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Stature growth in industrializing Argentina: The Buenos Aires industrial belt 1916–1950

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Abstract

A sustained long-term increase in average stature accompanied the process of import-substituting industrialization in the main suburban area of Argentina, the Buenos Aires Conurbano. This gain in net nutrition was attained before the rise to power of a re-distributionist political party: the Peronists. The article also provides evidence of a decline in average heights during the period 1939–1945, which challenges us to revise the traditional wisdom about the impact of World War II and Peronist social policies and its implications for the nutrition and health of children. The new evidence on heights shows also persistent social and regional differences over time that had not been documented before.
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1. Introduction

This article examines the changes in average heights in the industrial belt of Buenos Aires, Argentina, between 1916 and 1950. Its object is to test certain assertions that constitute a "traditional wisdom" about this period against the evolution of workers' biological wellbeing, measured by average heights. First, we need to examine the validity of the proposition that workers' welfare increased rapidly during the Peronist administration (1946–1955) and that, conversely, their wellbeing was relatively stagnant or worsening during the previous "infamous decade" (1930–1943). Second, we need to consider whether the conservative or the Peronist administration was more conducive to reducing social inequalities related to health and nutrition. Third, we need to re-evaluate the economic rationale behind internal migrants' decision to move to the industrial districts, particularly in relation to new data about the height attained by their children.

The first section briefly discusses the literature concerning industrialization, urbanization and internal migrations in Argentina. The Argentine case presents a clear anomaly in the last two dimensions. A process

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of industrialization directed toward the internal market and substitutive of imports emerged in a period of decline of the agrarian export economy. The rates of urbanization accelerated during this period, largely due to mass migrations from the interior provinces. Migrants moved towards the capital city, where industrialization was taking place, rather than toward unoccupied lands in the frontier. The growth of Greater Buenos Aires was characterized by the outward movement of the working class and the central location of the middle classes. Further, the consolidation of industrial growth in the 1930s and 1940s, and the concentration of workers it generated, is said to have produced the clientele for a political movement characterized by its distributive social policies: Peronism.

The second section presents the data, the regression results, and a brief discussion of the principal findings. While these conclusions seem tentative at present, the paper suggests: (a) that the Buenos Aires industrial belt experienced an important increase in net nutrition during industrialization; (b) that internal migrants did not encounter the "urban disamenities" problem, for they migrated to areas that had undergone reforms in sanitation and public services; (c) that the "infamous" 1930s made possible a greater decline in malnutrition than during the Peronist first administration; and (d) that social inequality was more persistent than previously assumed. In the final section, three main questions are presented and tentative explanations are provided.

2. Industrialization in Argentina

Early students of Argentine industrialization found in the 1880–1930 period an industrial sector characterized by a multitude of small workshops that did not constitute "modern industry" (Dorfman, 1942). World War I had given local industrialists temporary protection, after which European and US exporters regained their position in the Argentine market. ECLA's "structuralist" economists argued that the true origins of industry in Argentina and other leading Latin American economies coincided with the world depression of the early 1930s. The depression granted effective protection to nascent industries, particularly "light industries," starting a process of import substitution that extended to the 1940s and 1950s (ECLA, 1950; Felix, 1965). Though some authors have challenged the idea of a radical rupture in the 1930s, this view remained hegemonic until quite recently.[1]

Recent revisions have pushed back the origins of Argentine industrialization to the 1890s and 1900s. Schvarzer (1996) finds in the period 1910–1930 a consolidation of the factory system but without much technical or social progress. World War I provided a protective context which made possible the substitution of imports in the food industry and strengthened the development of older industries, such as meat-packing and sugar refining. During the 1920s, investments in cotton textiles, metallurgy, and petroleum gave new dynamism to the sector. Rocchi (2006) goes even further, arguing that the origins of Argentine industrialization should be sought in the second half of the 1890s. Centered in Buenos Aires city and chiefly targeting the domestic market, industry developed into "big business" in the first decade of the twentieth century.

During the period 1900–1930 the industrial sector was not only crucial for the development of the internal market but also a key dynamic force of the Argentine economy. Industry grew at 9.6 percent a year in 1903–1913, when the economy as a whole was growing at a rate of 7.7 percent. In 1920–1929 the manufacturing sector expanded at 4.3 percent a year, when the economy was growing at 3.5 percent (Rocchi 2006:87). Even though the domestic market was limited, large firms were able to develop, rapidly mechanizing production in such distinct areas as shoe-making, tobacco, metallurgy, woolen textiles, and agricultural implements. Big industry helps to explain why Argentina, unlike other Latin American agrarian export economies, generated a high degree of upward social mobility.[2]

After 1932, industrialization progressed rapidly, moved by the need to substitute imports. Industrial production grew at a rate of 16 percent a year during 1933–35 and at 5.5 percent a year between 1935 and 1939. The share of industrial production in total consumption rose from 50 percent in 1925–29 to 63 percent in 1930–39 (Barbero and Rocchi 2003: 275). The 1930s saw a significant increase in textile manufactures, oil byproducts, metallurgy, and electrical appliances and vast expansion of road construction. During World

[1] Villanueva (1972), for instance, showed that there was an important growth of manufacturing in the 1920s.

[2] For the diversity of its products, for its influence in creating a national market, for its introduction of up-to-date technologies, industrialization, argues Rocchi (2006), was a success story in pre-1930 Argentina. See also Rocchi (1994).

War II, the process of import substitution continued (to reach 80 percent of consumption), while workers' purchasing power remained unaltered. The first years of the Peronist administration were favorable to industry, which grew at 6.3 percent a year (1946–48), but growth afterwards slowed, giving for the whole period 1946–55 the disappointing rate of 3 percent annually. After 1948, the possibilities of import substitution in light industries had been exhausted, and in the early 1950s restrictions on foreign currency raised further obstacles to new industrial investments (Barbero and Rocchi 2003: 277 and 279).

The high degree of industrial concentration that had made industry strong before 1930 began to falter in the 1930s, when small and medium-sized firms entered massively into the market (Goetz, 1976). With expanding markets and relatively simple technologies, the new branches admitted more firms and this, in turn, generated acute competition.[3] Significantly, the branches that experienced expansion and de-concentration were precisely those geared to popular consumption: food, beverages, clothing, textiles, electrical appliances, and construction materials.[4] Goetz's finding on industrial de-concentration is consistent with the proposition that, during the "easy" phase of import substitution, industries with low capital intensity and relatively simple technology tend to predominate. Protectionism and expanding internal markets create extra benefits that attract new firms into the business.

Thus, the industry that emerged in the 1930s and consolidated in the 1940s was a less concentrated and more competitive one that catered to the needs of an expanding domestic market. The availability of industrial credit, starting in the mid-1940s, combined with relatively simple technologies, increased the chances of small and medium-sized firms entering the market.[5] The policies of the 1930s (exchange control, increased tariffs, dual exchange rates, and public works) gave a great boost to industry, creating an almost captive internal market. Due to the collapse of agricultural exports, the internal terms of trade turned clearly in favor of industry. In a context of an abrupt fall in international migrations, industrial development was made possible by a massive movement of population from the interior to the capital and its surroundings.

3. Internal migration and urbanization

Crucial to the process of industrialization were the twin processes of urbanization and internal migrations. Rural–urban migrations together with the massive migration of *provincianos* to Buenos Aires and neighboring cities provided a continuous supply of labor for industrial growth, at a time when international migrations ceased to be an important component of demographic growth. Thanks to internal migrations, by 1947 Greater Buenos Aires—a metropolitan area including Buenos Aires and its 18 adjacent cities or boroughs—contained 29 percent of Argentina's population. Half of its population had been born in other provinces (Germani 1955: 57–58). The northwest and center contributed most to these massive migrations involving 25 percent of the country's population.[6]

Lattes and Lattes (1969) found that migrants in 1914–1947 moved to Buenos Aires but also towards adjacent rich provinces. In 1947–1960, by contrast, most provincial migrants converged on a single destination: Greater Buenos Aires. The migratory movement became almost exclusively centripetal. More migrants came from distant provinces and towns than before. And in this second period, more migrants traveled with their families (Lattes and Lattes 1969: chapters 7 and 8). Internal migrations began to replace international migrations after 1914, but it was only in the mid 1930s, during import-substituting industrialization, that internal migrations became truly massive. Germani's rough estimates provide a measure of magnitude for this change: the annual flow of migrants rose from 8000 in 1914–36 to 72,000 in 1936–43, to 117,000 in 1943–1947 (Germani 1955: 75).

