes that the cardinal ranking of the Latin American countries relative to Argentina would be the same in 1910 for real unskilled urban wages and GDP per capita.

The Latin American real wage hierarchy around the turn of century is clear enough, and while some of the estimates in Table 1 seem to be consistent with other qualitative and quantitative accounts, some are quite surprising.

The Brazilian Northeast was at the bottom of the hierarchy, with workers= living standards only 5-8 percent of those in Britain. Conditions were dismal in this region which had only recently freed these workers from slavery and which had been beset with sagging prices of their key exportables (Leff 1972), but it is hard to imagine living standards being much lower. Perhaps they are understated. While the Brazilian Northeast and the Italian Mezzogiorno have always been cited as classic examples of regional Adualism@ (Williamson 1965), wages in Brazil=s poor Northeast were well below Italy=s poor Mezzogiorno just prior to World War I, the former less than a third of the latter (Williamson 1998b: Table 1). Even unskilled construction workers in Egypt had almost double those real wages in Northeast Brazil. Furthermore, none of the unskilled workers in Asian cities and towns had real wages that low: they were more than double that in Burma and India (Williamson 1998a: Table 1).

Argentina and Uruguay were, of course, at the top of the heap, frequently switching the leadership position between the 1870s and 1910, but ending up about on par just prior to the Great War in Europe. Mexico and Cuba were next in line, two-thirds to three-quarters of the Southern Cone. Nowhere in Asia did real wages come close to those in Mexico and Cuba: the three most labor-scarce Asian countries in 1909-13 -- Japan, Korea and the Philippines -- had real wages less than half those of Cuba and Mexico. From there, it was a big step down to the real wages and living standards prevailing for the unskilled in Colombia (Bogata) and the Brazilian Southeast (Rio de Janeiro).

Real Wage Gaps Within Latin America: Convergence or Divergence?

Table 1 suggests two additional facts worth noting. It is certainly true that the real wage estimates for 1909-1913 offer strong confirmation of the historical persistence of the wealth of nations. That is, the Latin American economic hierarchy changed very little in the eighty years after 1909-1913, at least as gauged by the five in Table 1 whose GDP per capita Astorga and FitzGerald (1998: Table A-4) can document between 1910 and 1990: only Brazil and Cuba switched their positions in the hierarchy during the 20th century. It appears that history and initial conditions have mattered a great deal in this century. However, the size of the gaps between these parts of Latin America diminished dramatically. In 1910, the five poorest countries whose GDP per capita can be documented were Brazil, Ecuador, Venezuela, Colombia and Peru, from poorest on up. Setting the average of the three richest countries -- Argentina, Chile and Cuba -- at 100, the five poorest had per capita incomes of 18.8, 25, 26.3, 33.4 and 34.3. In 1990, the same calculation, and in the same order, yields relative per capita incomes of 80.7, 53.2, 127.7, 76.7 and 50.9. Every single one of these five Latin American countries who were poorest eighthly years ago began catching up with the richest three Latin American countries thereafter, and the collapse in the gap between the richest and poorest countries was quite significant.

So far, the evidence points to Latin American economic convergence in the 20th century. What happens if Mexico is added to the list (giving us nine observations) and a measure of dispersion, C(9), is calculated for every census date from 1910 to the present? The results are plotted in Figure 3 and they confirm the cruder measures of convergence offered in the previous paragraph. Between 1910 and 1930, the dispersion index drops by more than a half, from about 0.40 to 0.19, a huge decline. The decline ceases between 1930 and 1970, after which it drops sharply again, to about 0.09 in 1990. Why did this 20th century convergence within Latin America take place in two steps, and why during those epochs?

Was there convergence within Latin America in the 19th century as well? Here we use our real wage data, which are plotted in Figures 4 and 5. True, the total number of countries in the 19th century sample is

smaller, and there are missing years in some of the time series. While the data are imperfect, Figure 6 patches together overlapping measures of C as best we can. The imperfect data seem to offer an unambiguous answer to the question at hand: If there was convergence across Latin America prior to 1914, it was modest. Indeed, C(4) and C(6) suggest divergence up to the 1890s, not convergence. There is some convergence between the mid-1890s and World War I suggested by C(5), so the 20th century convergence we see in Figure 3 may have had its source in the very late 19th century. Paul Krugman and Anthony Venables (1990, 1995) might view this inverted U-shaped pattern in Latin American real wage dispersion as support for their position that globalization is likely to cause divergence in early stages of development before it causes convergence in later stages. However, industrialization is central to the Krugman-Venables model: Did it hold for 19th century Latin America?

Real Wage Gaps Between Core and Periphery: What Happened to the Gap Between Latin America and the Industrial Leaders During the First Great Globalization Boom?

In spite of convergence within Latin America between 1910 and 1995, there was divergence between Latin America and the world leaders. All six parts of Latin America documented in Table 1 for 1909-13 lost ground relative to Britain in this century,[6] some of them a great deal of ground. But what about prior to the Great War? Was the 19th century different?

Table 3, Table 4 and Figure 7 all document that Argentina was catching up with Britain in the half-century before World War I. There is evidence that the Brazilian Southeast started catching up from mid-century. But catch up with the European leaders doesn't seem to have been taken place anywhere else in Latin America (see also Figure 8). Table 3 shows clearly that Colombia, Mexico and Uruguay were able to hold their own up to the Great War, but real wages there did not catch up with those in Britain. Nor is there any evidence of catch up in the Brazilian Northeast or in Cuba.

While there is very little evidence of Latin American catch up on the world=s leaders prior to 1914, at least Latin America was able to hold its own. after the early 19th century. In contrast, there is plenty of evidence of fall back in the 20th century. Why the difference between the two centuries? What were the economic and demographic fundamentals present during the First Great Globalization Boom which were absent thereafter? The literature points, of course, to policy in accounting for the great divide. Relative to the world leaders, better growth performance in Latin America prior to the 1920s then afterwards seems to be highly correlated with an open policy on one side of that divide and a closed policy on the other. But any agenda whose goal is to isolate the role of policy in accounting for the different growth experience on either side of 1914 needs to control for everything else that might matter: demography, bad luck in world factor and commodity markets, the tyranny of distance and other forces.

Real Wage Gaps and Migration Between the Old and New World

The fact that the Italian, Portuguese and Spanish emigrants were poor by western European standards, and that so many went to Latin America, has generated debate on the receiving end. Sir Arthur Lewis thought that his model of development (Lewis 1954) with immigrant-augmented elastic labor supplies applied to late 19th century Latin America (Lewis 1978a), and many Latin American scholars subsequently agreed. Carlos Diaz-Alejandro wrote that the labor supply in Argentina before 1930 was "perfectly elastic at the going wage (plus some differential) in the industrial centers of Italy and Spain" (1970: 21-2). Nathaniel Leff thought the same was true of the Brazilian Southeast and that elastic immigrant labor supplies could account for stable wages in Sao Paulo and Santos from the 1880s onwards (Table 2; Leff 1992: 6). If the elastic labor supply thesis is correct, then late 19th century Latin emigration should have been far more

responsive to wage gaps between home and abroad compared with the early emigrants from northwest Europe going to North America, Australia and New Zealand. The hypothesis is soundly rejected (Hatton and Williamson 1994; 1998: Chp. 3): Latin emigrants were no more responsive to wage gaps between home and abroad than was the case for other European emigrants. It is simply not true that the Latin economies in the late 19th century had more elastic emigrant labor supplies than the rest of Europe. This revisionist finding is consistent with Alan Taylor's (1994) research which shows that Argentina=s immigration was no more responsive to wage gaps than was Australia=s. This new evidence seems to do heavy damage to the arguments of Sir Arthur Lewis (1978a) and Carlos Diaz-Alejandro (1970) that Latin American development took place under uniquely elastic labor supplies.

Without the wage gaps favoring the more labor scarce parts of Latin America, the Mediterranean migrants would never have come. And they are certainly the ones which mattered. As Figure 9 suggests, the Latin American wage advantage over the Mediterranean Basin (a population weighted average of Italy, Portugal and Spain[7]) collapsed from the early 1890s to World War I. In fact, by 1918 there was very little real wage advantage that Argentina, Uruguay and Cuba had to offer potential emigrants from the Basin, and Mexico had fallen way behind. There was a lively Latin America rebound in the 1920s and 1930s, but the high wage leaders -- Cuba, Mexico and the Southern Cone -- never regained their late 19th century advantage. This is one reason why Latin American immigration rates fell off in the interwar decades; another reason, of course, was that the immigrating countries adopted less generous and even in some cases hostile policies towards the European emigrants (Timmer and Williamson 1998).

Prior to 1914, the size of the gaps also had an important impact on <u>where</u> the immigrants went in Latin America. Table 1 and Figure 9 suggest the biggest immigration rates should have been recorded by the Southern Cone, illustrated by Argentina and Uruguay. The next biggest rates should have been Cuba, followed by Mexico, followed far behind by the others. The problem is that the comparative immigration data for Latin America isn=t good enough to perform a strict test of what seems to be a plausible hypothesis. Yet,

imperfect data in Table 6 confirm it. In the 1870s and 1880s, the immigration rates in Argentina were five to six times those of Brazil. Even if we assume that all the Brazilian immigrants went to the Southeast, the immigration rates to the Brazilian Southeast in the 1870s would still have been less than half that of Argentina.[8] By the first decade of the present century, Argentina had the highest immigration rates in the New World. Cuba was in second place, even higher than the United States. Brazil was in last place, one quarter of Cuba and one tenth of Argentina. As for the (poorly-documented) rest, Nicholas Sanchez-Albornoz (1974: 153-4) reports that the Mexican census of 1900 recorded only 0.5 percent foreign-born, the Venezuelan share was only 4 percent in 1891, and even the Chilean share was only 4.7 percent in 1907. It certainly seems like Athe tide of migration ... flowed only toward the most developed areas@ (Sanchez-Albornoz 1974: 154), and also, it might be added, the tide seemed to be deflected by the tyranny of distance.

There is, of course, another way to explore this correlation. Did high wage regions in Latin America have higher rates of population and labor force growth than low wage regions? The immigrations from Europe would have helped yield that result, as we have seen. But the domestic population response should have reinforced the immigration response: the more labor scarce and high wage regions should have encouraged couples to marry younger and to have more children, and the children were more likely to survive. Figure 10 confirms the hypothesis for the period 1850-1940: here the rate of population growth is regressed on the initial real wage; the estimated coefficient is 0.012, and the t-statistic is 2.220. Of course, the finding that high wages today encourages a positive labor supply response tomorrow does not necessarily imply a rejection of the Malthusian proposition that a swollen population today, with fixed resources, implies diminishing returns, declining real wages and living standards tomorrow. We will come back to this issue at the end of this section.

Thus, the fact that labor supplies to Argentina and Brazil were not perfectly or even uniquely elastic did not imply that the immigrations were small or that they failed to have an impact on population and labor force growth. However, there are other reasons why the migrations to the Southern Cone, at least, were mass.

A boom in the natural rate of population increase two decades earlier was a very powerful force serving to push up emigration rates in Italy and Portugal, experience on the upswing of the demographic transition that was replicated in the rest of Europe earlier in the century. While there was still a wage gap favoring the Southern Cone two to one, these demographic events were by far the most powerful forces accounting for the surge in Italian and Portuguese emigration rates after the 1880s. Spain, however, is an exception: rates of natural increase were falling in the 1870s and 1880s, not rising (Moreda 1987). If emigrant-inducing demographic forces were absent in Spain after the 1880s, why the rise in Spanish emigration rates? The answer seems to lie largely with economic failure at home. The wage gap between Spain and destination countries remained enormous: the ratio of Argentine to Spanish real wages was 2.3 in 1885, 3.1 in 1895, 3.6 in 1905 and 2.5 in 1913. This fact explains almost all of the surge in Spanish emigration. The same was true of Portugal, although the failure at home was not nearly as great. In contrast, Italian wages were catching up with those in destination countries -- Argentina, Germany and the United States -- and that wage success muted the surge in Italian emigration by partially offsetting those powerful emigrant-inducing demographic forces.

For all three Latin countries, there were additional underlying fundamentals that they shared and which served to contribute to the surge in emigration: modest rates of industrialization (e.g., slow rates of Agood@ job creation) and rising migrant populations abroad which sent remittances home. Nonetheless, what really made the Latin countries different after the 1880s was the delayed demographic transition and the economic failure in Portugal and Spain. Furthermore, Sanchez-Alonso (1998) has stressed the role that policy played in creating an even poorer emigration environment in Spain. While the rest of the world stuck with the gold standard, Spain depreciated the peseta (and raised tariffs on cereals) so that Spanish agriculture could compete with foreign imports in the domestic market. This policy served to raise the demand for unskilled labor at home and to reduce emigration push.

So, it was not elastic labor supply responses to wage gaps that produced the mass migrations from

the Mediterranean to Argentina, Chile, Uruguay and the Brazilian Southeast. Rather, it was demographic events, poor policy and economic failure in the Mediterranean. And these mass migrations mattered, just as they did in so many other parts of the Atlantic Economy. The poorest European countries tended to have the highest emigration rates, the richest new world countries tended to have the highest immigration rates, while the European industrial leaders and the poorest new world laggards both tended to lie in the middle with net migration close to zero. Where we can measure it, big migrations translated into big labor force impact in both sending and receiving regions (Taylor and Williamson 1997; O=Rourke and Williamson 1997; Williamson 1998d): mass migration after 1870 served to augment the 1910 combined new world labor force in Argentina, Australia, Brazil, Canada, and the United States by an enormous 49 percent, to reduce the 1910 labor force in the emigrant countries around the poor European periphery (including Iberia and Italy) by a very large 22 percent, and, where the net migrations were much more modest, to reduce the 1910 labor force in the European industrial core by tiny 2 percent. Mass migration by itself probably explained about 70 percent of the real wage convergence in the late 19th century Atlantic economy (Taylor and Williamson, 1997; O'Rourke and Williamson, 1998, ch. 8).

This late 19th century Atlantic economy sample just discussed includes Argentina and Brazil, but no other Latin American countries. What role did mass migration play elsewhere in Latin America? Since we have already seen that the migration data is poor for the rest of Latin America, we will have to make do with cruder population data. While Figure 10 and Table 6 confirmed that rich Latin American countries had the highest rates of immigration and population growth, we now ask a different question: Did immigration and population growth tend to erode the wage advantage in the more labor scarce economies? To get an answer, we borrow from the new empirical growth theory and regress per anum real wage growth on the real wage at the start of the period (giving poor countries the chance to exhibit Acatch-up@ on the rich), the rate of population growth (giving diminishing returns a chance to exhibit its effects), and a dummy for the pre-1919 versus the post-1918 years (giving the boom and bust in the world economy a chance to have its influence on

growth performance in Latin America). The results for 1850-1940 are disappointing (estimated coefficient, with t-statistics in parentheses):

population growth	+1.790 (2.895)
initial real wage	- 0.015 (0.918)
dummy=1 if <1919	+2.974 (3.165)

In short, there is no evidence of catching up within Latin America (the sign is right on the initial real wage, but the t-statistic too low), the coefficient on the dummy variable confirms that growth was far faster before 1919 than after, and there is absolutely no evidence of diminishing returns (the significant coefficient on population growth is positive, not negative).

Wage-Rental Ratio Trends in Argentina

Eli Heckscher and Bertil Ohlin argued that the integration of global commodity markets would lead to convergence of international factor prices, as countries everywhere expanded the production and export of commodities which used their abundant (and cheap) factor intensively. The only historical evidence for Latin America that I am aware of, wage-rental ratio trends from Argentina (O'Rourke, Taylor and Williamson 1996), seems to be consistent with Heckscher and Ohlin. They appear in Table 7.

The trade boom between the 1870s and World War I led to falling wage-rental ratios in relatively land-abundant Argentina, just as Heckscher and Ohlin would have predicted. As the exports of land-intensive products boomed, so did the demand for land and thus rents. As the imports of labor-intensive products also boomed, the demand for labor fell, at least relative to land, and thus so did the wage-rental ratio. Where 1913=1.0, the wage-rental ratio plunges from about 4.8 in 1883-1889 to about 0.6 in 1915-1919. Alternatively, the ratio of land rents to wages soared. As it turns out, these trends were typical everywhere in the land-abundant periphery, like Australia and North America, where the possibilities of trade with the European core was being exploited (O'Rourke, Taylor and Williamson 1996). Exactly the opposite trends

were taking place in Europe, especially in those parts of Europe which stuck to their free trade guns: i.e., wage-rental ratios soared in Britain, Ireland and Scandinavia. To the extent that land holdings were highly concentrated at the top, these trends clearly implied rising inequality in Argentina and falling inequality in Europe. Furthermore, when the world economy fell apart after World War I, the decline in the wage-rental ratio in Argentina stopped and actually began to rise in the 1930s (Table 7).

So much for factor demand and globalization. What about factor supply? As we pointed out above, W. Arthur Lewis (1954) used his famous labor surplus model to show how early industrialization could create inequality (and also a rising surplus to finance domestic-savings-constrained accumulation). Stable real wages implied rising profit shares economy-wide. According to his model, the worker fails to share in GDP per capita growth since elastic labor supplies keep wages and living standards stable. The Lewis model is quiet about what happens to land rents, but the classical model from which it was derived clearly predicted a rise. As we have seen, Diaz-Aljandro (1970), on Argentina, and Leff (1972; 1992), on Brazil, both have used the labor surplus model to predict stable real wages in Latin America, appealing to the migration of surplus labor from the Mediterranean. While the thesis that these parts of Latin America had more elastic labor supllies is rejected, they did have higher rates of immigration and labor force growth. This process of intensification may have suppressed real wage growth relative to other factor prices like land rents. Since the mass migrations into Argentina dropped sharply after World War I, that fact is consistent with the turn-around in the wage-rental ratio drift in Table 7.

It follows that the Heckscher-Ohlin globalization model and the Lewis labor-surplus model both predict falling wage-rental ratios and rising inequality in Latin America prior to World War I, and the opposite thereafter. Thus, discriminating empirically between these two competing views will prove difficult since both were at work. Regardless of which thesis explains Argentine history best, we need to know whether this experience was ubiquitous across Latin America.

Hints and Hunches about Inequality Trends in Latin America

Complete income distributions at various benchmarks between the mid-19th century and World War II are unavailable for any Latin American country, including Argentina. But even if such data were available, it is not obvious that they would offer the best way to search for the underlying causes of changing inequality. Our interest here is factor prices: wages, rents and the structure of pay. How did the typical unskilled worker near the bottom of the distribution do relative to the typical landowner or capitalist near the top, or even relative to the typical skilled blue collar worker or educated white collar employee near the middle? The modern debate over OECD inequality has a fixation on wages, but since land and landed interests were far more important to late 19th century inequality trends -- especially in the more agrarian Latin America -- we need to add them to our distribution inquiry. In any case, we have two kinds of evidence available to document inequality trends in Latin America prior to 1940: trends in the wage-rental ratio, which we have already explored, but, sad to say, are limited to Argentina; and trends in the ratio of the unskilled wage to GDP per capita, which we have not yet explored, and which are available for seven Latin American regions between 1870 and 1940.

Table 8 reports trends in the ratio of the unskilled worker's wage (**w**) to the returns on all factors per person as measured by Maddison's (1995) and Astorga and FitzGerald-s (1998) estimates of GDP per capita (**y**). True, the ratio could be influenced by changes in the labor participation rate alone. If there was a sharp increase in population from, say, a rise in fertility and thus no increase in workers of adult age, **w/y** would (spuriously) rise. That is, nothing would happen to the wage or to GDP, but GDP per capita would fall. In contrast, if there was a sharp increase in population from the immigration of adult labor, **w/y** would fall, since the adult immigrants would tend to lower wages but increase per capita income as labor participation rates rose. Thus, the pre-WWI immigration into Latin America probably tends to make **w/y** trends overstate rising inequality there. Still, trends in **w/y** should approximate changes in the economic distance between the

working poor near the bottom of the distribution and the average citizen in the middle of the distribution.[9]

Table 8 shows that any successful explanation of changes in **w/y** in Asia between 1870 and 1940 will have to be complex: the Heckscher-Ohlin trade model and the Lewis labor surplus will not, by themselves, account for all the variety.