[3] Between 1935 and 1954 the number of branches of industry that experienced de-concentration (dispersion) was two to three times the number that experienced concentration.

[4] The Peronist period (1946–54) accentuated this tendency towards industrial de-concentration. Some industries even reduced their average size. Peronist industry was more competitive.

[5] Industrial credit privileged those branches of industry that were more labor-intensive and had simpler technologies, although it also supported the growth of such dynamic sectors as metallurgy (Villarruel, 1988).

[6] Of the 3.4 million Argentines who in 1947 were living outside of their province of origin, half resided in the Greater Buenos Aires and 28 percent in the littoral or Pampa regions Germani 1955: 61).

Internal migrations contributed to an ongoing process of urbanization. Between 1914 and 1947, the country's urban population (in settlements with more than 2000 people) increased from 53 to 62 percent. People moved to large cities (Recchini de Lattes, 1973). In 1914 only three cities had more than 100,000 inhabitants (Buenos Aires, Córdoba and Rosario), but in 1947 another five cities were added to this list (Mar del Plata, Bahía Blanca, Santa Fé, La Plata and Tucumán); and this does not include the new urban centers that comprised the Buenos Aires *Conurbano*. By 1947, 40 percent of Argentina's population resided in cities of over 100,000 inhabitants (Germani 1955:68). The population of Greater Buenos Aires went from 1.9 million in 1914 to 3.4 million in 1936 to 4.6 million in 1947 to 5.2 million in 1952 (Germani 1955:74).

The formation of Greater Buenos Aires entailed a re-accommodation of social classes within the territory.[7] For the period 1880–1910, Scobie documented how the immigrant working class, originally concentrated in the downtown areas, gradually moved towards the suburban *barrios*. The development of a modern transportation system centered on tramways, the reduction of transport fares, and the availability of plots of land sold on installment plans encouraged skilled and clerical workers to move to the outlying neighborhoods (Scobie, 1974). Sargent reinforced this view associating the outward expansion of Buenos Aires into satellite cities with the increase in the number and frequency of trains linking the capital with outlying areas. From 751 trains in 1914, services expanded to 1356 trains in 1930. The number of passengers per year increased from 28 million in 1914 to 81 million in 1930—about 220,000 per day (Sargent 1974: 93–124).[8]

The decentralization of working-class residence continued and intensified during import-substituting industrialization. Torres (1978), with the help of socio-economic indicators, drew "social maps" of Greater Buenos Aires for the years 1943, 1947 and 1960. He noticed that workers moved further away from the capital. Already in 1947 industrial workers lived in distant areas of the *Conurbano* such as San Martín, La Matanza, Avellaneda, Lanús and Quilmes, while employees and professionals remained in the capital and in its northern residential corridor. By 1960 workers had "taken possession" of the whole *Conurbano*, moving to the unpopulated areas of the first industrial belt and settling in the new neighborhoods of the second belt (Florencio Varela, Moreno, Merlo, Esteban Echeverría, Tigre). So much so that early residential, middle-class districts in the *Conurbano* such as Lomas de Zamora and Morón in 1943 became predominantly working-class by 1960.

Torres attributed the "peripheralization" of the working class to the development of railway connections between the capital and its satellite cities and, in particular, to the low cost of transportation resulting from government regulation (Torres, 1978). His argument made sense in economic terms: valuing their leisure time less, workers were ready to spend more time in daily commuting if they could find affordable housing in the peripheral areas.[9] Other authors have argued that industrial workers tended to follow industry, moving outside to areas where the new plants located. The rising cost of land in the capital, combined with new regulations concerning sanitation and work, forced large plants to move to the outlying districts (Schvarzer, 2000; Torre, 2000).

The centripetal movement of *provincianos* toward the nation's capital was complemented by a centrifugal movement to the outlying cities of the *Conurbano*. Wage differentials, better sanitary conditions, and greater educational opportunities attracted workers from the interior provinces to Buenos Aires. The rising cost of land in the capital city and subsidized train and bus transportation pushed them to the peripheral cities of the *Conurbano*. Infant mortality rates suggest that sanitary conditions in the *Conurbano*, though significantly better than the interior provinces, were not as good as in the capital city.[10] From the perspective of public health, the Argentine case differed also from US and European counterparts: workers moved to industrial cities that were healthier than their places of origin. To this extent, they avoided an "urban-disamenities" cost.

[7] To Germani, the process of urbanization that ensued after 1930 was driven by industrialization. Internal migrations were thus part of a general process of modernization that anticipated the formation of a "mass society" with new modes of political interaction.

[8] Both Sargent and Scobie placed technological change (the electrification of tramways and railroads) at the center of the urban transformation of Buenos Aires. The electrification of trains took place in 1916 (northern), 1923 (western), and 1929 (southern).

[9] Torres provided evidence for his thesis: in the period 1939–1959, while food prices went up 40 times and clothing went up 60 times, railroad fares increased only 5 times and tramway fares 10 times.

[10] Legislation passed in 1920 and 1924 obliged the government to provide water to towns of over 3000 inhabitants and sewerage to towns of over 8000. (Sargent 1974:102)

4. Peronist economic growth and social policies

The change from international to internal migrations altered the nature of society and politics in Argentina. International migrations had nurtured an economy founded on agrarian exports and supported a politics characterized by elite control of government. The urbanization produced by internal migrations coincided with industrial development, the formation of a middle class, and the rise of working-class organizations. These transformations were part of the process of modernization that led to the development of a "mass democracy" (Germani, 1971). In fact, authors have seen in the origins of Peronism the political corollary of these social and economic processes: industrialization, urban concentration and mass migrations.[11] The new political movement expressed the unfulfilled demands for increased consumption, respect, and political participation of the "new working class" that resulted from internal migration to the Buenos Aires industrial belt.[12] Supporters and opponents of Germani's thesis agree that without industrialization and mass migrations Peronism would not exist.

Economic policies during Peronism showed a marked preference for promoting industrialization and redistributing income in favor of wage-earners.[13] Following a preoccupation with under-consumption and stagnation that developed in the 1930s, Peronism tried to modify the distribution of income in favor of workers (Villarruel, 1988). While other Latin American countries sought industrialization through state promotion and protectionism, Peronist Argentina openly promoted the expansion of consumption via income redistribution (Gerchunoff and Antúnez, 2002). The nationalization of banking and the control of foreign exchange facilitated Peron's policy of financing wage increases with cheap credit. The expansion of state activities was a second objective, resulting from the geo-political situation of the postwar era. However effective, Peronist redistributive policies were short-lived; in 1950–52 an economic crisis forced the government to assume a more conservative stabilization policy (Gerchunoff, 1989).

Perón's support for industrialization and income redistribution negatively affected the profitability of the agrarian sector. The state monopsony on grains and beef flattened domestic prices of rural produce, augmenting the disparities in favor of manufacturing, and ultimately discouraging the production of export staples. While tenant farmers were pleased with the extension of the freeze on land rent, other farmers and cattle ranchers protested loudly against government policies. As a result of producer dissatisfaction and government rent-seeking behavior towards the rural sector, total agrarian production fell by 26 percent in 1949 and by 31 percent in 1950. In these two years, which coincided with a severe drought, the area sown declined by 50 percent (Wynia, 1978: table 3.4 page 66).

Peronist social policies have been characterized as "populist" to the extent that they entailed an extension of social benefits to workers in exchange for their political support through organized labor.[14] The expansion of workers' benefits during the first two Peronist administrations is well known: new labor legislation; old-age pensions; health care; subsidies per child; paid vacations; and compulsory collective bargaining. The dramatic increase in the rate of unionization enhanced the bargaining position of workers vis-à-vis employers (Llach and Sánchez, 1984; James 1988: chapter 1). In addition, Peronism developed a parallel system of welfare targeted at the marginal population outside formal labor markets or unions. This was the "parallel populism" developed by Eva Perón and her Foundation (Stawski, 2004; Plotkin, 2003).

Ross considers that the Peronist government failed in its attempt to establish the promised universal and integrated welfare system. Rather than being universal, social benefits depended, in amount and coverage, on the strength of each union. Even though the number of workers enjoying social benefits increased substan-

[11] For a general introduction to the debates about the nature and origins of Peronism, see Plotkin 1998.

[12] Much has been written about the origins of Peronism. Some, following Germani, maintain that the new political movement emerged out of the *anomie* of a new working-class, unrepresented in the big city. Others had underscored the working-class support for Peronism or the unionist training of the first Peronist leadership. For a summary of the different positions see Mora y Araujo and Llorente (1980), especially the articles by Germani, Smith, Kenworthy and Halperin Donghi.

[13] Soon after becoming Secretary of Labor (end of 1943), Perón granted wage increases to unions, mediated in conflicts between workers and management, and granted subsidies to created union pension funds. Later, during his presidency (1946–1955), Perón definitely favored organized labor in granting concessions on wages, pensions, and labor rights (Gerchunoff and Llach 2005: 166–167).

[14] Historian Daniel James has called this exchange "integration," to the extent that it entailed the subordination of the union movement to the state (James 1988:11–12).

tially, it is not clear that this brought about an actual re-distribution of wealth. Most of the new social benefits and pensions were financed by deductions from workers' paychecks. Cheap credits for housing went mostly to public servants and only secondarily to skilled workers (Ross, 1993). On the other hand, Peronist policies to control inflation might have benefited working-class families: in particular, the freezing of urban rents, and the regulation of the price of energy and transportation.

Workers' sons often attained secondary education during this period. Perón was an open advocate of technical training and significantly expanded the opportunities for its provision (Puiggrós, 1993).[15] Further, the Peronist administration was quite successful in re-distributing scarce credit among industrialists, and particularly among small and medium-sized firms (Goetz, 1976). This preference for small firms made industrial capitalism more competitive and enhanced the opportunities for upward social mobility. Hence, it is conceivable that "Peronist welfare" was not so much related to income and working conditions but to opportunities in education and upward social mobility (Germani, 1963). It is also important to recall that Peronist rhetoric stressed that in the "New Argentina" the "only privileged" would be children. Allegedly, the protection of infancy was a state priority (Cosse 2006:112–116).

The memory of a "happy time" for the working-class[16] was constructed in relation to a dark past, the "infamous decade" (1930–1943), presented as a time of capitalist tyranny, exploitation of child labor, voting fraud, and lack of workers' rights (James 1988: 25–30; Plotkin 2003, chapter 3). True, Perón presided over the largest increase in the share of wages in GDP: rising from 44–46 percent in 1939–44 to 55–58 percent in 1949–55.[17] This was the result of increases in real wages and an expansion in the number of salaried workers. And the social benefits attained by organized workers were substantial. But it is also true that historians have built an over-pessimistic picture of the 1930s that needs to be re-assessed.[18]

To apply public health policies Perón selected Ramón Carrillo, an advocate of healthy and balanced diets and of preventive social medicine. A believer in the power of the new media, Carrillo organized campaigns to improve eating habits and to increase public awareness of diseases. He used intensively the radio, the cinema, the press, and other means of advertising chiefly to disseminate information about diets and public hygiene. In particular, he recommended supplementing the traditional diet (based on meat, bread, and pasta) with milk, fruits and vegetables (Ramacciotti, 2004). We know now that the government achievements in this area were more modest than the official rhetoric would have us believe.[19] Rates of infant mortality, having dropped substantially in the 1920s and 1930s, fell only slightly in the Peronist years. Similarly, the gains made in the consumption of calories per capita obscured a less equal distribution of these nutrients. This conjecture is consistent with the idea of dual labor markets in which a marginalized, unskilled workforce, under the pressure of mass internal migrations, was forced to accept substandard wages.

5. The data

The data was obtained from the microfilmed registers of military recruits which survive at the General Division of Recruitment of the Argentine Army. In order to have a representative sample for each birth cohort between 1916 and 1950, we selected seven of the nineteen districts of the *Conurbano Bonaerense*[20] and drew samples containing 700–1200 observations each for all even-numbered years. For control, we chose the nearby city of La Plata, where both skilled workers and students were concentrated. We also drew a sample of internal migrants residing in the seven districts of the *Conurbano*.[21] The districts were chosen for their prominence as industrial centers. They all figure among the ten most important *partidos* in the 1935 Industrial Census in terms of industrial production and are also among the first ten *partidos* of the 1954 Economic Census in terms

[15] At the pinnacle of this new system of technical education was the "Workers' University" created in 1948 (Dussel and Pineau, 1995).
[16] The graphic images of this are examined in Gené, 2005.
[17] It is clear that real wages increased during 1946–1949 and 1952–54 (Zuvekas, 1966; Gerchunoff, 1989).
[18] See Salvatore, "Better-off in the Thirties" (forthcoming).
[19] In a 1949 address Perón contended that "nobody dies of hunger anymore" and that the increase in wages had allowed workers' families to double their consumption of food (Perón, "La politica alimentaria" (1949)).
[20] Avellaneda, La Matanza, Lomas de Zamora, Morón, Quilmes, San Martín and Vicente López.
[21] Our sample for 1950 represents 6.8 percent of all 18-year-old males registered in these districts in the 1960 Population Census.

of workers employed.[22] The districts selected were areas of high concentration of population: whereas the average density for the province was 22 inhabitants per square kilometer (1960), the seven districts had an average density of 3598 inhabitants per square kilometer.[23]

Table 1 provides details of the composition of the sample. By law, youngsters had to present themselves to recruitment offices within three months of their eighteenth birthday. Hence 97 percent of our sample was composed of 18-year-old males who had not yet reached their height at maturity.[24] 88 percent of the sample were born in the Buenos Aires industrial belt and in La Plata, and 12 percent were migrants from other provinces. An overwhelming majority of recruits (98 percent) were "stayers": they had been born in the *partido* in which they were medically checked.

The sample is fairly representative of two different social classes. Three occupational categories of the working class (unskilled laborers, skilled workers, and employees) comprise 73 percent of the sample. The other three categories (farmers, students, and merchants: 27 percent) could be assimilated to the middle classes. The predominance of skilled workers among working-class recruits (34 percent) reveals the capacity of industrial cities to attract a qualified workforce. Argentina's achievement in secondary education is also apparent in this occupational breakdown: 22 percent of the young men recruited between 1934/35 and 1968/69 said they were students or professionals at the time of the medical check-up.[25]

As expected, the vast majority of recruits (88 percent) had been born in urban areas.[26] The 12 percent classified as "non-urban" were either internal migrants or people born in neighborhoods within the industrial districts that, for some time, remained classified as "villages" or "towns." The occupational structure reflects urban predominance. Only 1 percent of the recruits declared themselves "farmers." The sample includes those classified by military physicians as unfit for military service (22 percent). Among them were youngsters with sight or hearing difficulties, walking disabilities, mental health problems, heart conditions, or signs of physical "weakness" (*debilidad*). As this variable proved non-significant, we assume that an important number of physical deficiencies detected by doctors were not directly related to nutrition.[27]

The unusually low percentage of illiteracy in the sample (less than 1 percent) requires some comment. The question itself ("are you illiterate?") was likely to produce negative answers. Perhaps the army was interested in minimal literacy: the recruit's ability to write his own name.[28] Rather than a true measure of differences in human capital, this variable indicates the generalized nature of elementary education in urbanized Argentina. Two other attributes registered by the military proved significant. One, a rural skill: the ability to ride horses; the other, a modern, urban skill: the ability to drive motor vehicles. 54 percent of recruits had horse-riding skills and 35 percent of them knew how to drive a car. These skills were marks of social distinction and, at

[22] The ranking according to value of industrial production in the 1935 Industrial Census is: 1-Avellaneda; 2-La Plata; 3-Quilmes; 4-Bahía Blanca; 5-Campana; 6-Tte. Gral. Uriburo; 7-Lomas de Zamora; 8-Olavarría; 9-Morón; 10-San Martín. The first ten districts in terms of industrial employment (number of workers employed) in the 1954 Economic Census are: 1-Avellaneda; 2-San Martín; 3-Lanús; 4-Quilmes; 5-La Plata; 6-La Matanza; 7-Vicente López; 8-Morón; 9-San Isidro; 10-Lomas de Zamora.