Argentina, Mexico and Uruguay document the longest time series, and Table 8 shows that they share the same trends. They all underwent a long, steep decline in **w/y** before it flattened out or even rose after World War I. The turning point for all three is 1915-1919, a result consistent with Argentina=s wage-rental ratio trends in Table 7. Although its time series is shorter, Cuba seemed to obey the same laws of motion and the same turning point. Colombia=s time series is even shorter than Cuba=s, so we do not know whether 1910-1914 was a turning point for Colombia or not. The only evidence in Table 8 inconsistent with either the Heckscher/Ohlin or the Lewis explanations is Brazil, which underwent a steady decline in **w/y** from the turn of the century onwards. The behavior of this inequality proxy can be best summarized for all of Latin America by pooling the annual data underlying the five-year averages in Table 8. The results of a non-linear regression are plotted in Figure 11,[10] and the predicted time when **w/y** reached a minimum is 1918-1919.

Why did the real wage lag behind GDP per capita in so much of Latin America during the First Great Globalization Boom? Is this evidence of some weaker version of the Lewis model, no constant wage but rather sluggish wage growth and modest trickling down? Is it evidence supporting the factor-price convergence theorem? Or is it both? And why the common turning point for economies with such different attributes? Since it seems unlikely that such dissimilar economies could share the same Lewis labor supply turning point, perhaps a more likely explanation lies with world markets. These countries were more likely to have shared similar price shocks which produced the same trends in **w/y**.

We have found an important Latin American stylized fact. Real wages lagged behind GDP per capita growth everywhere in Latin America up to the World War I decade. Real wages outstripped GDP per capita growth thereafter. We interpret these trends as a proxy for rising inequalty during the First Great

Globalization Boom and falling inequality during the interwar years. What accounts for this stylized fact? This paper will duck this question, adding it to that lengthening agenda, but it should be noted that the same stylized fact appears in Asia (Williamson 1998a).

An Agenda

This real wage data base has served us well in generating a research agenda for the economic performance of Latin America over the century before 1940.

By focusing on relative growth performance within Latin America, rather than between Latin America and the European OECD or the United States, two stylized facts have emerged that need explanations. Across the 20th century, Latin America has undergone dramatic convergence: living standards in poor countries have been catching up with those in rich. How much of this has been due to economic failure among the rich, and how much to economic success among the poor? And why did all of the convergence take place in two discrete steps, 1910-1930 and 1970-1990? Do these two periods have enough in common to offer a common explanation for both? The 19th century was different: living standard gaps between rich and poor parts of Latin America widened up to the 1890s, while they narrowed thereafter. Why? Can the Krugman-Venables model account for the inverted-U?

Any effort to confront these two stylized facts must augment the quality and coverage of those explanatory variables which have had success more generally in the new growth literature. In particular, any agenda whose goal it is to isolate the role of policy in accounting for these trends, needs to control for demography, the luck of the draw in world commodity markets, the breakdown of the tyranny of distance, the rise and fall of integrated world factor markets, and other forces.

Trends in the wage-rental ratio and in the wage/GDP-per-capita ratio have produced a third stylized fact. Both of these ratios trend steeply downwards to World War I, then trend upwards immediately thereafter. Why? Since both of these measures are proxies for inequality, they take on even greater

importance. So, what accounts for this stylized fact, a fact that has been recently discovered in Asia too? Is it the consequence of the Heckscher-Ohlin model? If so, is it world price shocks doing the work, or is it instead changes in attitudes towards globalization, open prior to World War I and closed thereafter? Alternatively, was factor accumulation doing the work, the heavy immigration of capital and labor combining with less elastic land prior to World War I, while the opposite thereafter? In short, was it commodity markets or factor markets which accounted for that inequality turning point? Or was it something else?

Table 1

The Latin American Real Wage Hierarchy Near the Turn of the Century

Region	Real Wage Relative to Great Britain (in percent)		
	1873-1883	1899-1903	1909-1913
Argentina	74.2	100.9	97.9
Brazil, Southeast	18.8	18.3	22.0
Brazil, Northeast	5.2	5.0	7.7
Colombia	17.3	26.2 ***	24.5
Cuba			73.9
Mexico	67.3 *	58.2	65.3
Uruguay	97.0 **	82.0	97.4

Sources and Notes: The Latin American data are from Appendix Tables 1-6, PPP-adjusted with Great Britain in 1913=100 in Appendix Table 7.2. The British data is taken from my revised Atlantic economy data base (Williamson 1995; revised in O'Rourke and Williamson 1997).

* As the Mexico real wage series starts only in 1877, this entry reports an average for 1877-1883.

** As the Uruguay real wage series starts only in 1880, this entry reports an average for 1880-1883.

*** As the Colombia real wage series excludes the years 1901-1908 because of hyperinflation in the country, this entry reports an average for 1899-1900.

Table 2

Real Wage Performance in Latin America, 1830-1939

(1913=100)

Period	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1830-1834		38.0					
1835-1839		34.6					
1840-1844		36.3					
1845-1849		36.1					
1850-1854		45.9					
1855-1859		45.1	40.0				
1860-1864		53.3	73.2				
1865-1869	55.6	50.4	74.2	100.8			
1870-1874	61.4	53.0	63.8	83.2			
1875-1879	54.3	65.3	62.7	70.8			
1880-1884	69.0	73.2	57.7	84.0		70.2	88.5
1885-1889	82.8	84.0	53.2	119.7		69.9	115.6
1890-1894	90.8	71.6	49.0	133.7		72.3	135.0
1895-1899	97.7	72.9	54.6	155.5		79.1	113.7
1900-1904	111.3	94.0	86.6	--		80.1	104.5
1905-1909	98.4	103.4	112.1	--	107.4	82.0	103.0
1910-1914	101.8	102.2	110.2	130.0	99.5	76.8	105.2
1915-1919	76.1	76.6	70.6	158.9	92.4	30.7	73.9
1920-1924	110.6	68.4	58.9	194.2	117.5	38.5	110.9
1925-1929	135.9	80.9	60.4	252.9	136.0	49.9	128.6
1930-1934	139.3	97.1	44.9	375.4	141.1	60.7	145.4
1935-1939	138.6			302.4	135.0	48.6	137.4

Sources: Appendix Tables 1-6.

Table 3

Real Wage in Latin America Relative to Great Britain, 1830-1939
(in percent)

Period	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1830-1834		14.9					
1835-1839		14.1					
1840-1844		14.0					
1845-1849		13.2					
1850-1854		16.2					
1855-1859		16.8	4.4				
1860-1864		20.4	8.3				
1865-1869	81.8	17.2	7.6	28.6			
1870-1874	86.5	17.3	6.2	22.6			
1875-1879	65.8	18.2	5.2	16.3			
1880-1884	81.2	19.9	4.7	19.0		66.5	
1885-1889	85.3	20.0	3.8	23.8		58.1	95.4
1890-1894	87.8	16.1	3.3	25.0		56.4	109.2
1895-1899	85.9	14.8	3.3	26.3		56.0	119.2
1900-1904	101.0	19.7	5.4	--		58.4	91.8
1905-1909	92.0	22.3	7.2	--	76.2	61.7	86.8
1910-1914	100.8	23.4	7.4	24.8	74.8	60.6	88.2
1915-1919	91.1	21.5	5.8	36.9	84.3	30.0	95.2
1920-1924	103.9	14.8	3.8	35.0	84.0	29.1	81.0
1925-1929	125.5	17.2	3.8	44.9	95.3	37.0	95.3
1930-1934	116.6	18.8	2.6	60.5	89.9	40.7	108.7
1935-1939	115.2			48.4	85.1	32.4	111.4
							104.4

Sources and Notes: See notes to Table 1.

Table 4

Real Wage Performance in Latin America by Decades Relative to Great Britain and the Mediterranean Basin, 1830s-1930s

Period	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
A. Relative to Great Britain							
1830s		14.5					
1850s		16.5					
1870s	76.2	17.7	5.7	19.5			
1890s	86.8	15.5	3.3	25.7		56.2	105.5
1909-1913	97.9	22.0	7.7	24.5	73.9	65.3	97.4
1930s	115.9			54.4	87.5	36.6	107.9
B. Relative to Weighted Average of Italy, Portugal, and Spain							
1830s		30.5					
1850s		35.8					
1870s	207.7	48.9	15.5	53.1			
1890s	267.8	47.5	10.1	79.1		173.2	324.8
1909-1913	212.1	47.8	16.8	53.1	160.5	140.9	211.5
1930s	201.1			94.4	152.2	63.0	187.0
C. Per Annum Growth Rate (%)							
1830s-1850s		1.27					
1850s-1870s		1.50					
1870s-1890s	3.15	1.11	-0.90	4.39			
1890s-1909/13	0.46	2.24	7.58	-0.55		0.67	-0.69
1909/13-1930s	1.58			6.72	1.56	-1.49	1.20

Sources and Notes: For panel A, see notes to Table 1. For panel B, see Appendix Table 7.4 for PPP-adjusted Latin American real wages where emigrating Mediterranean countries in 1913=100. The real wage series for the emigrating Mediterranean countries (Italy, Portugal, and Spain) is a weighted average of the respective real wage indices of these three countries, where the weights used were the 1913 populations of these countries found in Maddison 1995. For more details, see the text preceding Appendix Table 7.4. Panel C is based on the real wage data in Appendix Tables 1-6.

Table 5

Real Wages in Latin America Relative to Argentina, 1830-1939
(in percent)

Period	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1865-1869	21.0	9.2	35.0			
1870-1874	20.2	7.2	26.2			
1875-1879	28.3	8.1	26.1			
1880-1884	25.1	5.9	24.2		84.3	120.7
1885-1889	24.0	4.5	28.6		69.9	131.1
1890-1894	19.1	3.8	29.3		66.2	137.5
1895-1899	17.8	3.8	31.0		66.2	111.5
1900-1904	19.5	5.3	--		57.9	86.0
1905-1909	24.3	7.8	--	82.9	67.1	95.9
1910-1914	23.2	7.4	24.6	74.2	60.4	94.5
1915-1919	23.2	6.4	40.8	92.9	32.5	90.2
1920-1924	14.4	3.7	33.9	79.8	27.8	92.2
1925-1929	13.7	3.1	35.7	76.0	29.5	86.7
1930-1934	16.1	2.2	51.8	77.2	34.9	95.6
1935-1939			42.0	74.0	28.1	90.7

Source: Appendix Table 7.1.

Table 6

New World Immigration Rates by Decade (per 1000 mean population)

Country	1851-60	1861-70	1871-80	1881-90	1891-00	1901-10
Latin America						
Argentina	38.5	99.1	117.0	221.7	163.9	291.8
Brazil			20.4	41.1	72.3	33.8
Cuba						118.4
Other New World						
Australia		122.2	100.4	146.9	7.3	9.9
Canada	99.2	83.2	54.8	78.4	48.8	167.6
United States	92.8	64.9	54.6	85.8	53.0	102.0

Source: Hatton and Williamson (1998: Table 2.2) based on Ferenczi and Willcox (1929: 209); Taylor (1992: Appendix Table 1.A2).

Table 7

Argentine Wage/Land Value Ratio Trends, 1883-1940
(1913=1.00)

Period	Argentina Wage/Land Value Ratio
1883-1889	4.8418
1890-1894	4.3427
1895-1899	3.7043
1900-1904	3.4503
1905-1909	1.6100
1910-1914	1.0001
1915-1919	0.6379
1920-1924	0.6324
1925-1929	0.6072
1930-1934	0.6951
1935-1939	0.7089

Source: Appendix Table 1.4.

Table 8

Wage/GDP Per Capita Ratio Trends, 1870-1939
(1913=1.00)

Period	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1870-1874	1.6947						
1875-1879	1.3286						
1880-1884	1.4769					1.1881	1.9047
1885-1889	1.5663					1.0899	2.2004
1890-1894	1.5191					1.0387	2.2555
1895-1899	1.4428					1.0503	1.6946
1900-1904	1.4570	1.2209	1.5325			0.9702	1.3658
1905-1909	1.0500	1.1529	1.4431		1.2108	0.8633	1.0966
1910-1914	1.0433	1.0318	1.1451	1.3317	0.9924	0.7738	1.0759
1915-1919	0.9230	0.7899	0.6751	1.5811	0.9329	0.2982	0.8981
1920-1924	1.1298	0.6280	0.5383	1.9191	1.2210	0.3615	1.1346
1925-1929	1.2440	0.5912	0.5361	2.2206	1.4785	0.4613	1.1785
1930-1934	1.4144	0.5760	0.3652	3.0818	1.5704	0.6903	1.4745
1935-1939	1.3032			2.0995	1.4853	0.5129	1.2918

Sources: GDP per capita data for Argentina, Colombia, and Mexico are from Maddison 1995, while the information for Cuba is from Astorga and FitzGerald 1998. Income per capita estimates for the regions of Brazil are from Gomes 1986. Note that even though the PPP-adjustment benchmarks for Appendix 7 were based only on Astorga and FitzGerald, we have used the Maddison source of GDP per capita data here as it extends coverage for more years. (Astorga and FitzGerald offer only decadal coverage.) These GDP per capita figures were interpolated where necessary and rebased so that 1913=100. The real wage data are from Appendix Tables 1-6.

Table 9

Regional Real Wage Indices for Brazil, 1855-1935
(SE -- Southeast; NE -- Northeast)

Period	Average of (SE-NE)/NE ratio
1855-1859	2.89
1860-1864	1.57
1865-1869	1.35
1870-1874	1.80
1875-1879	2.51
1880-1884	3.28
1885-1889	4.33
1890-1894	3.92
1895-1899	3.64
1900-1904	2.65
1905-1909	2.13
1910-1914	2.19
1915-1919	2.61
1920-1924	2.92
1925-1929	3.64
1930-1935	6.03

Sources and Notes: The real wage series used for the calculations were PPP-adjusted. See Appendix Table 7.2.

References

Allen, R. [1998], "The Great Divergence: Wages and Prices from the Middle Ages to the First World War," paper presented to the **Conference on Regions**, Queens University, Kingston, Canada (March 6-7).

Astorga, P. and V. FitzGerald [1998], "The Standard of Living in Latin America During the Twentieth Century," **Development Studies Working Paper N. 117**, Queen Elizabeth House, St. Antony=s College, University of Oxford (May).

Blainey, G. [1966], **The Tyranny of Distance: How Distance Shaped Australia's History** (Melbourne: Macmillan, revised 1982 ed.).

Brading, C. W. [1969], "Un analisis comparativo del costo de la vida en diversas capitales de hispanoamerica," **Boletin Historico de la Fundacion John Boulton** 20 (March 1969): 229-63.

Bulmer-Thomas, V. [1994], **The Economic History of Latin America Since Independence** (Cambridge: Cambridge University Press).

Coatsworth, J. [1981], **Growth Against Development -- The Economic Impact of Railroads in Porfirian Mexico** (Dekalb, Ill.: Northern Illinois University Press).

--- [1993], "Notes on the Comparative Economic History of Latin America and the United States," in W. L. Bernecker and H. W. Tobler (eds.), **Development and Underdevelopment in America: Contrasts of Economic Growth in North and Latin America in Historical Perspective** (New York).

Diaz-Alejandro, C. F. [1970], **Essays on the Economic History of the Argentine Republic** (New Haven, Conn.: Yale University Press).

Engerman, S. L. and K. L. Sokoloff [1996], "Factor Endowments, Institutions, and Differential Paths of Growth Among New World Economies: A View from Economic Historians of the United States," in S. Haber (ed.), **How Latin America Fell Behind** (Stanford, Cal.: Stanford University Press).

Ferenczi, I. and W. F. Willcox [1929], **International Migrations**, Vol. I (New York: National Bureau of

Economics Research).

Fletcher, M. E. [1958], "The Suez Canal and World Shipping, 1869-1914," **Journal of Economic History** 18: 556-73.

Gerschenkron, A. [1952], AEconomic Backwardness in Historical Perspective,@ in B. Hoselitz (ed.), **The Progress of Underdeveloped Areas** (Chicago: University of Chicago Press).

Harley, C. K. [1980], "Transportation, the World Wheat Trade, and the Kuznets Cycle, 1850-1913," **Explorations in Economic History** 17 (July): 218-50.

--- [1988], "Ocean Freight Rates and Productivity, 1740-1913: The Primacy of Mechanical Invention Reaffirmed," **Journal of Economic History** 48: 851-76.

Hatton, T. J. and J. G. Williamson [1994], "Late-Comers to Mass Emigration: The Latin Experience," in T. J. Hatton and J. G. Williamson (eds.), **Migration and the International Labor Market, 1850-1939** (London: Routledge).

--- [1998], **The Age of Mass Migration: Causes and Economic Impact** (New York: Oxford University Press).

Krugman, P. [1991a], **Geography and Trade** (Cambridge, Mass.: MIT Press).

--- [1991b], AIncreasing Returns and Economic Geography@, **Journal of Political Economy** 99, 3: 483-99.

Krugman, P. R. and A. Venables [1990], "Integration and the Competitiveness of Peripheral Industry", in Bliss, C. and J. Braga de Macedo (eds.), **Unity with Diversity in the European Community** (Cambridge: Cambridge University Press): 56-77.

--- [1995], "Globalization and the Inequality of Nations", **NBER Working Paper** 5098, National Bureau of Economic Research, Cambridge, Mass. (April).

Leff, N. H. [1972], AEconomic Development and Regional Inequality: Origins of the Brazilian Case,@ **Quarterly Journal of Economics** LXXXVI, 2 (May): 243-62.

--- [1992], "Economic Development in Brazil, 1822-1913," **First Boston Working Paper** FB-92-02,

Columbia University.

Lewis, W. A. [1954], "Economic Development with Unlimited Supplies of Labour," **Manchester School of Economic and Social Studies** 22: 139-91.

--- [1969], **Aspects of Tropical Development** (Uppsala: Wiksell).

--- [1978a], **The Evolution of the International Economic Order** (Princeton, N.J.: Princeton University Press).

--- [1978b], **Growth and Fluctuations 1870-1913** (Cambridge: Allen and Unwin).

Maddison, A. [1991], **Dynamic Forces in Capitalist Development** (Oxford: Oxford University Press).

--- [1995], **Monitoring the World Economy 1820-1992** (Paris: OECD Development Centre Studies).

Mokyr, J. [1990], **The Lever of Riches: Technological Creativity and Economic Progress** (New York: Oxford University Press).

Moreda, V. P. [1987], "Spain's Demographic Modernization, 1800-1930," in N. Sanchez-Albornoz (ed.), **The Economic Modernization of Spain, 1830-1930** (New York: New York University Press).

Newland, C. [1998], AEconomic Development and Population Change: Argentina 1810-1870,@ in J. Coatsworth and A. Taylor (eds.), **Latin America and the World Economy Since 1800** (Cambridge, Mass.: Harvard University Press).

North, D. C. [1958], "Ocean Freight Rates and Economic Development 1750-1913," **Journal of Economic History** 18: 538-55.

O=Rourke, K. H. [1997], "The European Grain Invasion, 1870-1913," **Journal of Economic History** 57 (December): 775-801.

O=Rourke, K. H.; A. M. Taylor; and J. G. Williamson [1996], AFactor Price Convergence in the Late 19th Century,@ **International Economic Review** 37: 499-530.

O=Rourke, K. H. and J. G. Williamson [1994], "Late 19th Century Anglo-American Factor Price Convergence: Were Heckscher and Ohlin Right?" **Journal of Economic History** 54 (December):

892-916.

--- [1997], "Around the European Periphery 1870-1913: Globalization, Schooling and Growth," **European Review of Economic History** 1: 153-90.

--- [1998], **Globalization and History** (Cambridge, Mass.: MIT Press, forthcoming).