[23] In Buenos Aires province there were few other *partidos* with similar high population density in 1960: San Isidro (3918 inhab/km^2), Lanús (8342 inhab/km^2), and Tres de Febrero (5725 inhab/km^2), all part of the Buenos Aires first industrial belt.

[24] We were able to estimate the exact age of recruits. But due to small numbers, the dummies for recruits younger and older than 18 years proved non-significant. It is also possible that some recruits appeared to be age 17 or 19 due to errors in registering the dates of birth and of recruitment.

[25] In the category "unskilled laborers" most are day-laborers and peons, people employed as assistants or apprentices in construction work, newspaper-boys, messenger-boys or other unskilled street occupations, and people without occupation. Among "unskilled workers" we find mechanics, print workers, smiths, carpenters, tailors, weavers, electrical workers, textile workers, workers in automotive repair shops, and also the apprentices of specialized trades. The category "employees" refers mostly to clerical workers in commerce, banking, administration, factories and railroad companies, and occasionally to people working in drawing, design, etc. The category "farmer" includes only those registered as "agriculturalists," not to peons who are included as "unskilled laborers." The category "students, teachers and professionals" includes mostly high-school students, graduates working as teachers or in similar occupations, and a few university students (first year, perhaps). "Merchants" refers mostly to owners of retail stores.

[26] All areas with a population of more than 5,000 are classified as urban.

[27] A recruit could "save" himself from the burden of military service if he had flat feet or was squint. Conversely, a number of debilitating diseases may not have been evident to military inspectors.

[28] On the other hand, it is expected that in the more urbanized and industrial areas of the country, the rates of literacy would be quite high. Recruits who went for their medical check-up in the late 1930s to the late 1960s had the benefit of 80–110 years of uninterrupted free elementary education.

Table 1
Sample composition (1916–1950)

	Cases	Percentage
District where born		
Avellaneda	1824	11.8
La Matanza	2029	13.1
Lomas de Zamora	1451	9.4
Morón	1752	11.3
Quilmes	1702	11.0
San Martín	1543	9.9
Vicente Lopez	1269	8.2
Other Conurbano	3	0.0
"Provincianos"	1912	12.3
Total Conurbano	13485	86.9
La Plata	2021	13.0
Capital Federal	2	0.0
Total sample	15509	100.0
District where residing		
Avellaneda	1991	12.8
La Matanza	2862	18.5
Lomas de Zamora	1563	10.1
Morón	1688	10.9
Quilmes	1795	11.6
San Martín	1603	10.3
Vicente Lopez	1313	8.5
Other Conurbano	139	0.8
Total Conurbano	12954	83.4
La Plata	2433	15.7
Capital Federal	103	0.7
Rest of B.A. province	9	0.1
Interior provinces	10	0.1
Total sample	15509	100.0
Migrant-residents		
Interior migrants	1913	12.3
Born in BA & La Plata	13596	87.7
Out migrants	333	2.1
"Stayers"	15176	97.8
Age		
Age 17	236	1.5
Age 18	15130	97.6
Age 19–21	143	0.9
Year of birth		
1916	698	4.5
1918	687	4.4
1920	735	4.7
1922	756	4.9
1924	755	4.9
1926	745	4.8
1928	810	5.2
1930	810	5.2
1932	808	5.2
1934	805	5.2
1936	918	5.9
1938	887	5.7
1940	965	6.2
1942	963	6.2
1944	1004	6.5
1946	1005	6.5

(*continued on next page*)

Table 1 (*continued*)

	Cases	Percentage
1948	1035	6.7
1950	1121	7.2
Urban–rural		
Urban born	15507	88.4
Non-urban born	1789	11.5
Occupations		
Unskilled laborer	2618	16.9
Skilled worker	5343	34.4
Employee	3397	21.9
Farmer	210	1.4
Students & professionals	3450	22.2
Merchants & proprietors	490	3.1
Total	15509	100.0
Other attributes		
Unable for military service	3420	22.0
Illiterate	82	0.5
Horse-riding skill	8466	54.6
Car-driving skill	5514	35.5
Knows telegraphy	72	0.5

the same time, signs of a workforce trying to accommodate to economic modernization. Between 1916 and 1950, many activities in the cities of the *Conurbano* substituted motor vehicles for horse-driven vehicles. As this transition was slow, young workers had to learn the skills of their ancestors (riding a horse or driving a horse-powered vehicle) in order to remain in the job market.[29]

Important differences separated recruits born (and raised) in the industrial belt from internal migrants. These differences are summarized in Table 2. Internal migrants were equally literate, but significantly more rural. A greater percentage of *provincianos* knew how to ride a horse. Internal migrants were as healthy as *bonaerenses*, showing fewer physical incapacities. Over the whole period the proportion of unskilled laborers was greater among internal migrants (25 percent against 16 percent).[30] And so was the proportion of skilled workers (41 percent compared to 33 percent). Conversely, the proportion of clerical employees and of students was smaller.

With better social connections, those born and raised in the industrial districts had more chances of getting clerical employment. Among migrants from the interior the proportion of "students" and "skilled workers" may be interpreted as the outcome of family choices made at the destination. Youngsters had the chance to compete for a place in the urban labor market by undertaking formal schooling or by enhancing their skills through job training. From the recruits' occupational breakdown we can infer that migrants' families took both paths. The relative advantage of *bonaerenses* in secondary education may be related to prior performance in elementary school, conditioned by better-endowed homes.

Over time, the nature of internal migration changed somewhat. In 1916–1932 more of this migration came from the surrounding provinces of the Pampa region than from the interior (56 vs. 44 percent). In 1934–1950 the situation was reversed, with 59 percent of migrants coming from the interior provinces.[31] After 1934, a larger share of migrants came from rural districts, probably from villages and towns further from Buenos Aires. In spite of coming from poorer provinces, *provinciano* recruits were healthier in the second period. The most important occupational changes among migrants were an important fall in the percentage of students (from 25 to 9 percent), a rise in the proportion of skilled workers (from 21 to 58 percent), and a drop

[29] Unfortunately, the Argentine army was not interested in measuring other skills or in the level of educational attainment. Military recruiters registered those who knew "telegraphy." This was such rare a skill that the variable could not be used in the regression analysis. The proportion of "students" constitutes our only indicator that 18-year-olds acquired some secondary education.

[30] The literature on internal migrations would lead us to expect a lesser proportion of skilled workers among *provincianos*. This was not the case.

[31] See Table A3, Appendix A.

Table 2
"Bonaerenses" vs. "Provincianos" (in percentages)

	1916–1932		1934–1950	
	Born in BueAs and La Plata	Born in the provinces	Born in BueAs and La Plata	Born in the provinces
Occupations				
Unskilled laborer	27.2	35.9	6.8	16.5
Skilled worker	29.9	21.3	36.2	57.9
Employee	22.9	14.5	23	14.5
Farmer	2.4	2.1	0.6	0.3
Students & professionals	14.5	24.9	29.8	9.0
Merchants & proprietors	3.1	1.3	3.6	1.7
Other attributes				
Average height (cm)	170.4	170.0	172.3	170.2
Illiteracy (%)	0.7	1.2	0.2	1.1
Urban born (%)	93.6	48.1	95.6	40.7
Physical incapacity (%)	27.8	21.6	18.3	16.7
Horse-riding skill (%)	51.4	76.2	52.2	72.2
Car-driving skill (%)	23.5	27.6	47.2	25.5

in the proportion of unskilled laborers (from 36 to 16 percent). The migrants of the second period were less educated than those of the earlier period, but had better job skills.