Parthasarathi, P. [1998], "Rethinking Wages and Competitiveness in the Eighteenth Century: Britain and South India," **Past and Present** 158: 79-109.

Pomeranz, K. [1997], "Re-thinking 18th Century China: A High Standard of Living and Its Implications," paper presented to the All-UC Group in Economic History **Conference on Rethinking the History of Wages, Prices and Living Standards**, Davis, California (November 14-16).

Radalet, S., J. Sachs and J.-W. Lee [1997], "Economic Growth in Asia," Chp. 2 in **Emerging Asia** (Manila: Asian Development Bank).

Sachs, J. D. and A. Warner [1995], "Natural Resource Abundance and Economic Growth," **NBER Working Paper** No. 5398, National Bureau of Economic Research, Cambridge, Mass. (December).

Sanchez-Albornoz, N. [1974], trans. by W. Richardson, **The Population of Latin America: A History** (Berkeley, California: University of California Press).

Sanchez-Alonso, B. [1998], "What Slowed Down the Mass Migration from Spain in the Late Nineteenth Century?," paper presented to the **Conference on Long Run Economic Change in the Mediterranean Basin**, Istanbul, Turkey (June 4-7).

Taylor, A. M. [1992], **Argentine Economic Growth in Comparative Perspective**, PhD thesis, Department of Economics, Harvard University.

--- [1994], "Mass Migration to Distant Southern Shores," in T. J. Hatton and J. G. Williamson (eds.), **Migration and the International Labor Market, 1850-1939** (London: Routledge).

Taylor, A. M., and J. G. Williamson [1997], "Convergence in the Age of Mass Migration," **European Review of Economic History** 1: 27-63.

Timmer, A. S. and J. G. Williamson [1998], AImmigration Policy Prior to the Thirties: Labor Markets, Policy Interactions and Globalization Backlash,@ **Population and Development Review** (forthcoming).

Williamson, J. G. [1965], "Regional Inequality and the Process of National Development," **Economic Development and Cultural Change** 13, 4, pt. II (July), Supplement.

--- [1995], "The Evolution of Global Labor Markets Since 1830: Background Evidence and Hypotheses," **Explorations in Economic History** 32: 141-96.

--- [1996], AGlobalization, Convergence and History,@ **Journal of Economic History** 56: 277-306.

--- [1997], AGlobalization and Inequality, Past and Present,@ **World Bank Research Observer** 12: 117-35.

--- [1998a], AReal Wages and Relative Factor Prices in the Third World 1820-1940: Asia,@ **HIER Discussion Paper No. 1844**, Department of Economics, Harvard University (August).

--- [1998b], AReal Wages and Relative Factor Prices in the Third World 1820-1940: The Mediterranean Basin,@ **HIER Discussion Paper No. 1842**, Department of Economics, Harvard University (July).

--- [1998c], AReal Wages and Relative Factor Prices in the World Economy 1820-1940,@ paper to be presented to the **Conference on 20th Century Growth**, Valencia, December 13-14.

--- [1998d], AGrowth, Distribution and Demography: Some Lessons from History,@ **Explorations in Economic History** 35: 241-71.

Wood, A. [1994], **North-South Trade, Employment and Inequality: Changing Fortunes in a Skill-Driven World** (Oxford: Clarendon Press).

APPENDIX 1

Nominal Wage, Cost of Living, Real Wage, and Land Price in Argentina, 1864-1940

APPENDIX TABLE 1.1: Nominal wage index
APPENDIX TABLE 1.2: Cost of living index
APPENDIX TABLE 1.3: Real wage index

***Nominal Wage, Cost of Living, and Real Wage, 1864-1940*: All three of these series are taken from Jeffrey G. Williamson, "The Evolution of Global Labor Markets since 1830," *Explorations in Economic History* 32(2), April 1995, pp. 141-196. Monthly wages of urban porteros and peónes up to 1903, daily wages of peónes up to 1914, and average wages in Buenos Aires thereafter. Cost of living is for Argentina up to 1914, and for Buenos Aires thereafter.**

All three time series are indexed 1913=100.

APPENDIX TABLE 1.4: Land price index and Wage/Rent index

***Land Price and Wage/Rent Index, 1883-1913*: The land price data is taken from Kevin O'Rourke, Alan Taylor, and Jeffrey G. Williamson, "Factor Price Convergence in the Late 19th Century," *International Economic Review* 37, 1996, pp. 499-530. These land prices are based on rural land sales in Buenos Aires province.**

***Land Price and Wage/Rent Index, 1913-1940*: The land price data is taken from Instituto de Estudios Económicos sobre la Realidad Argentina y Latinoamericana (IEERAL), "Estadísticas de la evolución económica de Argentina. 1913-1984," *Estudios*, Ano IX, No 39, July/September 1986, p. 128, Cuadro 9. This source quotes the average price of land used for various agricultural purposes, namely livestock ranching, and the cultivation of wheat, corn, and fodder. It also indicates that the figures for 1913-1915 were obtained by extrapolating the available data, based on the trends of an agricultural wholesale price index presented in Cuadro 6 of the same article. We link this with the pre-1913 data to form the land price series.**

The appendix table also reports the wage/rent index. Both time series are indexed 1913=100. Interpolated and extrapolated data, as well as figures calculated based on such data, are starred (*).

APPENDIX TABLE 1.1
Nominal Wage in Argentina, 1864-1940 (1913=100)

Year	Nominal Wage Index (1913=100)
1864	26.0
1865	25.2
1866	26.8
1867	26.8
1868	26.8
1869	27.6
1870	31.5
1871	32.3
1872	33.1
1873	33.1
1874	37.0
1875	36.2
1876	36.2
1877	33.9
1878	31.5
1879	30.7
1880	35.4
1881	34.6
1882	37.0
1883	38.6
1884	38.6
1885	38.6
1886	42.5
1887	43.3
1888	43.3
1889	43.3
1890	43.3
1891	67.7
1892	67.7
1893	67.7
1894	67.7
1895	67.7
1896	67.7
1897	67.7
1898	78.7
1899	78.7
1900	78.7
1901	78.7
1902	78.7

Year	Nominal Wage Index (1913=100)
1903	78.7
1904	80.3
1905	81.9
1906	81.9
1907	85.8
1908	85.8
1909	89.0
1910	96.1
1911	96.1
1912	102.4
1913	100.0
1914	96.9
1915	93.7
1916	93.7
1917	94.5
1918	102.4
1919	129.9
1920	158.3
1921	174.0
1922	168.5
1923	169.3
1924	170.1
1925	174.0
1926	170.9
1927	178.0
1928	187.4
1929	187.4
1930	172.4
1931	159.8
1932	152.0
1933	158.3
1934	144.9
1935	157.5
1936	162.2
1937	167.7
1938	165.4
1939	170.1
1940	175.6

APPENDIX TABLE 1.2
Cost of Living in Argentina, 1864-1940 (1913=100)

Year	Cost of Living Index (1913=100)
1864	56.8
1865	51.4
1866	46.6
1867	47.9
1868	47.9
1869	45.2
1870	47.3

Year	Cost of Living Index (1913=100)
1871	50.7
1872	59.6
1873	59.6
1874	58.2
1875	56.2
1876	57.5
1877	64.4

Year	Cost of Living Index (1913=100)
1878	65.8
1879	69.2
1880	70.5
1881	54.8
1882	50.7
1883	47.3
1884	50.0
1885	63.0
1886	54.8
1887	50.0
1888	42.5
1889	48.6
1890	68.5
1891	76.0
1892	68.5
1893	62.3
1894	72.6
1895	78.8
1896	84.2
1897	78.8
1898	70.5
1899	63.7
1900	68.5
1901	72.6
1902	72.6

Year	Cost of Living Index (1913=100)
1903	71.9
1904	69.2
1905	80.1
1906	82.2
1907	87.7
1908	88.4
1909	93.2
1910	92.5
1911	93.2
1912	96.6
1913	100.0
1914	100.0

Year	Cost of Living Index (1913=100)
1915	107.5
1916	115.1
1917	134.9
1918	170.5
1919	160.3
1920	187.7
1921	166.4
1922	140.4
1923	137.7
1924	140.4
1925	136.3
1926	132.2
1927	130.8
1928	130.1
1929	130.8
1930	132.2
1931	114.4
1932	102.1
1933	115.1
1934	102.1
1935	108.9
1936	119.2
1937	121.9
1938	120.5
1939	121.9
1940	124.7

APPENDIX TABLE 1.3
Real Wage in Argentina, 1864-1940 (1913=100)

Year	Real Wage Index (1913=100)
1864	46.0
1865	49.4
1866	57.5
1867	56.3
1868	55.2

Year	Real Wage Index (1913=100)
1869	59.8
1870	66.7
1871	64.4
1872	56.3
1873	55.2

Year	Real Wage Index (1913=100)
1874	64.4
1875	64.4
1876	63.2
1877	51.7
1878	47.1
1879	44.8
1880	50.6
1881	63.2
1882	72.4
1883	81.6
1884	77.0
1885	60.9
1886	77.0
1887	86.2
1888	101.1
1889	88.5
1890	63.2
1891	89.7
1892	98.9
1893	109.2
1894	93.1
1895	86.2
1896	80.5
1897	86.2
1898	111.5
1899	124.1
1900	114.9
1901	108.0
1902	108.0

Year	Real Wage Index (1913=100)
1914	97.7
1915	87.4
1916	81.6
1917	70.1
1918	59.8
1919	81.6
1920	83.9
1921	104.6
1922	119.5
1923	123.0
1924	121.8
1925	127.6
1926	128.7
1927	135.6
1928	144.8
1929	142.5
1930	129.9
1931	140.2
1932	148.3
1933	136.8
1934	141.4
1935	144.8
1936	135.6
1937	136.8
1938	136.8
1939	139.1
1940	140.2

Year	Real Wage Index (1913=100)
1903	109.2
1904	116.1
1905	102.3
1906	100.0
1907	97.7
1908	96.6
1909	95.4
1910	103.4
1911	102.3
1912	105.7
1913	100.0

APPENDIX TABLE 1.4
Land Price Index and Wage/Rent Index in Argentina, 1883-1940 (1913=100)

Year	Land Price Index (1913=100)	Wage/Rent Index (1913=100)
1883	6.1	635.4

Year	Land Price Index (1913=100)	Wage/Rent Index (1913=100)
1884	5.2	746.9

Year	Land Price Index (1913 = 100)	Wage/Rent Index (1913 = 100)
1885	6.5	592.1
1886	6.7	634.0
1887	12.8	338.6
1888	24.3	178.2
1889	16.4	264.1
1890	16.1 *	269.1 *
1891	15.8	428.9
1892	20.0	339.2
1893	14.6	465.0
1894	10.1	669.1
1895	16.2	418.9
1896	17.5	386.1
1897	27.8	243.4
1898	16.5	477.9
1899	24.2	325.9
1900	20.0 *	393.3 *
1901	16.6	474.6
1902	28.8	273.2
1903	27.9	281.8
1904	26.6	302.3
1905	37.1	220.5
1906	41.8	196.0
1907	83.4	102.9
1908	54.7	156.9
1909	69.2	128.6
1910	92.0	104.4
1911	80.7	119.1

Year	Land Price Index (1913 = 100)	Wage/Rent Index (1913 = 100)
1912	120.7	84.8
1913	100.0 *	100.0 *
1914	105.6 *	91.8 *
1915	115.3 *	81.3 *
1916	140.3	66.8
1917	148.6	63.6
1918	195.8	52.3
1919	236.1	55.0
1920	256.9	61.6
1921	275.0	63.3
1922	272.2	61.9
1923	270.8	62.5
1924	254.2	66.9

Year	Land Price Index (1913 = 100)	Wage/Rent Index (1913 = 100)
1925	262.5	66.3
1926	325.0	52.6
1927	309.7	57.5
1928	295.8	63.3
1929	293.1	63.9
1930	238.9	72.2
1931	259.7	61.5
1932	236.1	64.4
1933	209.7	75.5
1934	195.8	74.0
1935	184.7	85.3
1936	216.7	74.9
1937	251.4	66.7
1938	270.8	61.1
1939	255.6	66.6
1940	248.6	70.6

APPENDIX 2

Nominal Wage, Cost of Living, and Real Wage in Brazil, 1830-1937

The Southeast: Rio de Janiero

APPENDIX TABLE 2.1: Nominal wage index
APPENDIX TABLE 2.2: Cost of living index
APPENDIX TABLE 2.3: Real wage index

***Nominal Wage, Cost of Living, and Real Wage, 1830-1937*: All three time series are taken from Jeffrey G. Williamson, "The Evolution of Global Labor Markets since 1830," *Explorations in Economic History* 32(2), April 1995, pp. 141-196. Nominal wages are monthly wages for building laborers in Rio de Janiero up to 1930, and hourly wages thereafter. The cost of living index for 1830-1850 is for Rio alone; that for 1850-1870 is for Brazil; that for 1870-1913 is a wholesale price index for Brazil; and that for 1913-1937 is a "global" Brazil price deflator.**

All three Southeast time series are indexed 1913=100. Interpolated figures are starred (*).

The Northeast: Pernambuco

From 1840 to 1930, Brazil was undergoing significant regional divergence. The Southeast, based on a rapidly expanding coffee industry, outstripped the sugar and cotton based Northeast, specifically the province of Pernambuco. Thus, to attempt to represent the evolution of nominal wages, prices, or real wages in Brazil by using data from the center of the Southeastern expansion (Rio de Janiero) may be misleading. Unfortunately, data from the Northeast, the most well-documented region other than the Southeast, is incomplete. We have been able to construct nominal wage, price, and real wage indices for only rural Pernambuco, and starting only with 1855. Although the data is not continuous over the entire period, they are sufficient to imply general trends and turning points in the rural Northeast during this period of dramatic change. The sources used in constructing the Pernambuco indices are:

Peter L. Eisenberg, *The Sugar Industry in Pernambuco, Modernization Without Change, 1840-1910*. Berkeley, CA: University of California Press, 1974, pp. 154 & 190.

Robert M. Levine, *Pernambuco in the Brazilian Federation, 1889-1937*. Stanford, CA: Stanford University Press, 1978, p. 25.

Jaime Reis, "From *bangue* to *usina*: social aspects of growth and modernization in the sugar industry of Pernambuco, Brazil, 1850-1920." Chapter 15 of *Land and Labour in Latin America*, Kenneth Duncan and Ian Rutledge (eds.). Cambridge, Cambridge University Press, p. 383.

APPENDIX TABLE 2.4: Nominal wage index

***Nominal Wage, 1855-1874*: This data is taken from Eisenberg, who describes the workers as "unskilled rural labor" and the wages as "minimum daily wages for Pernambuco." Eisenberg lists his sources for each year (p. 190).**

***Nominal Wage, 1874-1935*: This data is taken from Levine, who describes them as "agricultural salaries of adult male workers in Pernambuco," although communication with Professor Levine has established that these are, in fact, minimum daily wages. Where a range of nominal wages was given for a particular year, we took the midpoint of the stated range. Levine gives data for 1874, 1896, 1900, 1910, 1920, 1926, 1931, and 1935. His 1874**

and 1910 observations match exactly with Eisenberg=s. However, Levine=s data for 1896 and 1900 show significantly different trends, a distressing contradiction. We chose to use Levine after 1874 and Eisenberg only for years before 1874 for several reasons. First, we must use the Levine data from 1910-1935 (a period not covered by Eisenberg) and thus it seems wisest to use as much of it as possible to maintain the maximum consistency over time. Second, Levine published his book later (1978 versus 1974). Since Levine knew of Eisenberg=s work (he cites it on p. 25), there is a presumption that he thought Eisenberg=s data was imperfect. Third, Reis gives nominal wage data for sugar workers that fits well with the Levine data. Finally, communication with Professor Levine has established that he carefully screened Aofficial@ data for exaggeration and dishonest reporting, and that he strove to construct an index which would truly reflect the economic status of common rural laborers. We have been unable to communicate with Dr. Eisenberg.

The Northeast nominal wage time series is indexed 1913=100. Interpolated figures are starred (*).

APPENDIX TABLE 2.5: Cost of living index

***Cost of Living, 1855-1874*: This cost of living index is taken from Eisenberg (p. 154). His index is a weighted average of prices of flour, beans, and sometimes meat. Eisenberg cites another source that would be valuable, a doctoral thesis by Gadiel Perucci entitled ALe Pernambouc (1889-1930): Contribution à l=Histoire Quantitative du Brésil.@ Thèse de doctorat de 3ème cycle. Paris, 1972. However, we have not been able to locate this source.**

***Cost of Living, 1874-1935*: This cost of living index comes from Levine (p. 25), and is calculated by dividing his nominal wage index by his real wage index. Levine does not make explicit the source of this price series nor does he list the series. Elsewhere in his book, Levine presents one other price index (pp. 189, 192), which is constructed based on foodstuffs prices in Rio de Janiero. We found however that this index was not entirely consistent with that which we had deduced from Levine=s Pernambuco wage data. Hence, we have chosen to use the series which we calculated from the data on p. 25.**

The Northeast cost of living time series is indexed 1913=100. Interpolated figures are starred (*).

APPENDIX TABLE 2.6: Real wage index

***Real Wage, 1855-1935*: The real wage series for the Northeast is simply the nominal wage series divided by the price series.**

The Northeast real wage time series is indexed 1913=100. Calculations based on interpolated figures are starred (*).