There are two ways of interpreting these changes. One is to consider that, with the lowering of transportation costs, the industrialization in the *Conurbano* attracted migrants from more distant and poorer provinces. The new migrants were less educated than before. Another way is to consider that sons of migrants, presented with the opportunity of continuing their secondary education, chose to accumulate on-the-job-skills without sacrificing income.[32] At a time when import-substituting industrialization created ample opportunities for skilled workers, and the salary reward for secondary education was not so evident, this seemed a reasonable choice to make.

6. Regression analysis

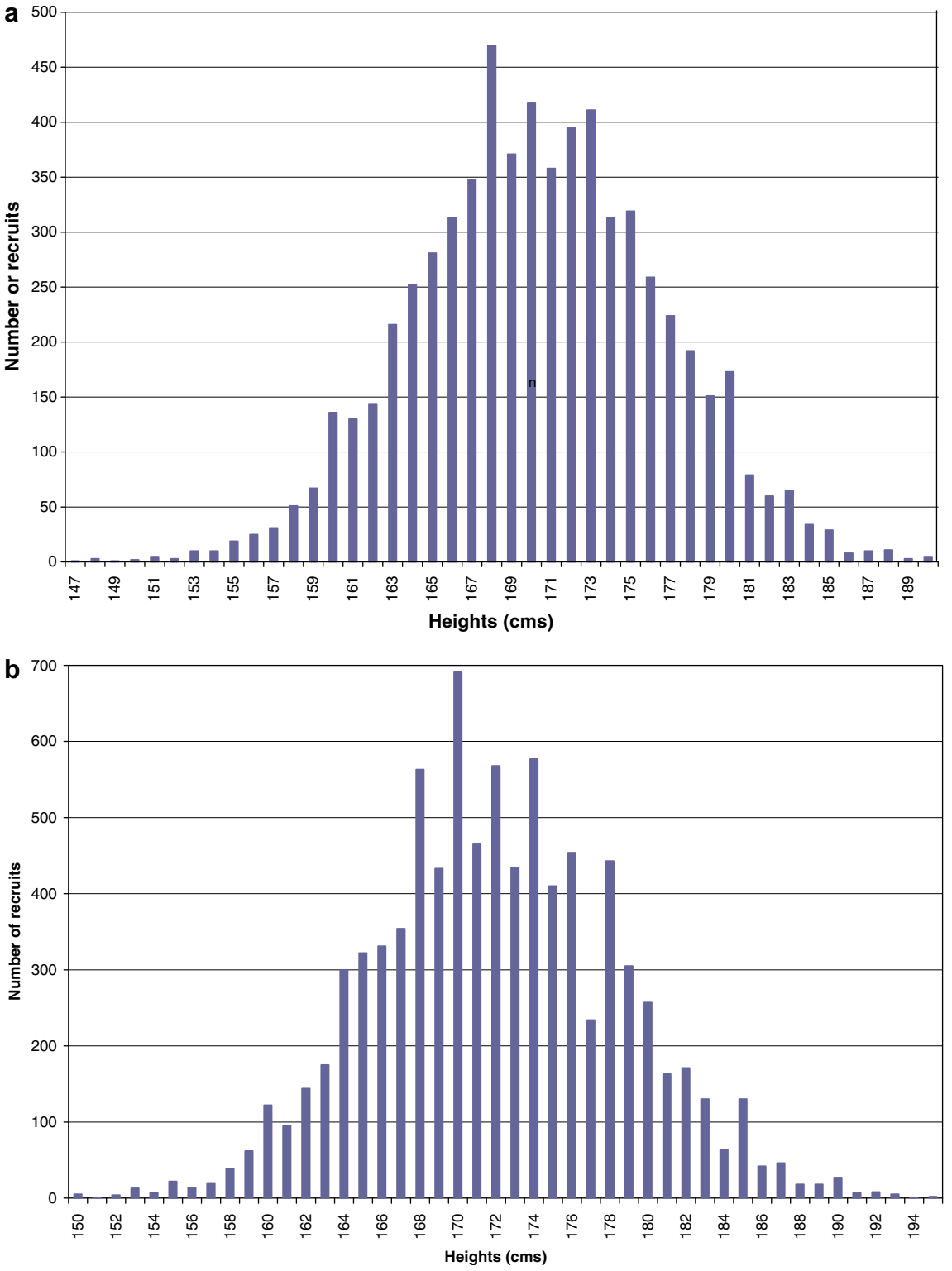
The distribution of frequencies was quasi-normal, as shown in Graphs 1 and 2. The data showed some degree of "heaping," more pronounced in the second period.

To control for sample composition biases, we performed regressions 1 and 2 (shown in Appendix B).[33] Occupational dummies proved significant. In 1916–1932, compared with unskilled laborers, clerical employees were 1.4 cm taller and students 2.6 cm taller. In 1934–1950, the category "skilled worker" proved significantly different than unskilled laborers, though the difference was modest (0.75 cm). Compared to unskilled laborers, the height advantage of clerical employees (1.6 cm) and of students (3.1 cm) increased. Merchants and farmers were taller than skilled workers, but not as tall as students.

Dummies by district were more significant for 1916–1932 than for 1934–1950. This might indicate that internal convergence of biological welfare resulted from import-substituting industrialization. Before 1932, the natives of La Plata, Morón and Quilmes were taller on average than those born in Avellaneda, La Matanza, Lomas de Zamora and San Martín—the difference ranged from 0.7 to 0.9 cm. The shortest recruits came from Vicente López, a district immediately north of the city of Buenos Aires. By 1934–1950, recruits coming from this district were among the tallest, together with those born in La Matanza. Apparently, industrialization and urbanization brought about a spatial re-distribution of biological welfare that we need to examine more thoroughly.

[32] This was perhaps the result of household pressure for sons to contribute to family income and also of the opportunities for on-the-job training created by the post-1932 industrial boom.

[33] Due to significant structural change, we preferred to run separate estimates for the periods 1916–1932 and 1934–1950. With these separate regressions, the significance of most coefficients improved with regard to running a single data set.



Graph 1. (a) Histogram 1916–1932, (b) Histogram 1934–1950.

Table 3
Estimated heights of recruits born in the Buenos Aires "Conurbano"[a]

Year of birth	Unskilled laborer	Employee	Student
1916	169.1	170.5	171.7
1918	169.3	170.7	171.9
1920	169.7	171.0	172.3
1922	169.0	170.3	171.6
1924	169.3	170.6	171.9
1926	169.4	170.7	172.0
1928	169.6	171.0	172.2
1930	169.8	171.2	172.5
1932	170.1	171.5	172.8
1934	170.5	172.1	173.6
1936	170.9	172.6	174.0
1938	171.5	173.2	174.6
1940	171.3	172.9	174.3
1942	170.8	172.4	173.8
1944	170.7	172.3	173.8
1946	170.1	171.7	173.1
1948	170.8	172.4	173.9
1950	171.2	173.0	174.5

Source. Predicted values of regressions 1 and 2.
[a] "Conurban Buenos Aires" includes Avellaneda, la Matanza, Lomas de Zamora, Morón, Quilmas, San Martín and Vicente López.