APPENDIX TABLE 2.1
Nominal Wage in Rio de Janiero, Southeast Brazil, 1830-1937 (1913=100)

Year	Nominal Wage Index (1913=100)
1830	13.6
1831	13.4
1832	9.6
1833	7.6
1834	8.6
1835	10.9
1836	12.6
1837	14.4
1838	14.1
1839	14.3
1840	13.4
1841	14.4
1842	14.4
1843	17.5
1844	15.5
1845	14.4
1846	15.5
1847	16.5
1848	17.5
1849	18.6
1850	18.6
1851	17.5
1852	19.6
1853	20.6
1854	20.6
1855	21.6
1856	23.7
1857	24.7
1858	26.8
1859	27.8
1860	32.0
1861	32.0
1862	32.0
1863	29.9
1864	29.9
1865	33.0
1866	34.0
1867	38.1
1868	39.2
1869	34.0
1870	34.0
1871	38.1
1872	40.2
1873	43.3
1874	42.3
1875	46.4
1876	49.5
1877	49.5
1878	45.4
1879	48.5
1880	46.4
1881	45.4
1882	52.6
1883	48.5
1884	52.6
1885	53.6
1886	52.6
1887	53.6
1888	52.6
1889	54.6
1890	54.6
1891	66.0
1892	76.3
1893	82.5
1894	84.5
1895	97.9
1896	87.6
1897	105.2
1898	94.8
1899	106.2
1900	103.1
1901	105.2
1902	101.0
1903	102.1
1904	106.2
1905	107.2
1906	103.1
1907	97.9
1908	106.2
1909	103.1
1910	101.0
1911	103.1
1912	103.1
1913	100.0
1914	100.0
1915	97.9
1916	109.3
1917	94.8
1918	81.4
1919	88.7
1920	95.9
1921	120.6
1922	128.9
1923	142.3
1924	160.8
1925	184.5
1926	194.8
1927	197.9
1928	213.4
1929	213.4
1930	217.5
1931	216.5 *
1932	215.4 *
1933	214.4 *
1934	213.4 *
1935	212.3 *
1936	211.3 *
1937	210.3

APPENDIX TABLE 2.2
Cost of Living in Rio de Janiero, Southeast Brazil, 1830-1937 (1913=100)

Year	Cost of Living Index (1913=100)
1830	32.0
1831	32.0
1832	17.3
1833	30.7
1834	34.7
1835	29.3
1836	33.3
1837	41.3

Year	Cost of Living Index (1913=100)
1838	46.7
1839	44.0
1840	52.0
1841	52.0
1842	34.7
1843	42.7
1844	36.0
1845	41.3
1846	48.0
1847	45.3
1848	49.3
1849	44.0
1850	38.7
1851	41.3
1852	42.7
1853	38.7
1854	50.7
1855	53.3
1856	56.0
1857	58.7
1858	56.0
1859	57.3
1860	57.3
1861	57.3
1862	58.7
1863	58.7
1864	62.7
1865	66.7
1866	68.0
1867	69.3
1868	76.0
1869	77.3
1870	76.0
1871	70.7
1872	76.0
1873	74.7
1874	77.3
1875	69.3
1876	74.7
1877	77.3
1878	74.7
1879	72.0
1880	66.7
1881	68.0
1882	69.3
1883	68.0
1884	66.7
1885	66.7
1886	64.0
1887	61.3
1888	60.0
1889	69.3
1890	69.3
1891	86.7
1892	108.0
1893	125.3
1894	126.7
1895	116.0
1896	122.7
1897	144.0
1898	150.7
1899	146.7
1900	133.3
1901	116.0
1902	101.3
1903	100.0
1904	105.3
1905	98.7
1906	94.7
1907	100.0
1908	105.3
1909	104.0
1910	102.7
1911	100.0
1912	110.7
1913	100.0
1914	86.7
1915	98.7
1916	118.7
1917	129.3
1918	140.0
1919	152.0
1920	181.3
1921	153.3
1922	168.0
1923	217.3
1924	241.3
1925	286.7
1926	234.7
1927	229.3
1928	256.0
1929	246.7
1930	216.0
1931	218.9 *
1932	221.9 *
1933	224.9 *
1934	227.9 *
1935	231.0 *
1936	234.2 *
1937	237.3

APPENDIX TABLE 2.3
Real Wage in Rio de Janiero, Southeast Brazil, 1830-1937 (1913=100)

Year	Real Wage Index (1913=100)
1830	42.6
1831	41.9
1832	55.8
1833	24.8
1834	24.8
1835	37.2
1836	38.0
1837	34.9
1838	30.2
1839	32.6
1840	27.1
1841	28.7
1842	42.6
1843	41.1
1844	41.9

Year	Real Wage Index (1913=100)
1845	34.9
1846	32.6
1847	37.2
1848	34.9
1849	41.1
1850	46.5
1851	42.6
1852	45.7
1853	52.7
1854	41.9
1855	41.1
1856	43.4
1857	43.4
1858	48.1
1859	49.6
1860	55.8
1861	55.8
1862	55.0
1863	51.2
1864	48.8
1865	50.4

Year	Real Wage Index (1913=100)
1880	70.5
1881	67.4
1882	76.0
1883	72.1
1884	79.8
1885	81.4
1886	82.9
1887	87.6
1888	89.1
1889	79.1
1890	78.3
1891	76.0
1892	70.5
1893	65.9
1894	67.4
1895	84.5
1896	71.3
1897	73.6
1898	62.8
1899	72.1
1900	77.5
1901	90.7

Year	Real Wage Index (1913=100)
1915	100.0
1916	93.0
1917	72.9
1918	58.9
1919	58.1
1920	53.5
1921	79.1
1922	77.5
1923	65.1
1924	66.7
1925	64.3
1926	82.9
1927	86.8
1928	83.7
1929	86.8
1930	100.8
1931	98.9 *
1932	97.1 *
1933	95.3 *
1934	93.5 *
1935	91.8 *
1936	90.0 *
1937	88.4

Year	Real Wage Index (1913=100)
1866	49.6
1867	56.6
1868	51.2
1869	44.2
1870	45.0
1871	53.5
1872	53.5
1873	58.1
1874	55.0
1875	67.4
1876	66.7
1877	64.3
1878	61.2
1879	66.7

Year	Real Wage Index (1913=100)
1902	99.2
1903	101.6
1904	100.8
1905	108.5
1906	110.1
1907	97.7
1908	101.6
1909	99.2
1910	98.4
1911	103.9
1912	93.0
1913	100.0
1914	115.5

APPENDIX TABLE 2.4
Nominal Wage in Pernambuco, Northeast Brazil, 1855-1935 (1913=100)

Year	Nominal Wage Index (1913=100)
1855	50.3
1856	56.6
1857	84.8

Year	Nominal Wage Index (1913=100)
1858	89.0 *
1859	93.3
1860	92.4 *

Year	Nominal Wage Index (1913 = 100)
1861	91.4 *
1862	90.5
1863	90.1 *
1864	89.8 *
1865	89.5 *
1866	89.2 *
1867	88.9 *
1868	88.6 *
1869	88.3 *
1870	88.0 *
1871	87.7 *
1872	87.3 *
1873	87.0 *
1874	86.7
1875	83.6 *
1876	80.6 *
1877	77.7 *
1878	74.9 *
1879	72.2 *
1880	69.5 *
1881	67.0 *
1882	64.6 *
1883	62.3 *
1884	60.0 *
1885	57.9 *
1886	55.8 *
1887	53.8 *
1888	51.8 *
1889	49.9 *
1890	48.1 *
1891	46.4 *
1892	44.7 *
1893	43.1 *
1894	41.5 *
1895	40.0 *

Year	Nominal Wage Index (1913 = 100)
1896	38.6
1897	44.7 *
1898	51.8 *
1899	59.9 *
1900	69.4
1901	71.2 *
1902	73.0 *
1903	74.9 *
1904	76.8 *
1905	78.7 *
1906	80.7 *
1907	82.8 *
1908	84.9 *

Year	Nominal Wage Index (1913 = 100)
1909	87.1 *
1910	89.3
1911	92.8 *
1912	96.3 *
1913	100.0 *
1914	103.8 *
1915	107.8 *
1916	111.9 *
1917	116.2 *
1918	120.7 *
1919	125.3 *
1920	130.1
1921	138.9 *
1922	148.3 *
1923	158.3 *
1924	169.0 *
1925	180.4 *
1926	192.5
1927	164.2 *
1928	140.0 *
1929	119.3 *
1930	101.7 *
1931	86.7
1932	106.2 *
1933	130.1 *
1934	159.3 *
1935	195.2

APPENDIX TABLE 2.5

Cost of Living in Pernambuco, Northeast Brazil, 1855-1935 (1913=100)

Year	Cost of Living Index (1913=100)
1855	144.2
1856	181.4
1857	175.2
1858	223.3
1859	204.7
1860	167.5
1861	152.0
1862	113.2
1863	116.3
1864	96.1
1865	99.3
1866	103.9
1867	144.2
1868	130.3
1869	134.9
1870	138.0
1871	142.7
1872	138.0
1873	134.9 *
1874	131.8
1875	129.2 *
1876	126.5 *
1877	124.0 *
1878	121.5 *
1879	119.0 *
1880	116.6 *
1881	114.2 *
1882	111.9 *
1883	109.7 *
1884	107.5 *
1885	105.3 *
1886	103.2 *
1887	101.1 *
1888	99.0 *
1889	97.0 *
1890	95.1 *
1891	93.1 *
1892	91.2 *
1893	89.4 *
1894	87.6 *
1895	85.8 *
1896	84.1
1897	85.3 *
1898	86.5 *
1899	87.8 *
1900	89.1
1901	86.7 *
1902	84.5 *
1903	82.3 *
1904	80.2 *
1905	78.1 *
1906	76.0 *
1907	74.1 *
1908	72.1 *
1909	70.3 *
1910	68.4
1911	77.7 *
1912	88.1 *
1913	100.0 *
1914	113.5 *
1915	128.8 *
1916	146.1 *
1917	165.8 *
1918	188.2 *
1919	213.5 *
1920	242.3
1921	247.2 *
1922	252.1 *
1923	257.2 *
1924	262.3 *
1925	267.6 *
1926	273.0
1927	265.0 *
1928	257.3 *
1929	249.8 *
1930	242.5 *
1931	235.4
1932	251.9 *
1933	269.7 *
1934	288.6 *
1935	308.9

APPENDIX TABLE 2.6
Real Wage in Pernambuco, Northeast Brazil, 1855-1935 (1913=100)

Year	Real Wage Index (1913=100)
1855	34.9
1856	31.2
1857	48.4
1858	39.8 *
1859	45.6
1860	55.1 *

Year	Real Wage Index (1913 = 100)
1861	60.1 *
1862	79.9
1863	77.5 *
1864	93.4 *
1865	90.2 *
1866	85.9 *
1867	61.6 *
1868	68.0 *
1869	65.4 *
1870	63.7 *
1871	61.4 *
1872	63.3 *
1873	64.5 *
1874	65.8
1875	64.7 *
1876	63.7 *
1877	62.6 *
1878	61.6 *
1879	60.6 *
1880	59.6 *
1881	58.7 *
1882	57.7 *
1883	56.8 *
1884	55.9 *
1885	55.0 *
1886	54.1 *
1887	53.2 *
1888	52.3 *
1889	51.5 *
1890	50.6 *
1891	49.8 *
1892	49.0 *
1893	48.2 *
1894	47.4 *
1895	46.7 *

Year	Real Wage Index (1913 = 100)
1896	45.9
1897	52.4 *
1898	59.8 *
1899	68.3 *
1900	77.9
1901	82.0 *
1902	86.4 *
1903	91.0 *
1904	95.8 *
1905	100.8 *
1906	106.2 *
1907	111.8 *
1908	117.7 *
1909	124.0 *

Year	Real Wage Index (1913 = 100)
1910	130.5
1911	119.4 *
1912	109.3 *
1913	100.0 *
1914	91.5 *
1915	83.7 *
1916	76.6 *
1917	70.1 *
1918	64.1 *
1919	58.7 *
1920	53.7
1921	56.2 *
1922	58.8 *
1923	61.5 *
1924	64.4 *
1925	67.4 *
1926	70.5
1927	61.9 *
1928	54.4 *
1929	47.8 *
1930	42.0 *
1931	36.8
1932	42.2 *
1933	48.2 *
1934	55.2 *
1935	63.2

APPENDIX 3

Nominal Wage, Cost of Living, and Real Wage in Colombia, 1863-1940

Overview: In all time series for Colombia, the years 1901-1908 have been omitted. Serious hyperinflation during this period made figures so unreliable as to be essentially useless and perhaps misleading. The Colombia time series were constructed using:

Alberto Pardo Pardo, *Geografía Económica y Humana de Colombia*. Bogotá, Colombia: Ediciones Tercer Mundo, 1972, p. 221, Cuadro 107; pp. 234-5, Cuadro 110.
Miguel Urrutia M., and Mario Arrubla (eds.), *Compendio de Estadísticas Históricas de Colombia*. Bogotá: Dirección de Divulgación Cultural, Universidad Nacional de Colombia, 1970, pp. 35-6, Cuadro 1; pp. 47-53, Cuadro 6; pp. 55-7, Cuadro 7A.

APPENDIX TABLE 3.1: Nominal wage index

Nominal Wage, 1863-1940: The nominal wage series is an unweighted average of three other nominal wage indices. The first links the following series in Urrutia and Arrubla, each of which gives average daily wages in Bogota:

1863-1881, Cuadro 7A, p. 55. Public Workers (unskilled).
1881-1895, Cuadro 1, pp. 35-6. Public construction workers (unskilled). Average of January, April, July, and October wages.
1895-1905, Cuadro 7A, p. 55-7. Public Workers (unskilled).
1905-1940, Cuadro 6, pp. 47-53. Private sector peónes. Average of April, August, and December wages. In the handful of years for which wages for one or more of these months was not available, the observations for that year were dropped in favour of an interpolation.

The second nominal wage index uses only Cuadro 7A, pp. 55-7 (unskilled public workers) from Urrutia and Arrubla. This series provides unparalleled consistency by maintaining a stable mix of workers, employers, and occupations. The third nominal wage index is based on a daily wage series for peones (apparently from Bogata) which is taken from Pardo, pp. 234-5, Cuadro 110. The correlation between these three indices is strong, but we have averaged them to diminish the impact of aberrations in any one series.

The nominal wage time series is indexed 1913=100. Data based on interpolated figures is starred (*).

APPENDIX TABLE 3.2: Cost of living index

Cost of Living, 1863-1940: The cost of living index comes from Pardo, p. 221, Cuadro 107. His index is for Bogota, and is a linked combination of several indices, as indicated in the source (pp. 190-220). The cost of living index is based on as many as 13 food items and fuel. The weights are taken from workers: households in 1840, 1890 and 1923.

The cost of living time series is indexed 1913=100. Interpolated figures are starred (*).

APPENDIX TABLE 3.3: Real wage index

Real Wage, 1863-1940: By deflating the nominal wage series by the cost of living series, we construct a real wage index.

The real wage time series is indexed 1913=100. Data based on interpolated figures is starred (*).

APPENDIX TABLE 3.1
Nominal Wage in Colombia, 1863-1940 (1913=100)

Year	Nominal Wage Index (1913=100)
1863	66.9
1864	66.2 *
1865	65.6 *
1866	64.9
1867	64.9 *
1868	64.9 *
1869	64.9 *
1870	64.9 *
1871	64.9 *
1872	64.9
1873	59.4 *
1874	54.9
1875	61.3 *
1876	68.6 *
1877	73.6 *
1878	79.3 *
1879	85.8 *
1880	93.2
1881	91.2 *
1882	92.8 *
1883	97.1 *
1884	114.5 *
1885	119.3 *
1886	106.3 *
1887	115.5 *
1888	112.3
1889	124.8
1890	135.5
1891	138.9
1892	147.9
1893	145.3
1894	146.6
1895	160.0
1896	209.3
1897	245.9 *
1898	263.5
1899	257.6
1900	272.5
1901	--
1902	--
1903	--
1904	--
1905	--
1906	--
1907	--
1908	--
1909	107.2
1910	98.3
1911	101.4
1912	101.8 *
1913	100.0
1914	116.6 *
1915	124.8 *
1916	131.8
1917	123.9
1918	137.9
1919	153.2
1920	183.1
1921	213.1
1922	194.2
1923	196.2
1924	225.1
1925	220.1
1926	256.9
1927	303.2
1928	336.6
1929	372.5
1930	346.7
1931	302.8
1932	282.8 *
1933	280.7
1934	287.1
1935	350.0
1936	336.2 *
1937	348.9
1938	338.6
1939	363.0 *
1940	369.7

APPENDIX TABLE 3.2
Cost of Living in Colombia, 1863-1940 (1913=100)

Year	Cost of Living Index (1913=100)
1863	50.0
1864	50.0
1865	63.2
1866	63.2
1867	64.4 *
1868	65.5 *

Year	Cost of Living Index (1913=100)
1869	66.7 *
1870	67.9
1871	67.9
1872	69.8
1873	83.0
1874	91.5
1875	100.1 *
1876	109.4
1877	103.8
1878	103.8
1879	103.8
1880	103.8
1881	103.8
1882	159.4
1883	115.1
1884	115.1
1885	95.3
1886	95.3
1887	105.7
1888	83.0
1889	106.6
1890	102.8
1891	101.9
1892	101.9
1893	108.5
1894	120.8
1895	127.4
1896	145.3
1897	156.6
1898	150.0
1899	147.2
1900	202.8
1901	--

Year	Cost of Living Index (1913=100)
1902	--
1903	--
1904	--
1905	--
1906	--
1907	--
1908	--
1909	77.4
1910	69.8
1911	66.0
1912	82.1
1913	100.0

Year	Cost of Living Index (1913=100)
1914	88.7
1915	80.2
1916	68.9
1917	79.2
1918	90.6
1919	110.4
1920	122.6
1921	106.6
1922	101.9
1923	94.3
1924	100.9
1925	96.2
1926	134.0
1927	114.2
1928	111.3
1929	134.9
1930	98.1
1931	79.2
1932	58.5
1933	72.6
1934	105.7
1935	114.2
1936	115.1
1937	111.3
1938	114.2
1939	119.8
1940	115.1

APPENDIX TABLE 3.3
Real Wage in Colombia, 1863-1940 (1913=100)

Year	Real Wage Index (1913=100)
1863	133.8
1864	132.5 *
1865	103.8 *
1866	102.8
1867	100.9 *
1868	99.1 *
1869	97.4 *
1870	95.6 *
1871	95.6 *
1872	93.0
1873	71.5 *
1874	60.0
1875	61.3 *
1876	62.7 *
1877	70.9 *
1878	76.4 *
1879	82.6 *
1880	89.8
1881	87.9 *
1882	58.2 *
1883	84.3 *
1884	99.5 *
1885	125.2 *
1886	111.5 *
1887	109.3 *
1888	135.3
1889	117.0
1890	131.7
1891	136.3
1892	145.2
1893	133.9
1894	121.4
1895	125.6
1896	144.1
1897	157.0 *
1898	175.7
1899	175.0
1900	134.4
1901	--

Year	Real Wage Index (1913=100)
1902	--
1903	--
1904	--
1905	--
1906	--
1907	--
1908	--
1909	138.6
1910	140.9
1911	153.6
1912	124.0 *
1913	100.0
1914	131.5 *
1915	155.6 *
1916	191.4
1917	156.4
1918	152.3
1919	138.8
1920	149.3
1921	199.9
1922	190.6
1923	208.0
1924	223.0
1925	228.7
1926	191.7
1927	265.6
1928	302.4
1929	276.1
1930	353.3
1931	382.1
1932	483.4 *
1933	386.5
1934	271.7
1935	306.6
1936	292.1 *
1937	313.4
1938	296.6
1939	303.0 *
1940	321.2

APPENDIX 4

Nominal Wage, Cost of Living, and Real Wage in Cuba, 1905-1939

***Overview*: The data for Cuba was taken from the following two sources:**

Leandro Prados de la Escosura, *Output and Expenditure in Spain, 1850-1990: New GDP Series,* Forthcoming 1997.
Oscar Zanetti, and Alejandro Garcí a, *United Fruit Company: Un Caso Del Dominio Imperialista En Cuba*. La Habana: Editorial De Ciencias Sociales, 1976.

APPENDIX TABLE 4.1: Nominal Wage Index

***Nominal Wage, 1905-1939*: For 1905-1913, we use a nominal wage index from Zanetti and García's study of the living conditions of workers of the United Fruit Company in Cuba (p. 441, Cuadro VI). This data is based on the Boston Central in Cuba. Thereafter, the series was linked with the Prados data for 1913-1939.**

The nominal wage series is indexed 1913 = 100.

APPENDIX TABLE 4.2: Cost of Living Index

***Cost of Living, 1905-1939*: The data for 1905-1913 is based on a food price index for Havana taken from Zanetti and García (p. 441, Cuadro VI). This is then linked at 1913 to Prados's consumer price index, extending coverage up to 1939. Prados's index was based on actual cost of living data for only 1919-1920, 1923, 1925-1926, and 1928-1939. Based on the close correlation between this cost of living data and the imports deflator for the Cuban economy during these years, Prados interpolated the missing years to construct a cost of living index for 1913-1939.**

The cost of living series is indexed 1913 = 100. Interpolated figures are starred (*).

APPENDIX TABLE 4.3: Real Wage Index

***Real Wage, 1905-1939*: The real wage index is derived by dividing our nominal wage series by the cost of living series.**

The real wage series is indexed 1913 = 100. Calculations based on interpolated figures are starred (*).