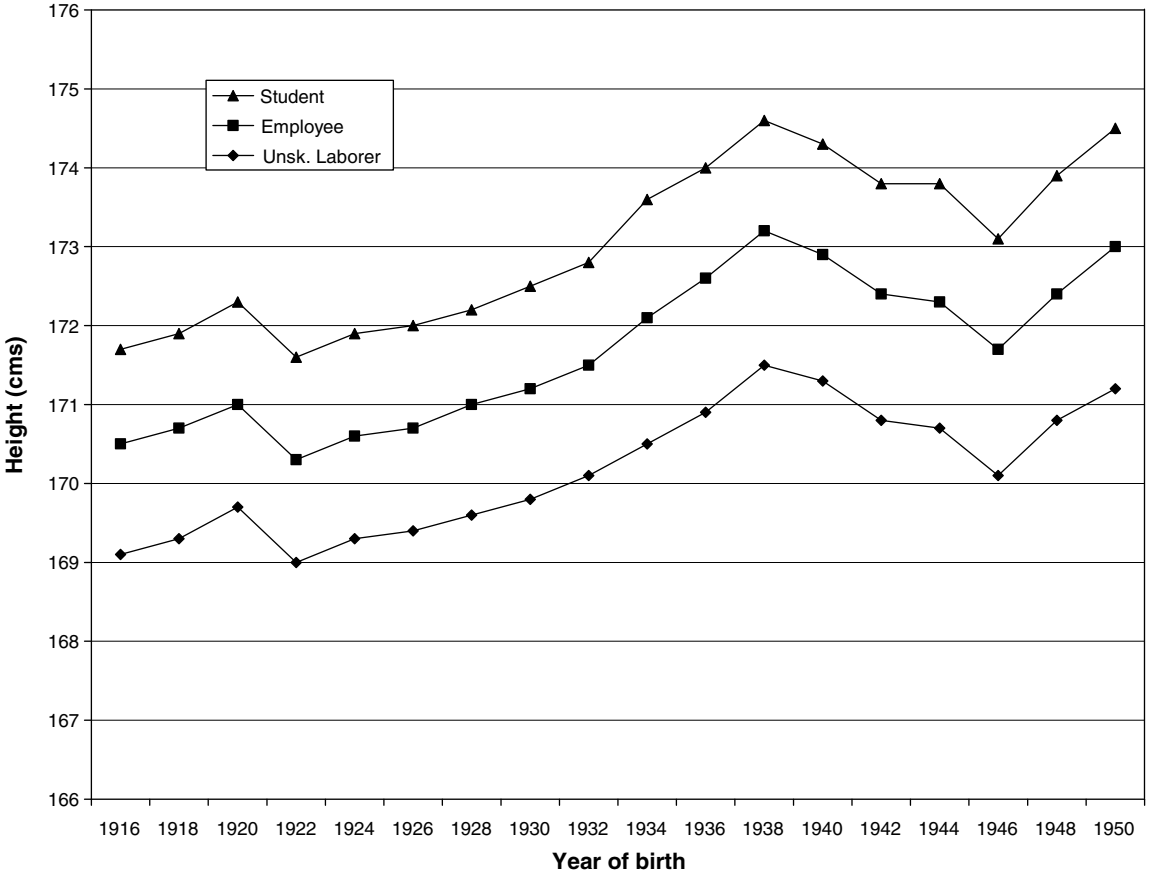
As expected, migrants coming from the interior provinces were 1.4–1.5 cm shorter than average. This result was sustained in both periods, indicating that the changes in the nature of this migratory workforce did not affect relative net-nutrition outcomes. Variables representing "rural" and "modern" skills proved significant. In 1916–1932, recruits with rural skills (horse-riding) were on average 0.3 cm shorter and recruits with modern skills (car-driving) were 1.0 cm taller on average. In 1934–1950, the disadvantage of "rural" skills was maintained but the advantage of "modern" skills disappeared, due to the widespread dissemination of this type of skills.

Illiteracy proved significant during the first period: recruits who declared themselves illiterate were on average 1.7 cm shorter. In the second period, as reading skills became widespread, this indicator produced a less reliable coefficient. The health of recruits—as observed by military physicians—also proved not to be significant, perhaps because doctors classified as "unfit for service" recruits affected by a variety of health conditions. The urban condition of recruits was not an important determinant of average heights. The Buenos Aires industrial belt presents a case in which the problem of "urban disamenities" was absent.[34] Buenos Aires city had improved its sanitary infrastructure between 1890 and 1925 and the *Conurbano* experienced a similar transformation starting in the late 1920s.

7. Main results

Table 3 and Graph 2 show the estimated trend for the height of recruits in the Buenos Aires industrial belt. Viewed from a long-run perspective, the process of industrialization appears associated with an increase of 2.1–2.8 cm in average heights. After a recession in 1920–22, there was a long and sustained improvement of net nutrition up to 1938.[35] Between 1938 and 1946 the average stature of recruits declined in absolute terms. The last two observations show that in 1946–1950 stature recovered rapidly to levels similar to those of 1938. These estimates present three novel findings. First, they emphasize the importance of welfare gains during the late 1920s and 1930s. Second, they show the limitations of "Peronist welfare," presenting the growth in stature

[34] This does not mean that recruits did not face problems of urban congestion, unsatisfactory sanitation, and other environmental risks. It only means that these conditions did not translate in a systematic and predictable way into net nutrition.
[35] Estimates for the *Conurbano* do not include the city of La Plata.



Graph 2. **Estimated heights Buenos Aires "Conurbano"**: "Conurban Buenos Aires" refers to the districts of Avellaneda, La Matanza, Lomas de Zamora, Morón, Quilmes, San Martín and Vicente López.

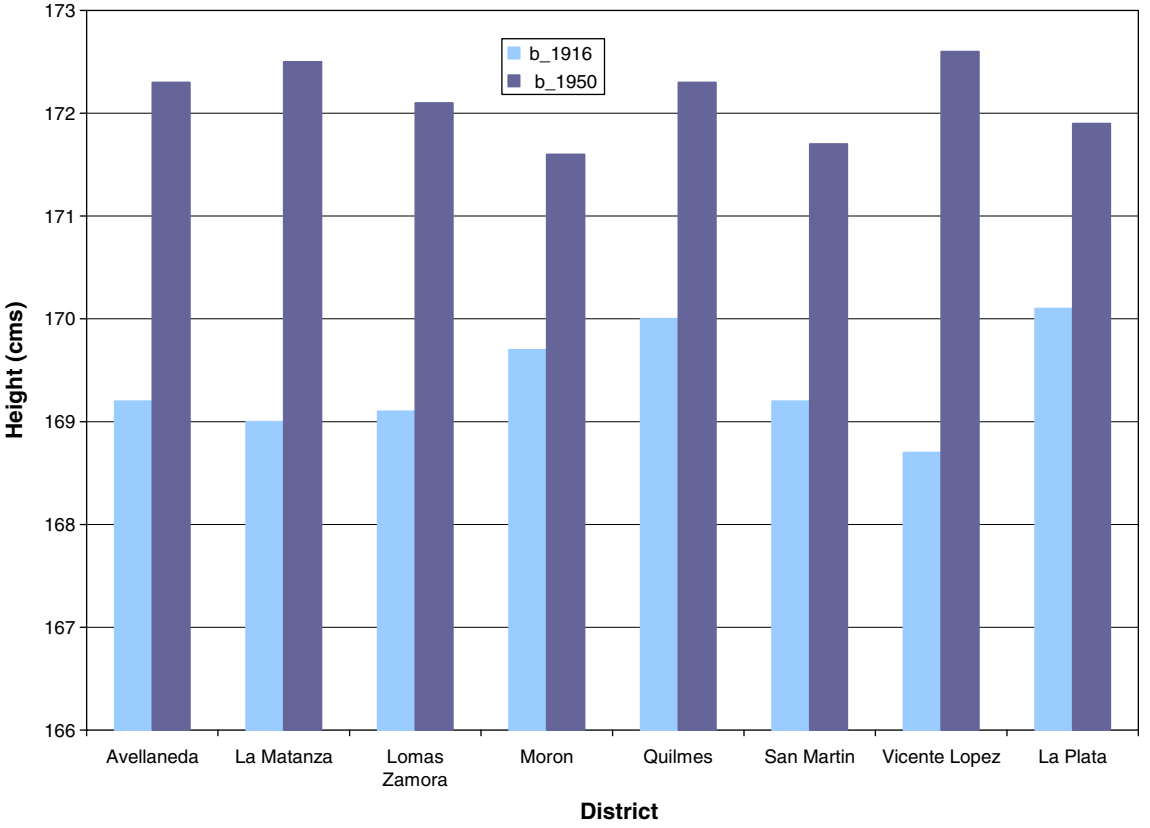
during this period as a recovery from a previous fall. Third, they point to World War II as an important deviation in the long-run trend of biological welfare. Graphs 3 and 4.

These estimates constitute an important departure from traditional interpretations of industrialization and working-class welfare in the 1930s and 1940s. Instead of a decline of welfare in the period 1930–1943, our estimates indicate important improvements in net nutrition in the 1930s, followed by a significant fall in 1938–46. Well into the first Peronist administration, stature in the industrial belt was still falling. The estimates for 1944 and 1946, statistically significant, show an unambiguous fall in average stature. In fact, the low point attained in 1946 refers to recruits born in this year. This cohort reached its third year of age in 1949. What does this say about the welfare of children during Peron's first term?