APPENDIX TABLE 4.1

Nominal Wage in Cuba, 1905-1939 (1913=100)

Year	Nominal Wage Index (1913=100)
1905	96.8
1906	99.1
1907	98.8
1908	104.0
1909	104.4
1910	97.8
1911	96.8
1912	95.8
1913	100.0
1914	104.2
1915	108.7
1916	113.6
1917	153.3
1918	159.0
1919	194.0
1920	210.1
1921	210.1
1922	178.0

Year	Nominal Wage Index (1913=100)
1923	183.3
1924	184.7
1925	183.3
1926	183.3
1927	175.3
1928	172.6
1929	174.0

Year	Nominal Wage Index (1913=100)
1930	168.6
1931	157.9
1932	123.1
1933	105.7
1934	131.1
1935	131.1
1936	132.5
1937	133.8
1938	135.1
1939	135.1

APPENDIX TABLE 4.2

Cost of Living in Cuba, 1905-1939 (1913=100)

Year	Cost of Living Index (1913=100)
1905	84.8
1906	92.1 *
1907	100.0
1908	97.4 *
1909	94.9
1910	96.9 *
1911	99.0

Year	Cost of Living Index (1913=100)
1912	99.5 *
1913	100.0 *
1914	101.8 *
1915	103.9 *
1916	118.7 *
1917	160.0 *
1918	201.7 *
1919	222.7

Year	Cost of Living Index (1913=100)
1920	266.0
1921	215.5 *
1922	133.4 *

Year	Cost of Living Index (1913=100)
1937	98.1
1938	98.1
1939	92.2

Year	Cost of Living Index (1913=100)
1923	132.4
1924	132.8 *
1925	145.2
1926	138.3
1927	129.8 *
1928	119.7
1929	122.6
1930	105.0
1931	87.3
1932	98.1
1933	92.2
1934	105.9
1935	106.9
1936	100.8

APPENDIX TABLE 4.3

Real Wage in Cuba, 1905-1939 (1913=100)

Year	Real Wage Index (1913=100)
1905	114.1
1906	107.6 *
1907	98.8
1908	106.7 *
1909	109.9
1910	100.8 *
1911	97.8
1912	96.3 *
1913	100.0 *
1914	102.4 *
1915	104.6 *
1916	95.7 *
1917	95.8 *
1918	78.8 *
1919	87.1
1920	79.0
1921	97.5 *
1922	133.4 *

Year	Real Wage Index (1913=100)
1923	138.4
1924	139.1 *
1925	126.3
1926	132.5
1927	135.0 *
1928	144.2
1929	141.9
1930	160.6
1931	180.9
1932	125.5
1933	114.6
1934	123.8
1935	122.6
1936	131.5
1937	136.4
1938	137.8
1939	146.6

APPENDIX 5

Nominal Wage, Cost of Living, and Real Wage in Mexico, 1877-1940

***Overview*: The data for Mexico was taken from:**

Fausto Alzati, *The Political Economy of Growth in Modern Mexico*. Harvard University, April 1997, unpublished doctoral dissertation, Appendix Sections 3 & 5.
Aurora Gómez, AThe Evolution of Prices and Real Wages in Mexico from the Porfiriato to the Revolution.@ In J. H. Coatsworth and A. M. Taylor (eds.), *Latin America and the World Economy in the 19th and 20th Centuries*. Forthcoming 1998, Tables 1 & 2.
Instituto Nacional de Estadística, Geografía e Informática, *Estadísticas Históricas de México*. Mexico City: 1986, Tomo I, p. 165, Cuadro 5.1; Tomo II, p. 733, Cuadro 20.2.

APPENDIX TABLE 5.1: Nominal wage index

***Nominal Wage, 1877-1940*: The nominal wage series was constructed using three sources. We used *Estadísticas* (Tomo I, p. 165, Cuadro 5.1) from 1877 to 1900, at which point it was linked to the Gómez (Table 1) series up to 1913. The Gómez series was linked, in turn, to the Alzati (Appendix Section 5) series for 1913 to 1917. We again used the Gómez (Table 2) series for 1917 to 1920, after which we used the Alzati (Appendix Section 5) series to 1940. The *Estadísticas* series gives minimum daily wages for common labor, aggregated for all of Mexico. The Alzati series consists of minimum yearly agricultural wages in Oaxaca state. Lastly,Gómez offers a weighted average of hourly wages in textiles for Mexico City.**

The nominal wage series is indexed 1913=100.

APPENDIX TABLE 5.2: Cost of living index

***Cost of Living, 1877-1940*: The cost of living series was constructed using the same three sources as for wages. We used *Estadísticas* (Tomo II, p. 733, Cuadro 20.2) from 1877 to 1900, at which point it was linked to Gómez=s very carefully constructed cost of living series from 1900 to 1913 (Table 1). The Gómez series was linked, in turn, to the Alzati (Appendix Section 3) series for 1913 to 1917. We used the Gómez (Table 2) series again for 1917 to 1920, after which we used the Alzati (Appendix Section 3) series to 1940. The *Estadísticas* series is a general price index for Mexico, while the Alzati series is a GDP deflator for Mexico. The Gomez series is a workers= cost of living index for Mexico City.**

The cost of living series is indexed 1913=100. Interpolated figures for 1878-1885 are starred (*).

APPENDIX TABLE 5.3: Real wage index

***Real Wage, 1877-1940*: This index is derived by dividing the nominal wage index by the cost of living index.**

The real wage time series is indexed 1913 = 100. Calculations based on interpolated figures are starred (*).

APPENDIX TABLE 5.1
Nominal Wage in Mexico, 1877-1940 (1913=100)

Year	Nominal Wage Index (1913=100)
1877	32.9
1878	33.1
1879	33.3
1880	33.7
1881	34.1
1882	34.3
1883	34.5
1884	34.8
1885	35.0
1886	35.3
1887	35.6
1888	36.3
1889	39.0
1890	39.2
1891	42.5
1892	45.4
1893	48.1
1894	48.3
1895	48.6
1896	48.9
1897	49.2
1898	49.6
1899	50.0
1900	50.3
1901	57.8
1902	61.2
1903	59.2
1904	64.9
1905	62.1
1906	63.6
1907	69.3
1908	68.0

Year	Nominal Wage Index (1913=100)
1909	71.0
1910	70.9
1911	67.8
1912	95.3
1913	100.0
1914	69.3
1915	57.4

Year	Nominal Wage Index (1913=100)
1916	82.0
1917	65.4
1918	72.4
1919	75.4
1920	80.9
1921	93.8
1922	101.4
1923	98.6
1924	108.1
1925	105.7
1926	109.5
1927	122.9
1928	127.9
1929	114.0
1930	100.5
1931	108.8
1932	130.1
1933	131.9
1934	136.5
1935	134.1
1936	135.8
1937	111.6
1938	109.9
1939	107.5
1940	110.5

APPENDIX TABLE 5.2
Cost of Living in Mexico, 1877-1940 (1913=100)

Year	Cost of Living Index (1913=100)

Year	Cost of Living Index (1913=100)
1877	45.6

Year	Cost of Living Index (1913=100)
1878	46.2 *
1879	46.9 *
1880	47.5 *
1881	48.2 *
1882	48.9 *
1883	49.6 *
1884	50.2 *
1885	51.0 *
1886	51.7
1887	45.6
1888	53.7
1889	58.0
1890	56.6
1891	56.2
1892	64.8
1893	70.1
1894	61.8
1895	61.8
1896	67.8
1897	68.2
1898	58.7
1899	56.7
1900	66.3
1901	69.5
1902	76.2
1903	76.5
1904	77.3
1905	78.2
1906	78.1
1907	81.2
1908	82.2
1909	87.7
1910	97.2
1911	96.9
1912	98.7
1913	100.0
1914	156.5
1915	225.9
1916	165.9
1917	241.2
1918	295.3
1919	280.8
1920	305.6
1921	277.4
1922	229.8
1923	242.8
1924	227.6
1925	242.8
1926	238.4
1927	227.6
1928	227.6
1929	229.8
1930	234.1
1931	205.9
1932	182.1
1933	195.1
1934	199.4
1935	203.7
1936	221.1
1937	273.1
1938	288.3
1939	292.6
1940	301.3

APPENDIX TABLE 5.3
Real Wage in Mexico, 1877-1940 (1913=100)

Year	Real Wage Index (1913=100)
1877	72.2
1878	71.6 *
1879	71.1 *
1880	70.9 *
1881	70.7 *
1882	70.2 *
1883	69.7 *
1884	69.2 *

Year	Real Wage Index (1913=100)
1885	68.8 *
1886	68.3
1887	77.9
1888	67.5
1889	67.1
1890	69.4
1891	75.6
1892	70.0
1893	68.6
1894	78.2
1895	78.8
1896	72.2
1897	72.2
1898	84.5
1899	88.1
1900	75.8
1901	83.2
1902	80.2
1903	77.4
1904	83.9
1905	79.4
1906	81.4
1907	85.4
1908	82.7

Year	Real Wage Index (1913=100)
1909	81.0
1910	73.0
1911	70.0
1912	96.6
1913	100.0
1914	44.3
1915	25.4
1916	49.4
1917	27.1
1918	24.5
1919	26.9

Year	Real Wage Index (1913=100)
1920	26.5
1921	33.8
1922	44.1
1923	40.6
1924	47.5
1925	43.6
1926	45.9
1927	54.0
1928	56.2
1929	49.6
1930	42.9
1931	52.8
1932	71.5
1933	67.6
1934	68.5
1935	65.8
1936	61.4
1937	40.9
1938	38.1
1939	36.7
1940	36.7

APPENDIX 6

Nominal Wage, Cost of Living, and Real Wage in Uruguay, 1880-1940

***Overview*: Luis Bértola supplied the urban wage data containing all three time series which underlay the analysis in:**

Luis Bértola, Leonardo Calicchio, Maria Camou, and G. Porcile, *Uruguayan Real Wages 1870-1996 Compared: A Purchasing Power Parity Approach to Convergence and Divergence Trends*, Programa de Historia Económica y Social, Facultad de Ciencias Sociales, Universidad de la República, August 1997 (first draft).

The details of the index number construction can be found in the following earlier papers leading up to the 1997 survey just cited:

Luis Bértola, "The Manufacturing Industry of Uruguay, 1913-1961: A Sectoral Approach to Growth, Fluctuations and Crisis," *Institute of Latin American Studies of Stockholm University, Monograph no. 20*, 1990.

Leonardo Calicchio, "Salario y Costo de Vida en el Rio de la Plata. 1907-1930," *Documento de Trabajo No. 33*. Montevideo: Programa de Historia Económica y Social, Facultad de Ciencias Sociales, Universidad de la República, June 1996.

Maria Camou, "Salarios y Costos de Vida en el Rio de la Plata," *Documento de Trabajo No. 28*. Montevideo: Programa de Historia Económica y Social, Facultad de Ciencias Sociales, Universidad de la República, April 1996.

Julio Millot, Carlos Silva, and Lindor Silva, *El Desarrollo Industrial del Uruguay*. Montevideo: Instituto de Economia, Universidad de la República, 1972.

Ministerio de Industrias, *El Salario Real (1914-1926)*. Montevideo, Uruguay: Imprenta Nacional, 1927.

APPENDIX TABLE 6.1: Nominal wage index
APPENDIX TABLE 6.2: Cost of living index
APPENDIX TABLE 6.3: Real wage index

***Nominal Wage, Cost of Living, and Real Wage, 1880-1940*: All nominal wages referred to in the construction of the time series are urban wages. Up to 1926, wages are that of unskilled building labor; from 1926 to 1936, that of casual workers; and thereafter, that of workers in manufacturing. Note that the years 1902-1906 were interpolated. The cost of living series is also a linked urban series. The real wage series was obtained by dividing the nominal wage series by the cost of living series.**

All three time series are indexed 1913=100. Interpolated figures are starred (*).

APPENDIX TABLE 6.1
Nominal Wage in Uruguay, 1880-1940 (1913=100)

Year	Nominal Wage Index (1913=100)
1880	89.9
1881	89.9
1882	89.9
1883	89.9
1884	89.9
1885	92.0
1886	92.0
1887	92.0
1888	92.0
1889	75.4
1890	92.0
1891	92.0
1892	90.6
1893	92.0
1894	92.0
1895	83.3
1896	75.4
1897	83.3
1898	69.6
1899	67.4
1900	72.5
1901	73.2
1902	74.6 *
1903	76.1 *
1904	78.3 *
1905	79.7 *
1906	81.9 *
1907	83.3
1908	87.0
1909	100.0
1910	100.0
1911	100.0
1912	100.0
1913	100.0
1914	99.3
1915	94.2
1916	84.1
1917	86.2
1918	87.7
1919	97.1
1920	139.9
1921	159.4
1922	159.4
1923	160.1
1924	160.1
1925	161.6
1926	162.3
1927	164.5
1928	167.4
1929	176.1
1930	182.6
1931	187.0
1932	187.7
1933	184.1
1934	181.9
1935	174.6
1936	178.3
1937	176.8
1938	174.6
1939	179.0
1940	182.6

APPENDIX TABLE 6.2
Cost of Living in Uruguay, 1880-1940 (1913 = 100)

Year	Cost of Living Index (1913 = 100)
1880	106.0
1881	97.4
1882	96.1
1883	103.9
1884	104.9
1885	83.1
1886	75.3
1887	73.7
1888	72.8
1889	78.5
1890	84.6
1891	80.4
1892	66.5
1893	58.8
1894	57.3
1895	63.0
1896	66.6
1897	63.2
1898	76.6
1899	66.2
1900	78.4
1901	87.8
1902	62.4
1903	73.2
1904	63.2
1905	76.3
1906	86.8
1907	85.5
1908	85.7
1909	84.7
1910	88.4

Year	Cost of Living Index (1913 = 100)
1911	90.3
1912	91.3
1913	100.0
1914	106.5
1915	115.2
1916	114.7

Year	Cost of Living Index (1913 = 100)
1917	117.6
1918	124.2
1919	136.4
1920	158.5
1921	147.9
1922	137.2
1923	132.9
1924	131.0
1925	131.3
1926	131.3
1927	125.8
1928	127.0
1929	131.0
1930	131.0
1931	131.0
1932	128.6
1933	122.3
1934	122.3
1935	126.2
1936	125.0
1937	128.6
1938	128.2
1939	135.3
1940	141.2

APPENDIX TABLE 6.3
Real Wage in Uruguay, 1880-1940 (1913=100)

Year	Real Wage Index (1913=100)
1880	84.7
1881	92.2
1882	93.4
1883	86.4
1884	85.6
1885	110.4
1886	121.7
1887	124.3
1888	125.9
1889	95.6
1890	108.2
1891	114.0
1892	136.6
1893	156.0
1894	160.0
1895	132.3
1896	112.6
1897	131.8
1898	90.6
1899	101.4
1900	92.4
1901	83.1
1902	119.5 *
1903	104.3 *
1904	123.3 *
1905	104.4 *
1906	93.8 *
1907	97.4
1908	101.1
1909	118.0
1910	113.0
1911	110.7
1912	109.5
1913	100.0
1914	93.0
1915	81.7
1916	73.0
1917	73.0
1918	70.8
1919	71.1
1920	88.4
1921	107.7
1922	116.2
1923	120.2
1924	122.3
1925	122.7
1926	123.6
1927	130.9
1928	131.7
1929	134.3
1930	139.2
1931	142.8
1932	145.7
1933	150.5
1934	148.6
1935	138.4
1936	142.4
1937	137.2
1938	136.4
1939	132.3
1940	129.1

APPENDIX 7

PPP-Adjusted Real Wages for Latin America

***Overview*: The country time series need a purchasing power parity (PPP) benchmark before we can compare real wage levels across these countries, or with countries outside the region. The latter include Great Britain, the United States, and the Mediterranean Basin countries which were so important in the mass migrations to Latin**

America. Once these benchmarks are established, the country time series can then be used to extend PPP-adjusted real wages backward and forward in time. Full descriptions of the procedure for creating these benchmarks follow below. The primary sources used in constructing the benchmarks were:

Pablo Astorga and Valpy FitzGerald, "The Standard of Living in Latin America during the Twentieth Century," *Centro Studi Luca d'Agliano -- Queen Elizabeth House Development Studies Working Papers*, N. 117, May 1998, p. 31, Table A-4.
Gustavo Maia Gomes, *The Roots of State Intervention in the Brazilian Economy*. New York: Praeger Publishers, 1986, p. 38, Table 2.6.
Angus Maddison, *Monitoring the World Economy: 1820-1992*. Paris: OECD Development Centre, 1995, p. 104, Table A-3a; & p. 108, Table A-3b.
Jeffrey G. Williamson, "The Evolution of Global Labor Markets since 1830," *Explorations in Economic History* 32(2), April 1995, pp 141-196. Revised in Kevin O'Rourke, and Jeffrey G. Williamson, "Around the European Periphery 1870-1913: Globalization, Schooling and Growth," *European Review of Ecoonmic History*, 1(2), August 1997, pp. 153-90.

APPENDIX TABLE 7.1: PPP-adjusted real wages, Argentina in 1913=100

***PPP-Adjustment Within Latin America*:**

To construct national real wage series which can be used to compare <u>between</u> Latin American nations, we have rebased our national real wage series with a PPP-adjusted benchmark inferred from Astorga and FitzGerald (1998, p. 31, Table A-4). We used the PPP-adjusted GDP per capita figures for 1910 in Astorga and FitzGerald to establish the real wage benchmark comparing Argentina with Brazil, Colombia, Cuba, and Mexico. This procedure assumes, of course, that the 1910 ratio of any two Latin American nations' real wages was equal to the ratio of their PPP-adjusted GDP per capita. To illustrate, if Argentina had twice the GDP per capita of Colombia in 1910, with Argentina's real wage index equal to 103.4 in 1910, this implies for Colombia a real wage relative of 51.7 for the same year. Furthermore, we assume that Uruguayan real wages are directly comparable with Argentinian real wages, and hence do not require a benchmark adjustment. This assumption is made based on evidence that the labor markets of these two countries were well integrated during the period in question.

The Latin American indices of PPP-adjusted real wages in 1910 implied by this exercise, with Argentina in 1913=100, are:

Argentina = 103.4
All of Brazil = 15.2
Colombia = 27.1
Cuba = 76.5
Mexico = 58.7
Uruguay = 103.4, by assumption

We also calculated the relative per capita income (and thus real wage) levels for the Brazilian Northeast and Southeast, based on information in Gomes (1986, p. 38, Table 2.6). Gomes gives estimated income levels for the whole of Brazil, as well as a breakdown by regions, for the years 1900, 1907, 1912, 1919, 1930, and 1939. We interpolated Gomes' data to deduce a per capita income figure for all of Brazil for the year 1910. Linking this with the PPP-adjusted real wage for 1910 for all of Brazil deduced above, we were able to construct PPP-adjusted real wage series for the Southeast and the Northeast respectively. The 1910 result, where Argentina in 1913=100, is

Southeast Brazil = 22.7
Northeast Brazil = 8.9

APPENDIX TABLE 7.2: PPP-adjusted real wages, Great Britain in 1913=100

***PPP-Adjustment Between Latin America and Great Britain*:**

We used Williamson=s Atlantic economy real wage data (1995; revised in O=Rourke and Williamson 1997), which includes Argentina, to compare this array of Latin American PPP-adjusted real wages to the European leader of the Atlantic economy, Britain. Britain=s 1913 PPP-adjusted real wage was set at 100. The ratio of Argentina=s PPP-adjusted real wages to Great Britain=s in 1910 was 1, e.g., there was real wage parity between them. Given that Britain=s 1910 real wage index had a value of 96.9, this similarly implied a 1910 real wage index value of 96.9 for Argentina. The real wage series of the remaining Latin American countries were then adjusted to maintain their relative relationships with each other.

APPENDIX TABLE 7.3: PPP-adjusted real wages, United States in 1913=100

***PPP-Adjustment Between Latin America and the United States*:**

As with Great Britain, we have created another comparison by setting Williamson=s US PPP-adjusted real wages at 1913=100. The ratio of Argentina=s PPP-adjusted real wages to those of the United States in 1910 was 0.5588 (i.e. Argentina=s wages were about 44% lower in 1910). Given that the US 1910 real wage index had a value of 100.6, this implied a 1910 real wage index value of 56.2 for Argentina. The real wage series of the remaining Latin American countries were then adjusted to maintain their relative relationships with each other.

APPENDIX TABLE 7.4: PPP-adjusted real wages, emigrating Mediterranean countries in 1913=100

***PPP-Adjustment Between Latin America and the Emigrating Mediterranean Countries*:**

As with Great Britain and the United States, we created another comparison by constructing a weighted average of Williamson=s PPP-adjusted 1913 real wages for Italy, Portugal, and Spain. Fixed weights were used based on population figures for 1910 given in Maddison (1995, p. 104, Table A-3a; and p. 108, Table A-3b). For years when the wage data was not available for all three of the Mediterranean countries, the weights were adjusted accordingly. That is, where the wage data for all three nations was available: Italy 58.6%, Portugal 9.5%, and Spain 31.8%. Only Spanish wage data was available for 1840-1849. Where Italian wage data was missing for 1850-1869: Portugal 23.0%, and Spain 77.0%. After 1912, Portuguese wage data is often missing, in which case: Italy 64.8%, and Spain 35.2%. Fixed weights do not matter much since the population distributions in 1850 and 1940 are very similar to those in 1910; accounting for any shifts in population distribution over time would thus make very little difference in the results. The various segments were then linked to create an Emigrating Mediterranean Basin series for the full period, where the index is based with 1913=100.

The ratio of Argentina=s 1910 PPP-adjusted real wages to that of the weighted Emigrating Mediterranean Basin series was 2.2248 (i.e. Argentina=s wages were about 122% higher). Given that the 1910 Emigrating Mediterranean Basin real wage index had a value of 92.8, this implied a 1910 Argentina real wage index value of 206.5. The real wage series of the remaining Latin American countries were then adjusted to maintain their relative relationships with each other.

APPENDIX TABLE 7.1
PPP-adjusted real wages, Argentina in 1913=100

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1830	--	9.8	--	--	--	--	--
1831	--	9.7	--	--	--	--	--
1832	--	12.9	--	--	--	--	--
1833	--	5.7	--	--	--	--	--
1834	--	5.7	--	--	--	--	--
1835	--	8.6	--	--	--	--	--
1836	--	8.8	--	--	--	--	--
1837	--	8.1	--	--	--	--	--
1838	--	7.0	--	--	--	--	--
1839	--	7.5	--	--	--	--	--
1840	--	6.3	--	--	--	--	--
1841	--	6.6	--	--	--	--	--
1842	--	9.8	--	--	--	--	--
1843	--	9.5	--	--	--	--	--

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1844	--	9.7	--	--	--	--	--
1845	--	8.1	--	--	--	--	--
1846	--	7.5	--	--	--	--	--
1847	--	8.6	--	--	--	--	--
1848	--	8.1	--	--	--	--	--
1849	--	9.5	--	--	--	--	--
1850	--	10.7	--	--	--	--	--
1851	--	9.8	--	--	--	--	--
1852	--	10.6	--	--	--	--	--
1853	--	12.2	--	--	--	--	--
1854	--	9.7	--	--	--	--	--
1855	--	9.5	2.4	--	--	--	--
1856	--	10.0	2.1	--	--	--	--
1857	--	10.0	3.3	--	--	--	--
1858	--	11.1	2.7	--	--	--	--
1859	--	11.5	3.1	--	--	--	--
1860	--	12.9	3.8	--	--	--	--
1861	--	12.9	4.1	--	--	--	--
1862	--	12.7	5.5	--	--	--	--
1863	--	11.8	5.3	25.7	--	--	--
1864	46.0	11.3	6.4	25.5	--	--	--
1865	49.4	11.6	6.2	20.0	--	--	--
1866	57.5	11.5	5.9	19.8	--	--	--
1867	56.3	13.1	4.2	19.4	--	--	--
1868	55.2	11.8	4.7	19.1	--	--	--
1869	59.8	10.2	4.5	18.7	--	--	--
1870	66.7	10.4	4.4	18.4	--	--	--

APPENDIX TABLE 7.1 (Continued)
PPP-adjusted real wages, Argentina in 1913=100

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1871	64.4	12.4	4.2	18.4	--	--	--
1872	56.3	12.4	4.3	17.9	--	--	--
1873	55.2	13.4	4.4	13.8	--	--	--
1874	64.4	12.7	4.5	11.5	--	--	--
1875	64.4	15.6	4.4	11.8	--	--	--
1876	63.2	15.4	4.4	12.1	--	--	--
1877	51.7	14.9	4.3	13.6	--	58.1	--
1878	47.1	14.1	4.2	14.7	--	57.6	--
1879	44.8	15.4	4.2	15.9	--	57.2	--
1880	50.6	16.3	4.1	17.3	--	57.0	77.5
1881	63.2	15.6	4.0	16.9	--	56.9	84.4
1882	72.4	17.5	4.0	11.2	--	56.5	85.5
1883	81.6	16.6	3.9	16.2	--	56.1	79.1
1884	77.0	18.4	3.8	19.2	--	55.7	78.3
1885	60.9	18.8	3.8	24.1	--	55.3	101.1
1886	77.0	19.2	3.7	21.5	--	54.9	111.4
1887	86.2	20.2	3.6	21.0	--	62.7	113.8
1888	101.1	20.6	3.6	26.0	--	54.3	115.2
1889	88.5	18.3	3.5	22.5	--	54.0	87.5

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1890	63.2	18.1	3.5	25.4	--	55.8	99.1
1891	89.7	17.5	3.4	26.2	--	60.8	104.3
1892	98.9	16.3	3.4	27.9	--	56.3	125.0
1893	109.2	15.2	3.3	25.8	--	55.1	142.8
1894	93.1	15.6	3.2	23.4	--	62.9	146.4
1895	86.2	19.5	3.2	24.2	--	63.3	121.0
1896	80.5	16.5	3.1	27.7	--	58.0	103.0
1897	86.2	17.0	3.6	30.2	--	58.1	120.6
1898	111.5	14.5	4.1	33.8	--	67.9	82.9
1899	124.1	16.6	4.7	33.7	--	70.8	92.8
1900	114.9	17.9	5.3	25.9	--	60.9	84.6
1901	108.0	20.9	5.6	--	--	66.9	76.0
1902	108.0	22.9	5.9	--	--	64.5	109.4
1903	109.2	23.5	6.2	--	--	62.2	95.4
1904	116.1	23.3	6.6	--	--	67.5	112.8
1905	102.3	25.1	6.9	--	86.6	63.8	95.6
1906	100.0	25.4	7.3	--	81.6	65.5	85.9
1907	97.7	22.6	7.7	--	75.0	68.6	89.2
1908	96.6	23.5	8.1	--	81.0	66.5	92.5
1909	95.4	22.9	8.5	26.7	83.4	65.1	108.0
1910	103.4	22.7	8.9	27.1	76.5	58.7	103.4

APPENDIX TABLE 7.1 (Continued)
PPP-adjusted real wages, Argentina in 1913=100

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1911	102.3	24.0	8.2	29.6	74.2	56.3	101.3
1912	105.7	21.5	7.5	23.9	73.1	77.7	100.2
1913	100.0	23.1	6.8	19.2	75.9	80.4	91.5
1914	97.7	26.7	6.3	25.3	77.7	35.6	85.1
1915	87.4	23.1	5.7	29.9	79.3	20.4	74.8
1916	81.6	21.5	5.2	36.8	72.6	39.8	66.8
1917	70.1	16.8	4.8	30.1	72.7	21.8	66.8
1918	59.8	13.6	4.4	29.3	59.8	19.7	64.8
1919	81.6	13.4	4.0	26.7	66.1	21.6	65.0
1920	83.9	12.4	3.7	28.7	59.9	21.3	80.9
1921	104.6	18.3	3.8	38.5	74.0	27.2	98.5
1922	119.5	17.9	4.0	36.7	101.2	35.5	106.3
1923	123.0	15.0	4.2	40.0	105.0	32.7	110.0
1924	121.8	15.4	4.4	42.9	105.6	38.2	111.9
1925	127.6	14.9	4.6	44.0	95.8	35.0	112.3
1926	128.7	19.2	4.8	36.9	100.6	36.9	113.1
1927	135.6	20.0	4.2	51.1	102.5	43.4	119.8
1928	144.8	19.3	3.7	58.2	109.5	45.2	120.5
1929	142.5	20.0	3.3	53.2	107.7	39.9	122.9
1930	129.9	23.3	2.9	68.0	121.9	34.5	127.4
1931	140.2	22.8	2.5	73.5	137.2	42.5	130.7
1932	148.3	22.4	2.9	93.1	95.2	57.5	133.4
1933	136.8	22.0	3.3	74.4	87.0	54.4	137.7
1934	141.4	21.6	3.8	52.3	93.9	55.1	136.0

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1935	144.8	21.2	4.3	59.0	93.1	52.9	126.6
1936	135.6	20.8	--	56.2	99.8	49.4	130.3
1937	136.8	20.4	--	60.3	103.5	32.9	125.6
1938	136.8	--	--	57.1	104.5	30.7	124.9
1939	139.1	--	--	58.3	111.2	29.6	121.1
1940	140.2	--	--	61.8	--	29.5	118.2

APPENDIX TABLE 7.2
PPP-adjusted real wages, Great Britain in 1913=100

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1830	--	9.2	--	--	--	--	--
1831	--	9.1	--	--	--	--	--
1832	--	12.1	--	--	--	--	--
1833	--	5.4	--	--	--	--	--
1834	--	5.4	--	--	--	--	--
1835	--	8.1	--	--	--	--	--
1836	--	8.2	--	--	--	--	--
1837	--	7.5	--	--	--	--	--
1838	--	6.5	--	--	--	--	--
1839	--	7.0	--	--	--	--	--
1840	--	5.9	--	--	--	--	--
1841	--	6.2	--	--	--	--	--
1842	--	9.2	--	--	--	--	--
1843	--	8.9	--	--	--	--	--
1844	--	9.1	--	--	--	--	--
1845	--	7.5	--	--	--	--	--
1846	--	7.0	--	--	--	--	--
1847	--	8.1	--	--	--	--	--
1848	--	7.5	--	--	--	--	--
1849	--	8.9	--	--	--	--	--
1850	--	10.1	--	--	--	--	--
1851	--	9.2	--	--	--	--	--
1852	--	9.9	--	--	--	--	--
1853	--	11.4	--	--	--	--	--
1854	--	9.1	--	--	--	--	--
1855	--	8.9	2.2	--	--	--	--
1856	--	9.4	2.0	--	--	--	--
1857	--	9.4	3.1	--	--	--	--
1858	--	10.4	2.6	--	--	--	--
1859	--	10.7	2.9	--	--	--	--
1860	--	12.1	3.5	--	--	--	--

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1861	--	12.1	3.9	--	--	--	--
1862	--	11.9	5.1	--	--	--	--
1863	--	11.1	5.0	24.1	--	--	--
1864	43.1	10.6	6.0	23.9	--	--	--
1865	46.3	10.9	5.8	18.7	--	--	--
1866	53.9	10.7	5.5	18.5	--	--	--
1867	52.8	12.2	4.0	18.2	--	--	--
1868	51.7	11.1	4.4	17.9	--	--	--
1869	56.0	9.6	4.2	17.6	--	--	--
1870	62.5	9.7	4.1	17.2	--	--	--

APPENDIX TABLE 7.2 (Continued)
PPP-adjusted real wages, Great Britain in 1913=100

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1871	60.3	11.6	3.9	17.2	--	--	--
1872	52.8	11.6	4.1	16.8	--	--	--
1873	51.7	12.6	4.1	12.9	--	--	--
1874	60.3	11.9	4.2	10.8	--	--	--
1875	60.3	14.6	4.2	11.1	--	--	--
1876	59.2	14.4	4.1	11.3	--	--	--
1877	48.5	13.9	4.0	12.8	--	54.4	--
1878	44.2	13.3	4.0	13.8	--	54.0	--
1879	42.0	14.4	3.9	14.9	--	53.6	--
1880	47.4	15.3	3.8	16.2	--	53.4	72.6
1881	59.2	14.6	3.8	15.9	--	53.3	79.1
1882	67.9	16.4	3.7	10.5	--	52.9	80.1
1883	76.5	15.6	3.6	15.2	--	52.5	74.1
1884	72.2	17.3	3.6	18.0	--	52.2	73.4
1885	57.1	17.6	3.5	22.6	--	51.8	94.7
1886	72.2	17.9	3.5	20.1	--	51.5	104.4
1887	80.8	19.0	3.4	19.7	--	58.7	106.6
1888	94.8	19.3	3.4	24.4	--	50.9	108.0
1889	82.9	17.1	3.3	21.1	--	50.6	82.0
1890	59.2	16.9	3.3	23.8	--	52.3	92.8
1891	84.0	16.4	3.2	24.6	--	56.9	97.7
1892	92.6	15.3	3.1	26.2	--	52.8	117.2
1893	102.3	14.3	3.1	24.1	--	51.7	133.8
1894	87.2	14.6	3.0	21.9	--	58.9	137.2
1895	80.8	18.3	3.0	22.7	--	59.3	113.4
1896	75.4	15.4	2.9	26.0	--	54.4	96.5
1897	80.8	15.9	3.4	28.3	--	54.4	113.0
1898	104.5	13.6	3.8	31.7	--	63.7	77.7
1899	116.3	15.6	4.4	31.6	--	66.4	87.0
1900	107.7	16.8	5.0	24.2	--	57.1	79.3
1901	101.2	19.6	5.3	--	--	62.7	71.3
1902	101.2	21.5	5.5	--	--	60.5	102.5
1903	102.3	22.0	5.8	--	--	58.3	89.4
1904	108.8	21.8	6.1	--	--	63.2	105.7
1905	95.9	23.5	6.5	--	81.1	59.8	89.6
1906	93.7	23.8	6.8	--	76.5	61.4	80.5

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1907	91.6	21.1	7.2	--	70.2	64.3	83.5
1908	90.5	22.0	7.6	--	75.9	62.4	86.7
1909	89.4	21.5	8.0	25.0	78.2	61.0	101.2
1910	96.9	21.3	8.4	25.4	71.7	55.0	96.9

APPENDIX TABLE 7.2 (Continued)
PPP-adjusted real wages, Great Britain in 1913=100

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1911	95.9	22.5	7.7	27.7	69.6	52.8	95.0
1912	99.1	20.1	7.0	22.4	68.5	72.8	93.9
1913	93.7	21.6	6.4	18.0	71.1	75.4	85.8
1914	91.6	25.0	5.9	23.7	72.8	33.4	79.7
1915	81.9	21.6	5.4	28.1	74.4	19.2	70.1
1916	76.5	20.1	4.9	34.5	68.0	37.3	62.6
1917	65.7	15.8	4.5	28.2	68.1	20.4	62.6
1918	56.0	12.7	4.1	27.5	56.0	18.5	60.7
1919	76.5	12.6	3.8	25.0	62.0	20.2	61.0
1920	78.6	11.6	3.4	26.9	56.2	20.0	75.8
1921	98.0	17.1	3.6	36.1	69.3	25.5	92.3
1922	112.0	16.8	3.8	34.4	94.8	33.3	99.6
1923	115.3	14.1	4.0	37.5	98.4	30.6	103.1
1924	114.2	14.4	4.1	40.2	98.9	35.8	104.9
1925	119.6	13.9	4.3	41.3	89.8	32.8	105.3
1926	120.6	17.9	4.5	34.6	94.2	34.6	106.0
1927	127.1	18.8	4.0	47.9	96.0	40.7	112.2
1928	135.7	18.1	3.5	54.5	102.6	42.4	113.0
1929	133.6	18.8	3.1	49.8	100.9	37.4	115.2
1930	121.7	21.8	2.7	63.7	114.2	32.4	119.4
1931	131.4	21.4	2.4	68.9	128.6	39.8	122.5
1932	138.9	21.0	2.7	87.2	89.2	53.9	125.0
1933	128.2	20.6	3.1	69.7	81.5	51.0	129.0
1934	132.5	20.2	3.5	49.0	88.0	51.6	127.5
1935	135.7	19.9	4.1	55.3	87.2	49.6	118.7
1936	127.1	19.5	--	52.7	93.5	46.3	122.1
1937	128.2	19.1	--	56.5	97.0	30.8	117.7
1938	128.2	--	--	53.5	98.0	28.7	117.0
1939	130.3	--	--	54.7	104.2	27.7	113.5
1940	131.4	--	--	57.9	--	27.6	110.7

APPENDIX TABLE 7.3

PPP-adjusted real wages, United States in 1913=100

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1830	--	5.3	--	--	--	--	--
1831	--	5.3	--	--	--	--	--
1832	--	7.0	--	--	--	--	--
1833	--	3.1	--	--	--	--	--
1834	--	3.1	--	--	--	--	--
1835	--	4.7	--	--	--	--	--
1836	--	4.8	--	--	--	--	--
1837	--	4.4	--	--	--	--	--
1838	--	3.8	--	--	--	--	--
1839	--	4.1	--	--	--	--	--
1840	--	3.4	--	--	--	--	--
1841	--	3.6	--	--	--	--	--
1842	--	5.3	--	--	--	--	--
1843	--	5.2	--	--	--	--	--
1844	--	5.3	--	--	--	--	--
1845	--	4.4	--	--	--	--	--
1846	--	4.1	--	--	--	--	--
1847	--	4.7	--	--	--	--	--
1848	--	4.4	--	--	--	--	--
1849	--	5.2	--	--	--	--	--
1850	--	5.8	--	--	--	--	--
1851	--	5.3	--	--	--	--	--
1852	--	5.7	--	--	--	--	--
1853	--	6.6	--	--	--	--	--
1854	--	5.3	--	--	--	--	--
1855	--	5.2	1.3	--	--	--	--
1856	--	5.4	1.2	--	--	--	--
1857	--	5.4	1.8	--	--	--	--
1858	--	6.0	1.5	--	--	--	--
1859	--	6.2	1.7	--	--	--	--
1860	--	7.0	2.1	--	--	--	--
1861	--	7.0	2.2	--	--	--	--
1862	--	6.9	3.0	--	--	--	--
1863	--	6.4	2.9	14.0	--	--	--
1864	25.0	6.1	3.5	13.9	--	--	--
1865	26.9	6.3	3.4	10.9	--	--	--
1866	31.2	6.2	3.2	10.7	--	--	--
1867	30.6	7.1	2.3	10.6	--	--	--
1868	30.0	6.4	2.5	10.4	--	--	--
1869	32.5	5.5	2.4	10.2	--	--	--
1870	36.2	5.6	2.4	10.0	--	--	--

APPENDIX TABLE 7.3 (Continued)
PPP-adjusted real wages, United States in 1913=100

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1871	35.0	6.7	2.3	10.0	--	--	--
1872	30.6	6.7	2.4	9.7	--	--	--
1873	30.0	7.3	2.4	7.5	--	--	--

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1874	35.0	6.9	2.4	6.3	--	--	--
1875	35.0	8.5	2.4	6.4	--	--	--
1876	34.4	8.4	2.4	6.6	--	--	--
1877	28.1	8.1	2.3	7.4	--	31.5	--
1878	25.6	7.7	2.3	8.0	--	31.3	--
1879	24.4	8.4	2.3	8.6	--	31.1	--
1880	27.5	8.9	2.2	9.4	--	31.0	42.1
1881	34.4	8.5	2.2	9.2	--	30.9	45.9
1882	39.3	9.5	2.1	6.1	--	30.7	46.5
1883	44.3	9.0	2.1	8.8	--	30.5	43.0
1884	41.8	10.0	2.1	10.4	--	30.3	42.6
1885	33.1	10.2	2.0	13.1	--	30.1	54.9
1886	41.8	10.4	2.0	11.7	--	29.9	60.5
1887	46.8	11.0	2.0	11.4	--	34.1	61.8
1888	55.0	11.2	1.9	14.2	--	29.5	62.6
1889	48.1	9.9	1.9	12.2	--	29.3	47.5
1890	34.4	9.8	1.9	13.8	--	30.3	53.8
1891	48.7	9.5	1.9	14.3	--	33.0	56.7
1892	53.7	8.9	1.8	15.2	--	30.6	67.9
1893	59.3	8.3	1.8	14.0	--	30.0	77.6
1894	50.6	8.5	1.8	12.7	--	34.2	79.6
1895	46.8	10.6	1.7	13.1	--	34.4	65.8
1896	43.7	8.9	1.7	15.1	--	31.5	56.0
1897	46.8	9.2	2.0	16.4	--	31.5	65.5
1898	60.6	7.9	2.2	18.4	--	36.9	45.0
1899	67.5	9.0	2.5	18.3	--	38.5	50.4
1900	62.5	9.7	2.9	14.1	--	33.1	46.0
1901	58.7	11.4	3.1	--	--	36.3	41.3
1902	58.7	12.5	3.2	--	--	35.1	59.4
1903	59.3	12.7	3.4	--	--	33.8	51.8
1904	63.1	12.6	3.6	--	--	36.7	61.3
1905	55.6	13.6	3.8	--	47.1	34.7	51.9
1906	54.3	13.8	4.0	--	44.3	35.6	46.7
1907	53.1	12.3	4.2	--	40.7	37.3	48.4
1908	52.5	12.7	4.4	--	44.0	36.2	50.3
1909	51.8	12.5	4.6	14.5	45.3	35.4	58.7
1910	56.2	12.4	4.9	14.7	41.6	31.9	56.2