In addition, these estimates reaffirm earlier findings about the negligible effect of the great depression on the welfare of Argentine children (Salvatore, 2004a). Indeed, data for the industrial belt shows an uninterrupted growth in net nutrition from the early 1920s to 1938.[36] The protectionism created by the world depression favored the development of national industry, the loss of agricultural exports being compensated by the expansion of employment and income in the industrial sector.

The results are also unambiguous in regard to the geographical distribution of biological welfare in industrial districts. All districts show long-term growth. Vicente López, La Matanza, Avellaneda and Lomas de Zamora gained between 3 and 3.9 cm between 1916 and 1950. San Martín and Quilmes gained 2.3 and

[36] Estimates for the *Conurbano* do not include the city of La Plata.



Graph 3. **Stature by district Buenos Aires "Conurbano" (1934 and 1950)**. Skilled workers, urban, literate, non-migrant.

2.5 cm, while La Plata and Morón showed gains of 1.8–1.9 cm. The dispersion of average heights among districts tended to decline over time, indicating the presence of intra-regional convergence.

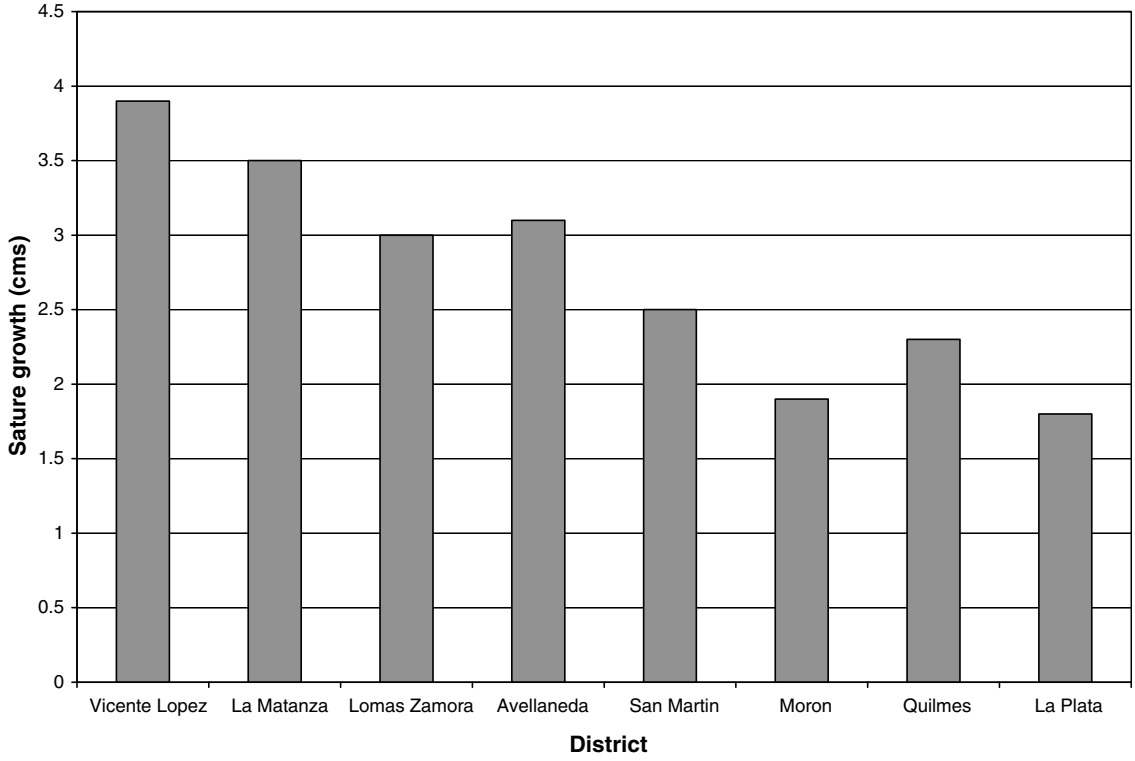
Intra-regional convergence was a different type of "equality" than that claimed by Peronist supporters. Rather than the effect of the policies of a single administration, this convergence resulted from long-term improvements in sanitary conditions, from gains in real income and its distribution, from transportation improvements that reduced differences in food prices from area to area, and from mass internal migrations. Nonetheless, it was a form of equality that added to the overall improvement in standards of living.

Another important result relates to the persistence of social inequality. Graph 5 depicts the long-run evolution of social inequality in net nutrition, measured by the difference between the stature of students and that of skilled workers. Whether these occupational groups represented distinct social classes, or simply different outcomes of family decisions about children's employment and education; this indicator proved quite persistent over time. The data does not support the hypothesis of a long-run convergence in stature among youngsters with different endowments of social and educational capital. In the short run, inequality seemed to have declined in 1926–1930 and 1932–36 and risen in 1946–50. Surprisingly, the first Peronist administration witnessed an increase in nutritional inequality.[37]

Internal migrants, because they came from poorer provinces, were shorter on average than those born and raised in the industrial districts. The estimated differences were 1.5 cm in 1916–1932 and 1.4 cm in 1934–1950. The long-term variation is too small to indicate any trend.[38] In the short run, however, there were some

[37] A different interpretation, more sympathetic to the Peronist administration, would be that the regime extended secondary education among the children of working-class families. In this interpretation the increase in social inequality would be a reflection of upward social mobility.

[38] The difference between *bonaerenses* and migrants from the Pampa region was also the same from one period to the other: 0.60 cm.



Graph 4. **Stature growth 1916–1950 (convergence)**. Districts are ordered from left to right from shorter to taller in 1916.

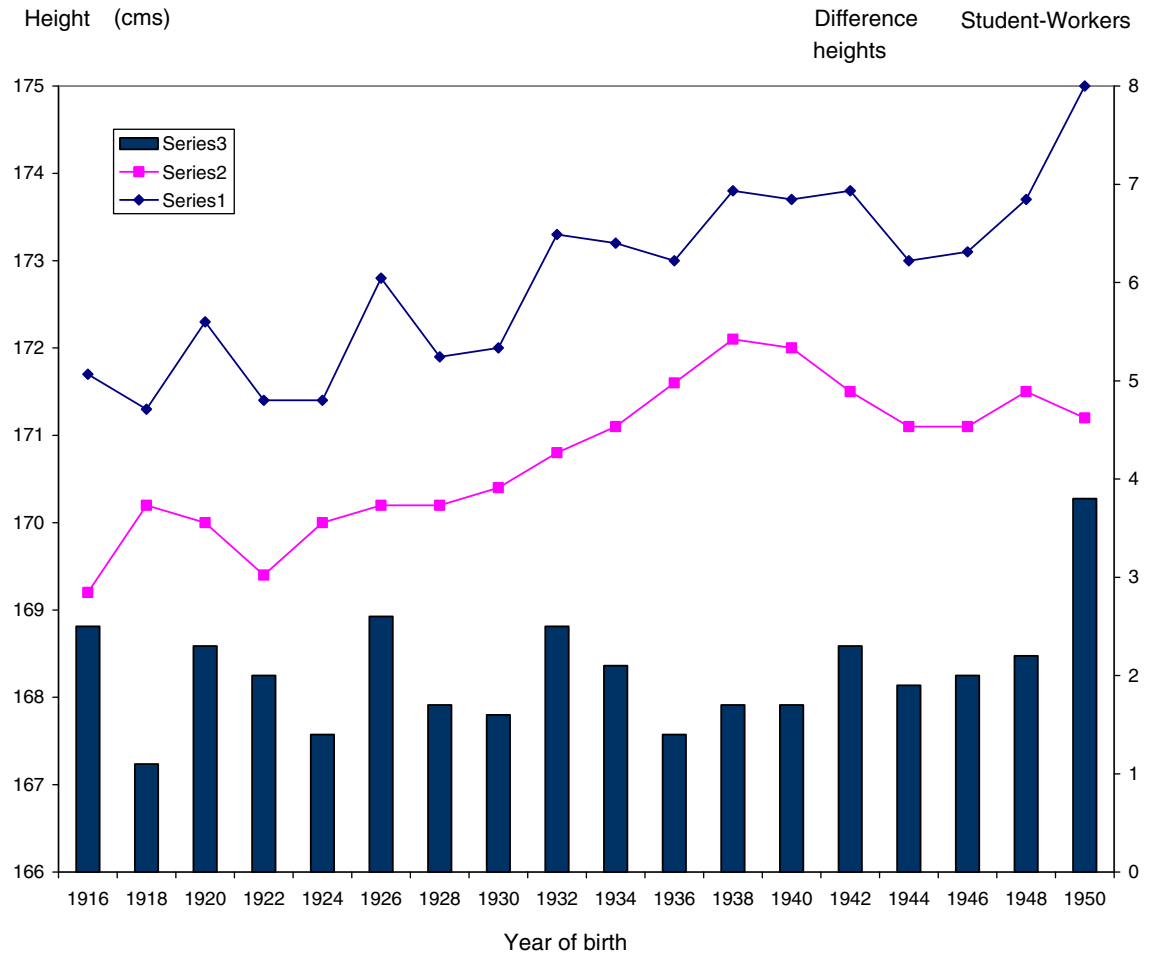
changes (See Graph 5). Compared with *bonaerenses*, provincial migrants showed a more pronounced and sustained fall in stature in the early 1920s, benefited less from the industrialization of the early 1930s, and suffered equally the negative effects of the 1939–46 period. In the Peronist years internal migrants improved their nutrition status as much as natives of the industrial districts Graph 6.