APPENDIX TABLE 7.3 (Continued)
PPP-adjusted real wages, United States in 1913=100

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1911	55.6	13.0	4.4	16.1	40.3	30.6	55.1
1912	57.5	11.7	4.1	13.0	39.7	42.2	54.5
1913	54.3	12.5	3.7	10.5	41.2	43.7	49.7
1914	53.1	14.5	3.4	13.8	42.2	19.3	46.2
1915	47.5	12.5	3.1	16.3	43.1	11.1	40.6
1916	44.3	11.7	2.9	20.0	39.4	21.6	36.3
1917	38.1	9.1	2.6	16.4	39.5	11.8	36.3
1918	32.5	7.4	2.4	15.9	32.5	10.7	35.2

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1919	44.3	7.3	2.2	14.5	35.9	11.7	35.3
1920	45.6	6.7	2.0	15.6	32.6	11.6	43.9
1921	56.8	9.9	2.1	20.9	40.2	14.8	53.5
1922	65.0	9.7	2.2	19.9	55.0	19.3	57.8
1923	66.8	8.2	2.3	21.8	57.1	17.8	59.8
1924	66.2	8.4	2.4	23.3	57.4	20.7	60.8
1925	69.3	8.1	2.5	23.9	52.1	19.0	61.0
1926	70.0	10.4	2.6	20.1	54.7	20.1	61.5
1927	73.7	10.9	2.3	27.8	55.7	23.6	65.1
1928	78.7	10.5	2.0	31.6	59.5	24.6	65.5
1929	77.4	10.9	1.8	28.9	58.5	21.7	66.8
1930	70.6	12.6	1.6	37.0	66.2	18.8	69.2
1931	76.2	12.4	1.4	40.0	74.6	23.1	71.0
1932	80.6	12.2	1.6	50.6	51.7	31.2	72.5
1933	74.3	12.0	1.8	40.4	47.3	29.6	74.8
1934	76.8	11.7	2.1	28.4	51.0	29.9	73.9
1935	78.7	11.5	2.4	32.1	50.6	28.8	68.8
1936	73.7	11.3	--	30.6	54.2	26.8	70.8
1937	74.3	11.1	--	32.8	56.2	17.9	68.3
1938	74.3	--	--	31.0	56.8	16.7	67.8
1939	75.6	--	--	31.7	60.4	16.1	65.8
1940	76.2	--	--	33.6	--	16.0	64.2

APPENDIX TABLE 7.4
PPP-adjusted real wages, Emigrating Mediterranean Countries in 1913=100

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1830	--	19.7	--	--	--	--	--
1831	--	19.3	--	--	--	--	--
1832	--	25.7	--	--	--	--	--
1833	--	11.4	--	--	--	--	--
1834	--	11.4	--	--	--	--	--
1835	--	17.2	--	--	--	--	--
1836	--	17.5	--	--	--	--	--
1837	--	16.1	--	--	--	--	--
1838	--	13.9	--	--	--	--	--
1839	--	15.0	--	--	--	--	--
1840	--	12.5	--	--	--	--	--
1841	--	13.2	--	--	--	--	--
1842	--	19.7	--	--	--	--	--
1843	--	18.9	--	--	--	--	--
1844	--	19.3	--	--	--	--	--

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1845	--	16.1	--	--	--	--	--
1846	--	15.0	--	--	--	--	--
1847	--	17.2	--	--	--	--	--
1848	--	16.1	--	--	--	--	--
1849	--	18.9	--	--	--	--	--
1850	--	21.4	--	--	--	--	--
1851	--	19.7	--	--	--	--	--
1852	--	21.1	--	--	--	--	--
1853	--	24.3	--	--	--	--	--
1854	--	19.3	--	--	--	--	--
1855	--	18.9	4.8	--	--	--	--
1856	--	20.0	4.3	--	--	--	--
1857	--	20.0	6.6	--	--	--	--
1858	--	22.2	5.4	--	--	--	--
1859	--	22.9	6.2	--	--	--	--
1860	--	25.7	7.5	--	--	--	--
1861	--	25.7	8.2	--	--	--	--
1862	--	25.4	10.9	--	--	--	--
1863	--	23.6	10.6	51.4	--	--	--
1864	91.8	22.5	12.8	50.9	--	--	--
1865	98.7	23.2	12.3	39.9	--	--	--
1866	114.7	22.9	11.7	39.5	--	--	--
1867	112.4	26.1	8.4	38.8	--	--	--
1868	110.1	23.6	9.3	38.1	--	--	--
1869	119.3	20.4	8.9	37.4	--	--	--
1870	133.1	20.7	8.7	36.7	--	--	--

APPENDIX TABLE 7.4 (Continued)
PPP-adjusted real wages, Emigrating Mediterranean Countries in 1913=100

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1871	128.5	24.7	8.4	36.7	--	--	--
1872	112.4	24.7	8.7	35.7	--	--	--
1873	110.1	26.8	8.8	27.5	--	--	--
1874	128.5	25.4	9.0	23.1	--	--	--
1875	128.5	31.1	8.9	23.6	--	--	--
1876	126.2	30.7	8.7	24.1	--	--	--
1877	103.3	29.7	8.6	27.2	--	115.9	--
1878	94.1	28.2	8.4	29.3	--	115.0	--
1879	89.5	30.7	8.3	31.8	--	114.2	--
1880	101.0	32.5	8.2	34.5	--	113.8	154.7
1881	126.2	31.1	8.0	33.8	--	113.5	168.5
1882	144.6	35.0	7.9	22.4	--	112.7	170.7
1883	162.9	33.2	7.8	32.4	--	111.9	157.9
1884	153.7	36.8	7.6	38.2	--	111.2	156.4
1885	121.6	37.5	7.5	48.1	--	110.4	201.8
1886	153.7	38.2	7.4	42.9	--	109.7	222.4
1887	172.1	40.4	7.3	42.0	--	125.1	227.1
1888	201.9	41.1	7.2	52.0	--	108.4	230.0
1889	176.7	36.5	7.0	45.0	--	107.8	174.6
1890	126.2	36.1	6.9	50.6	--	111.3	197.7

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1891	179.0	35.0	6.8	52.4	--	121.3	208.2
1892	197.3	32.5	6.7	55.8	--	112.4	249.6
1893	218.0	30.4	6.6	51.4	--	110.1	285.0
1894	185.9	31.1	6.5	46.7	--	125.6	292.3
1895	172.1	39.0	6.4	48.3	--	126.4	241.6
1896	160.6	32.9	6.3	55.4	--	115.9	205.7
1897	172.1	33.9	7.2	60.3	--	115.9	240.8
1898	222.6	28.9	8.2	67.5	--	135.6	165.5
1899	247.8	33.2	9.3	67.3	--	141.4	185.2
1900	229.5	35.7	10.7	51.6	--	121.6	168.9
1901	215.7	41.8	11.2	--	--	133.5	151.8
1902	215.7	45.7	11.8	--	--	128.8	218.3
1903	218.0	46.8	12.4	--	--	124.3	190.5
1904	231.8	46.5	13.1	--	--	134.7	225.3
1905	204.2	50.0	13.8	--	172.9	127.4	190.8
1906	199.6	50.7	14.5	--	162.9	130.7	171.4
1907	195.0	45.0	15.3	--	149.7	137.0	178.0
1908	192.8	46.8	16.1	--	161.7	132.8	184.7
1909	190.5	45.7	17.0	53.3	166.5	130.0	215.6
1910	206.5	45.4	17.9	54.1	152.8	117.2	206.5

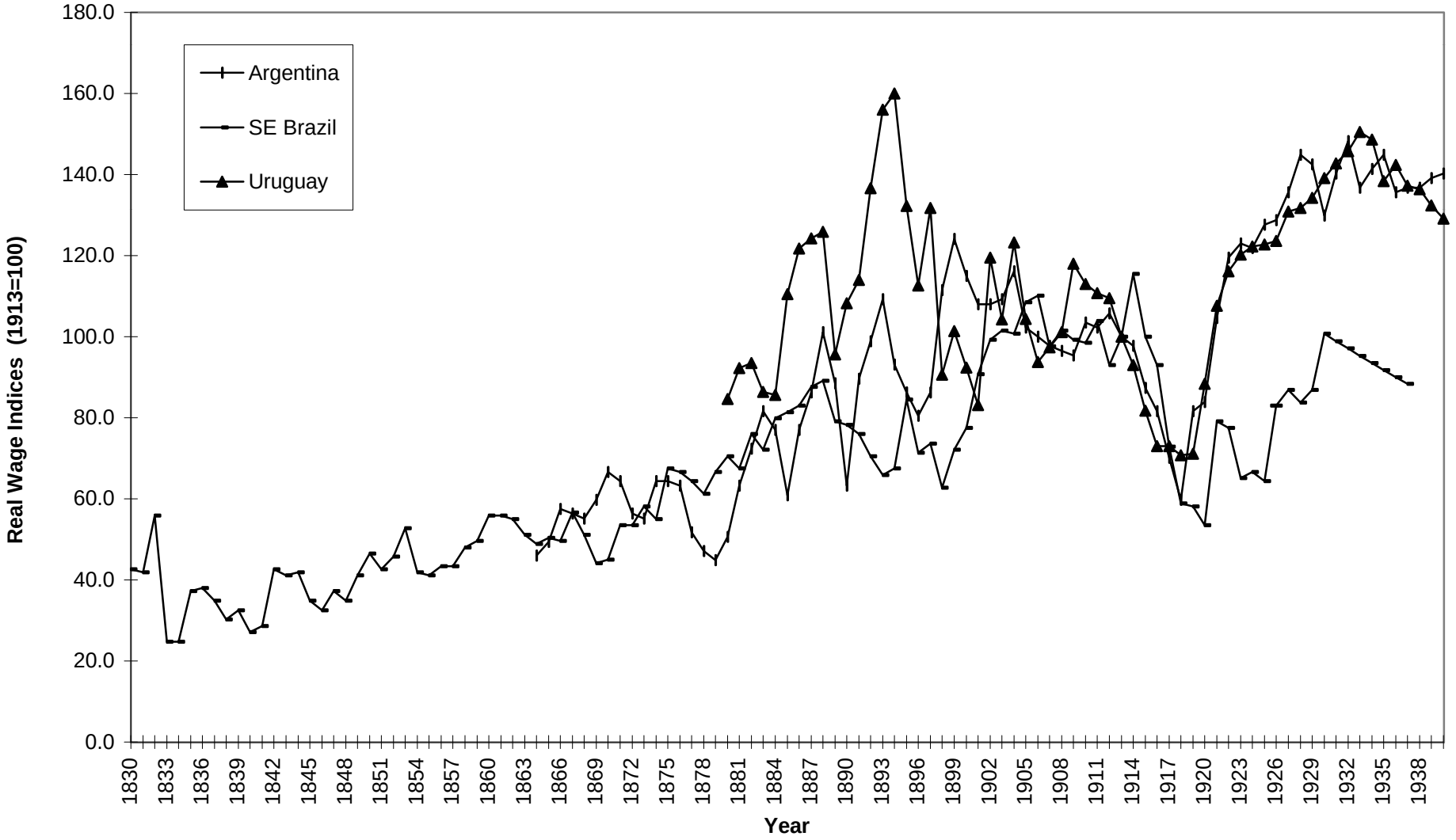
APPENDIX TABLE 7.4 (Continued)
PPP-adjusted real wages, Emigrating Mediterranean Countries in 1913=100

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1911	204.2	47.9	16.3	59.0	148.2	112.4	202.3
1912	211.1	42.9	14.9	47.7	145.9	155.0	200.1
1913	199.6	46.1	13.7	38.4	151.5	160.6	182.7
1914	195.0	53.2	12.5	50.5	155.2	71.1	169.9
1915	174.4	46.1	11.4	59.8	158.4	40.8	149.3
1916	162.9	42.9	10.5	73.6	144.9	79.4	133.4
1917	140.0	33.6	9.6	60.1	145.1	43.5	133.4
1918	119.3	27.2	8.8	58.5	119.4	39.4	129.4
1919	162.9	26.8	8.0	53.3	132.0	43.1	129.9
1920	167.5	24.7	7.3	57.4	119.6	42.5	161.4
1921	208.8	36.5	7.7	76.8	147.7	54.3	196.7
1922	238.6	35.7	8.0	73.2	202.1	70.9	212.3
1923	245.5	30.0	8.4	79.9	209.7	65.2	219.7
1924	243.2	30.7	8.8	85.7	210.7	76.2	223.4
1925	254.7	29.7	9.2	87.9	191.3	69.9	224.3
1926	257.0	38.2	9.6	73.7	200.8	73.7	225.8
1927	270.8	40.0	8.5	102.1	204.6	86.7	239.1
1928	289.1	38.6	7.4	116.2	218.5	90.2	240.6
1929	284.5	40.0	6.5	106.1	214.9	79.6	245.4
1930	259.3	46.5	5.7	135.8	243.3	68.9	254.3
1931	280.0	45.6	5.0	146.8	274.0	84.8	260.9
1932	296.0	44.7	5.8	185.8	190.1	114.8	266.3
1933	273.1	43.9	6.6	148.5	173.7	108.6	274.9
1934	282.2	43.1	7.5	104.4	187.5	109.9	271.5
1935	289.1	42.3	8.6	117.8	185.8	105.7	252.8

Year	Argentina	Brazil, Southeast	Brazil, Northeast	Colombia	Cuba	Mexico	Uruguay
1936	270.8	41.5	--	112.2	199.1	98.6	260.2
1937	273.1	40.7	--	120.4	206.6	65.6	250.8
1938	273.1	--	--	114.0	208.7	61.2	249.2
1939	277.7	--	--	116.4	222.0	59.0	241.8
1940	280.0	--	--	123.4	--	58.9	235.9

Figure 2

Real Wage Indices for Latin America (1913=100)
Argentina, Southeast Brazil, and Uruguay



Sources: Appendix Tables 1.3, 2.3, and 6.3. Interpolated figures included.

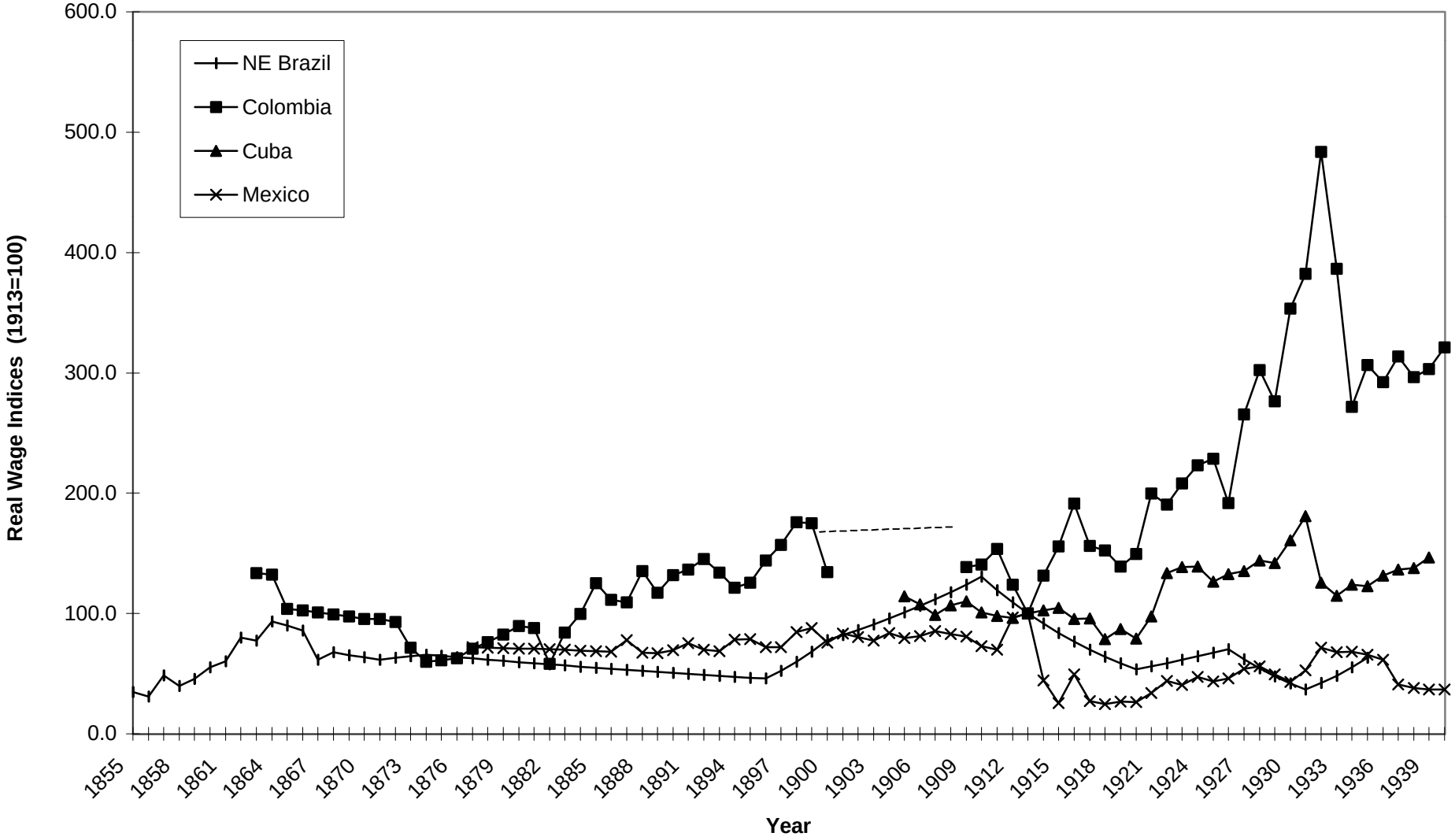
Year	Argentina	SE Brazil	Uruguay
1830		42.6	
1831		41.9	
1832		55.8	
1833		24.8	
1834		24.8	
1835		37.2	
1836		38.0	
1837		34.9	
1838		30.2	
1839		32.6	
1840		27.1	
1841		28.7	
1842		42.6	
1843		41.1	
1844		41.9	
1845		34.9	
1846		32.6	
1847		37.2	
1848		34.9	
1849		41.1	
1850		46.5	
1851		42.6	
1852		45.7	
1853		52.7	
1854		41.9	
1855		41.1	
1856		43.4	
1857		43.4	
1858		48.1	
1859		49.6	
1860		55.8	
1861		55.8	
1862		55.0	
1863		51.2	
1864	46.0	48.8	
1865	49.4	50.4	
1866	57.5	49.6	
1867	56.3	56.6	
1868	55.2	51.2	
1869	59.8	44.2	
1870	66.7	45.0	
1871	64.4	53.5	
1872	56.3	53.5	
1873	55.2	58.1	
1874	64.4	55.0	
1875	64.4	67.4	
1876	63.2	66.7	
1877	51.7	64.3	

1878	47.1	61.2	
1879	44.8	66.7	
1880	50.6	70.5	84.7
1881	63.2	67.4	92.2
1882	72.4	76.0	93.4
1883	81.6	72.1	86.4
1884	77.0	79.8	85.6
1885	60.9	81.4	110.4
1886	77.0	82.9	121.7
1887	86.2	87.6	124.3
1888	101.1	89.1	125.9
1889	88.5	79.1	95.6
1890	63.2	78.3	108.2
1891	89.7	76.0	114.0
1892	98.9	70.5	136.6
1893	109.2	65.9	156.0
1894	93.1	67.4	160.0
1895	86.2	84.5	132.3
1896	80.5	71.3	112.6
1897	86.2	73.6	131.8
1898	111.5	62.8	90.6
1899	124.1	72.1	101.4
1900	114.9	77.5	92.4
1901	108.0	90.7	83.1
1902	108.0	99.2	119.5
1903	109.2	101.6	104.3
1904	116.1	100.8	123.3
1905	102.3	108.5	104.4
1906	100.0	110.1	93.8
1907	97.7	97.7	97.4
1908	96.6	101.6	101.1
1909	95.4	99.2	118.0
1910	103.4	98.4	113.0
1911	102.3	103.9	110.7
1912	105.7	93.0	109.5
1913	100.0	100.0	100.0
1914	97.7	115.5	93.0
1915	87.4	100.0	81.7
1916	81.6	93.0	73.0
1917	70.1	72.9	73.0
1918	59.8	58.9	70.8
1919	81.6	58.1	71.1
1920	83.9	53.5	88.4
1921	104.6	79.1	107.7
1922	119.5	77.5	116.2
1923	123.0	65.1	120.2
1924	121.8	66.7	122.3
1925	127.6	64.3	122.7
1926	128.7	82.9	123.6
1927	135.6	86.8	130.9
1928	144.8	83.7	131.7

1929	142.5	86.8	134.3
1930	129.9	100.8	139.2
1931	140.2	98.9	142.8
1932	148.3	97.1	145.7
1933	136.8	95.3	150.5
1934	141.4	93.5	148.6
1935	144.8	91.8	138.4
1936	135.6	90.0	142.4
1937	136.8	88.4	137.2
1938	136.8		136.4
1939	139.1		132.3
1940	140.2		129.1

Figure 3

Real Wage Indices for Latin America (1913=100)
Northeast Brazil, Colombia, Cuba, and Mexico



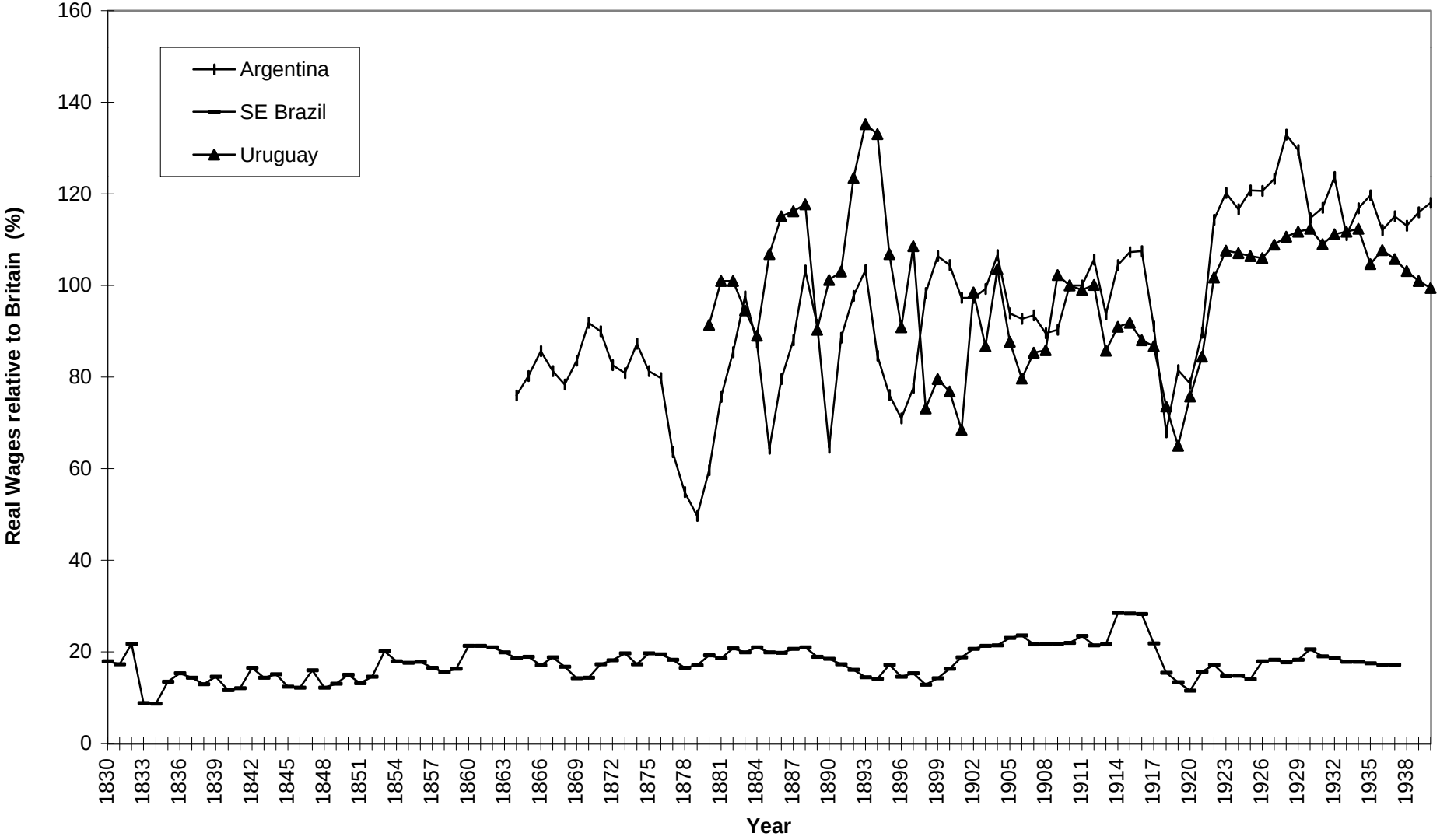
Sources: Appendix Tables 2.6, 3.3, 4.3 and 5.3. Interpolated figures included.

Year	NE Brazil	Colombia	Cuba	Mexico
1855	34.9			
1856	31.2			
1857	48.4			
1858	39.8			
1859	45.6			
1860	55.1			
1861	60.1			
1862	79.9			
1863	77.5	133.8		
1864	93.4	132.5		
1865	90.2	103.8		
1866	85.9	102.8		
1867	61.6	100.9		
1868	68.0	99.1		
1869	65.4	97.4		
1870	63.7	95.6		
1871	61.4	95.6		
1872	63.3	93.0		
1873	64.5	71.5		
1874	65.8	60.0		
1875	64.7	61.3		
1876	63.7	62.7		
1877	62.6	70.9		72.2
1878	61.6	76.4		71.6
1879	60.6	82.6		71.1
1880	59.6	89.8		70.9
1881	58.7	87.9		70.7
1882	57.7	58.2		70.2
1883	56.8	84.3		69.7
1884	55.9	99.5		69.2
1885	55.0	125.2		68.8
1886	54.1	111.5		68.3
1887	53.2	109.3		77.9
1888	52.3	135.3		67.5
1889	51.5	117.0		67.1
1890	50.6	131.7		69.4
1891	49.8	136.3		75.6
1892	49.0	145.2		70.0
1893	48.2	133.9		68.6
1894	47.4	121.4		78.2
1895	46.7	125.6		78.8
1896	45.9	144.1		72.2
1897	52.4	157.0		72.2
1898	59.8	175.7		84.5
1899	68.3	175.0		88.1
1900	77.9	134.4		75.8
1901	82.0			83.2
1902	86.4			80.2

1903	91.0			77.4
1904	95.8			83.9
1905	100.8		114.1	79.4
1906	106.2		107.6	81.4
1907	111.8		98.8	85.4
1908	117.7		106.7	82.7
1909	124.0	138.6	109.9	81.0
1910	130.5	140.9	100.8	73.0
1911	119.4	153.6	97.8	70.0
1912	109.3	124.0	96.3	96.6
1913	100.0	100.0	100.0	100.0
1914	91.5	131.5	102.4	44.3
1915	83.7	155.6	104.6	25.4
1916	76.6	191.4	95.7	49.4
1917	70.1	156.4	95.8	27.1
1918	64.1	152.3	78.8	24.5
1919	58.7	138.8	87.1	26.9
1920	53.7	149.3	79.0	26.5
1921	56.2	199.9	97.5	33.8
1922	58.8	190.6	133.4	44.1
1923	61.5	208.0	138.4	40.6
1924	64.4	223.0	139.1	47.5
1925	67.4	228.7	126.3	43.6
1926	70.5	191.7	132.5	45.9
1927	61.9	265.6	135.0	54.0
1928	54.4	302.4	144.2	56.2
1929	47.8	276.1	141.9	49.6
1930	42.0	353.3	160.6	42.9
1931	36.8	382.1	180.9	52.8
1932	42.2	483.4	125.5	71.5
1933	48.2	386.5	114.6	67.6
1934	55.2	271.7	123.8	68.5
1935	63.2	306.6	122.6	65.8
1936		292.1	131.5	61.4
1937		313.4	136.4	40.9
1938		296.6	137.8	38.1
1939		303.0	146.6	36.7
1940		321.2		36.7

Figure 4

Real Wages in Latin America relative to Great Britain (in percent)
Argentina, Southeast Brazil, and Uruguay



Sources: See Table 1. Interpolated figures included.

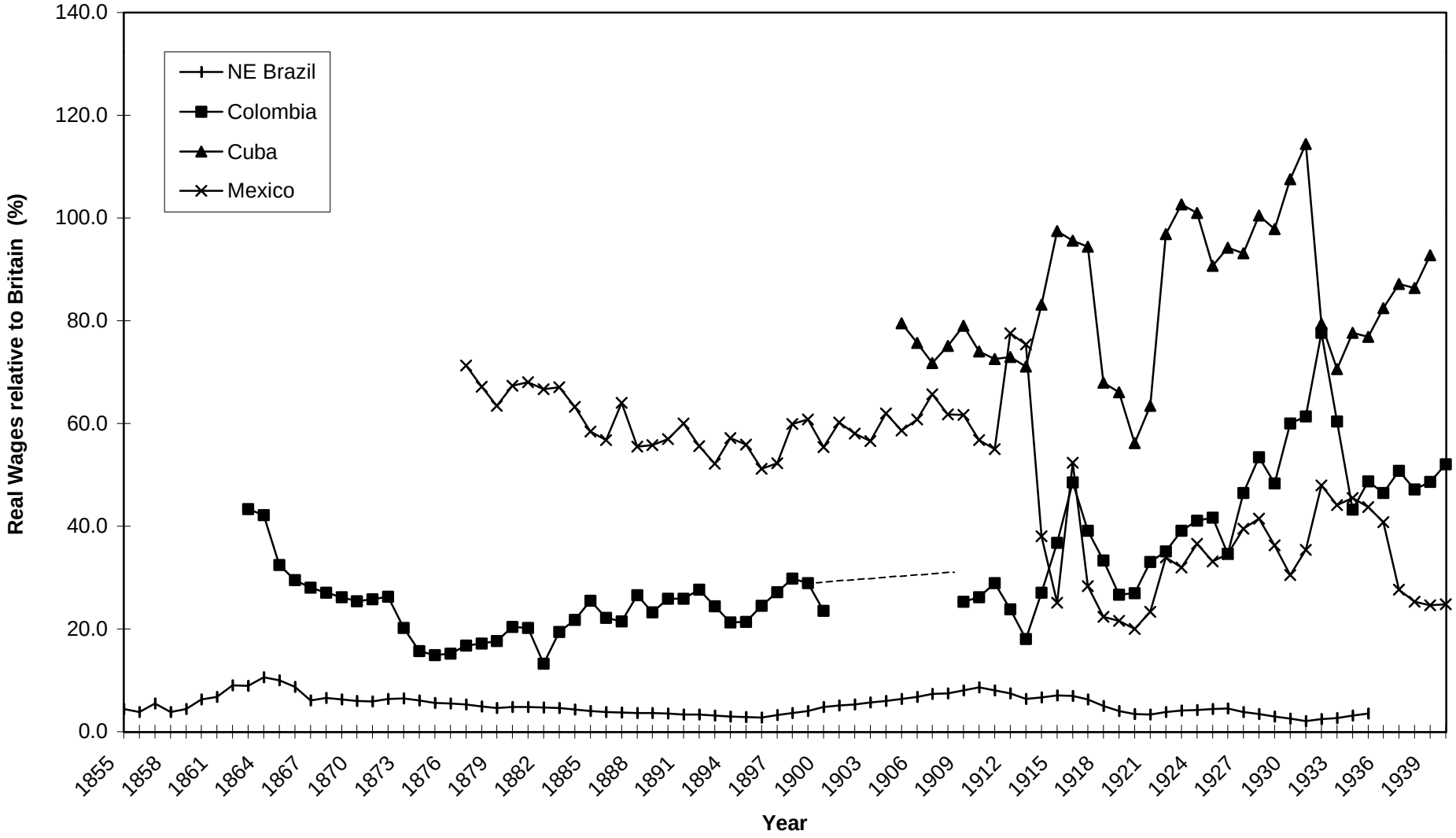
Year	Argentina	SE Brazil	Uruguay
1830		17.9	
1831		17.2	
1832		21.7	
1833		8.8	
1834		8.7	
1835		13.5	
1836		15.3	
1837		14.4	
1838		13.0	
1839		14.5	
1840		11.6	
1841		12.0	
1842		16.6	
1843		14.4	
1844		15.1	
1845		12.4	
1846		12.2	
1847		15.9	
1848		12.2	
1849		13.1	
1850		15.0	
1851		13.2	
1852		14.5	
1853		20.1	
1854		17.9	
1855		17.6	
1856		17.9	
1857		16.6	
1858		15.5	
1859		16.3	
1860		21.3	
1861		21.3	
1862		21.0	
1863		19.9	
1864	76.0	18.6	
1865	80.2	18.9	
1866	85.6	17.1	
1867	81.3	18.9	
1868	78.4	16.8	
1869	83.6	14.3	
1870	91.8	14.3	
1871	90.0	17.3	
1872	82.6	18.1	
1873	80.9	19.7	
1874	87.3	17.2	
1875	81.3	19.7	
1876	79.8	19.4	
1877	63.5	18.3	

1878	54.9	16.5	
1879	49.7	17.1	
1880	59.7	19.2	91.5
1881	75.6	18.6	101.0
1882	85.5	20.7	101.0
1883	97.6	19.9	94.6
1884	87.5	20.9	89.0
1885	64.4	19.9	106.8
1886	79.5	19.8	115.1
1887	88.0	20.7	116.2
1888	103.3	21.0	117.7
1889	91.4	18.9	90.3
1890	64.6	18.5	101.2
1891	88.6	17.3	103.0
1892	97.7	16.1	123.5
1893	103.4	14.4	135.2
1894	84.6	14.2	133.1
1895	76.1	17.2	106.8
1896	71.0	14.5	90.9
1897	77.6	15.3	108.6
1898	98.4	12.8	73.2
1899	106.5	14.3	79.6
1900	104.5	16.3	76.9
1901	97.2	18.8	68.4
1902	97.2	20.6	98.4
1903	99.3	21.3	86.7
1904	106.6	21.4	103.6
1905	93.9	23.0	87.8
1906	92.8	23.6	79.6
1907	93.5	21.6	85.3
1908	89.6	21.8	85.8
1909	90.3	21.7	102.3
1910	100.0	22.0	100.0
1911	100.0	23.4	99.0
1912	105.6	21.5	100.1
1913	93.7	21.6	85.8
1914	104.5	28.5	91.0
1915	107.3	28.4	91.8
1916	107.5	28.3	88.0
1917	91.0	21.9	86.8
1918	67.9	15.5	73.6
1919	81.5	13.4	65.0
1920	78.6	11.6	75.8
1921	89.7	15.7	84.5
1922	114.4	17.1	101.7
1923	120.2	14.7	107.6
1924	116.6	14.7	107.1
1925	120.8	14.1	106.4
1926	120.6	17.9	106.0
1927	123.3	18.2	108.9
1928	133.0	17.8	110.7

1929	129.6	18.2	111.7
1930	114.6	20.5	112.4
1931	116.9	19.0	109.0
1932	123.7	18.7	111.2
1933	111.0	17.9	111.8
1934	116.8	17.8	112.4
1935	119.7	17.5	104.6
1936	112.1	17.2	107.7
1937	115.1	17.2	105.7
1938	113.0		103.2
1939	116.0		101.0
1940	118.0		99.5

Figure 5

Real Wages in Latin America relative to Great Britain (in percent)
Northeast Brazil, Colombia, Cuba, and Mexico



Sources: See Table 1. Interpolated figures included.

Year	NE Brazil	Colombia	Cuba	Mexico
1855	4.4			
1856	3.8			
1857	5.5			
1858	3.8			
1859	4.4			
1860	6.2			
1861	6.8			
1862	9.0			
1863	8.9	43.3		
1864	10.6	42.1		
1865	10.0	32.4		
1866	8.8	29.5		
1867	6.1	28.0		
1868	6.6	27.1		
1869	6.3	26.2		
1870	6.0	25.3		
1871	5.9	25.7		
1872	6.4	26.3		
1873	6.5	20.2		
1874	6.1	15.7		
1875	5.6	14.9		
1876	5.5	15.2		
1877	5.3	16.8		71.3
1878	4.9	17.1		67.1
1879	4.6	17.6		63.4
1880	4.8	20.4		67.3
1881	4.8	20.2		68.0
1882	4.7	13.2		66.7
1883	4.7	19.4		67.1
1884	4.3	21.8		63.3
1885	4.0	25.5		58.5
1886	3.8	22.2		56.8
1887	3.7	21.5		64.0
1888	3.7	26.6		55.5
1889	3.6	23.3		55.8
1890	3.5	25.9		57.0
1891	3.4	25.9		60.0
1892	3.3	27.6		55.6
1893	3.1	24.4		52.2
1894	3.0	21.2		57.2
1895	2.8	21.3		55.9
1896	2.8	24.5		51.2
1897	3.2	27.2		52.2
1898	3.6	29.8		59.9
1899	4.0	28.9		60.7
1900	4.9	23.5		55.4
1901	5.1			60.2
1902	5.3			58.1

1903	5.7			56.6
1904	6.0			61.9
1905	6.3		79.5	58.6
1906	6.7		75.7	60.7
1907	7.3		71.7	65.7
1908	7.5		75.1	61.7
1909	8.0	25.3	79.0	61.6
1910	8.6	26.2	74.0	56.8
1911	8.0	28.9	72.5	55.0
1912	7.5	23.8	73.0	77.6
1913	6.4	18.0	71.1	75.4
1914	6.7	27.1	83.1	38.1
1915	7.0	36.8	97.5	25.1
1916	6.9	48.5	95.6	52.4
1917	6.2	39.1	94.4	28.3
1918	5.0	33.3	67.9	22.4
1919	4.0	26.7	66.0	21.6
1920	3.4	26.9	56.2	20.0
1921	3.3	33.0	63.4	23.3
1922	3.9	35.1	96.8	34.0
1923	4.1	39.1	102.7	31.9
1924	4.2	41.1	101.0	36.5
1925	4.4	41.7	90.7	33.2
1926	4.5	34.6	94.2	34.6
1927	3.9	46.5	93.1	39.5
1928	3.4	53.4	100.5	41.5
1929	3.0	48.3	97.9	36.3
1930	2.5	60.0	107.6	30.5
1931	2.1	61.3	114.4	35.4
1932	2.4	77.6	79.4	47.9
1933	2.7	60.4	70.6	44.1
1934	3.1	43.2	77.6	45.5
1935	3.6	48.8	76.9	43.7
1936		46.5	82.4	40.8
1937		50.8	87.1	27.7
1938		47.2	86.4	25.3
1939		48.6	92.7	24.6
1940		52.0		24.8