The differences we estimated then are the combination of distinct health and nutrition conditions in the province of origin and distinct experiences in family economic progress and employment opportunities at the place of destination (the *Conurbano*). Apparently, the difference between migrants and residents widened during periods of good national economic performance. In 1920–1926 and in 1932–1936, the relative worsening of living standards in the interior contributed to attract more migrants to the Buenos Aires industrial belt.

8. Decline in malnutrition

The information about heights can also be used to estimate a proxy for the rate of malnutrition. Subtracting one standard deviation (6.1 cm) from the estimated average heights for the *Conurbano* (171.4 cm), we calculated a benchmark for malnutrition: 165.3 cm. The annual rates of malnutrition estimated with this benchmark are reported in Table 4 and Graph 7. This indicator shows that important improvements in the biological wellbeing of the very poor were not reached until the 1930s. The period of the Great Depression (1930–34)—which in Argentina coincided with a robust process of industrialization—presents the most important single fall in the estimated rate of malnutrition. The reason for this is quite simple: the fall in the domestic cost of food (because the exportation of food staples had almost ceased) was so significant that it increased the number of calories available for poor families.

Declining rates of malnutrition continued through 1938, after which the rate went back up until 1942, then fell in 1944, rose again in 1946, and fell again in the last years of the first Peronist administration. The reduction of malnutrition is clearly more impressive in the 1930s than in the Peronist years. The best year in this regard was 1938 and not 1948 or 1950. Whether one considers the *Conurbano* with or without internal



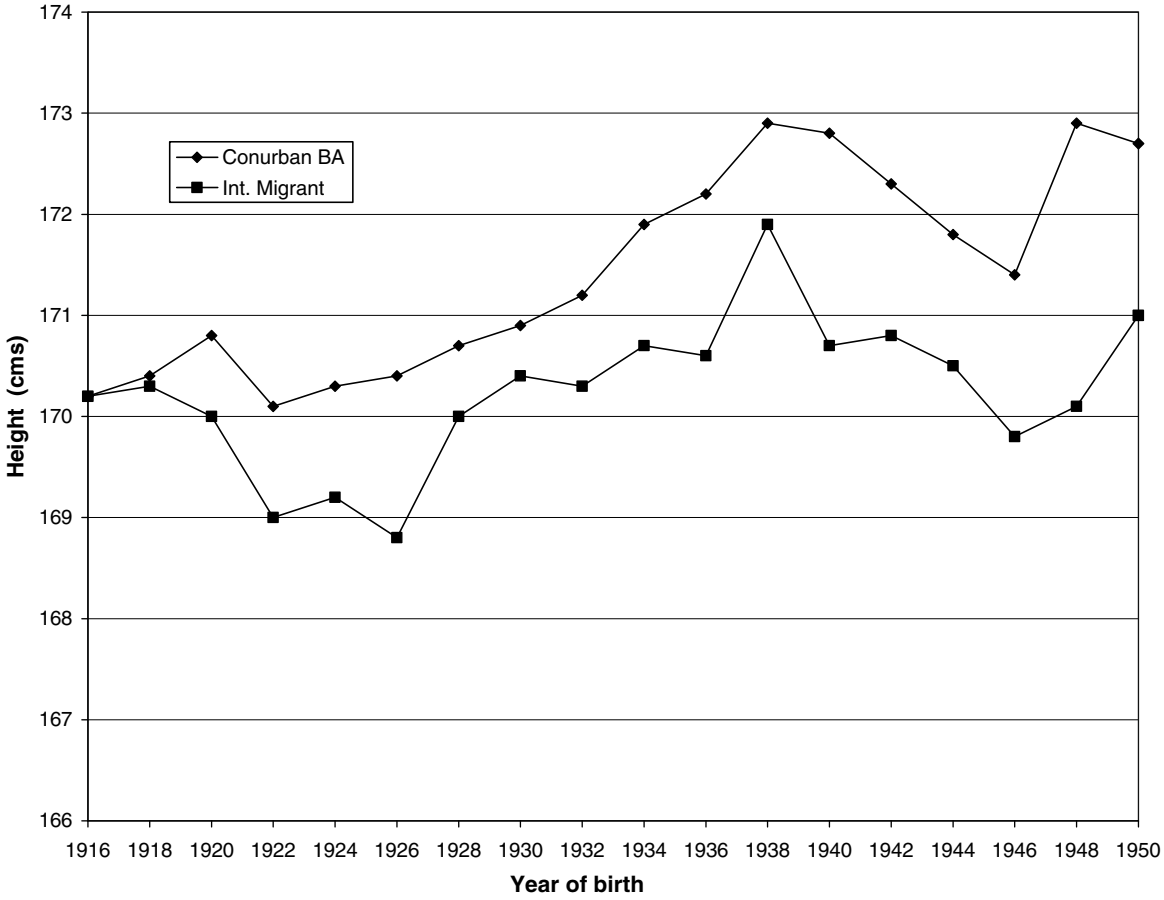
Graph 5. **Long-run differences in stature (students vs. skilled workers)**. Source: regressions run separately for students and skilled workers (regressions not reported). Series 1: students' mean heights. Series 2: skilled workers' mean heights. Series 3: difference in heights between students and skilled workers.

migrants, the result is the same: the estimated rate of malnutrition for 1950 was similar to the rates attained in the period 1934–36. This finding raises questions about the welfare of children during the Peronist administration.

9. Possible explanations

Let us summarize our findings. All districts of the industrial belt experienced significant gains in stature. Most of this growth was achieved before 1938; then a fall in stature followed until 1946. This fall requires further exploration. The later Peronist years showed a recovery in stature growth, but only to match levels of biological wellbeing already attained in the 1930s. The most important gains in the reduction of malnutrition coincided with the years 1932–1938, a period of intense import-substituting industrialization. Within the industrial districts a process of convergence seems to have taken place over the long-run. Biological wellbeing was more equally distributed across districts in 1950 than in 1916. Social differences, as reflected by the information on heights by occupation, persisted over time: students were 2–2.5 cm taller than skilled workers. Internal migrants were shorter on average than natives of the industrial districts and this difference also did not tend to converge.

Three of these findings are revisionist and should be examined more carefully. One says that the Peronist experiment in workers' rights and income re-distribution was not as effective in terms of net nutrition as pre-



Graph 6. **Estimated heights of "Provincianos" and "Bonaerenses" 1916–1950 (all occupations included)**. Weights by occupation: unskilled laborer (0.18), skilled worker (0.35), employee (0.23), farmer (0.02), and student (0.22).

viously thought; that the late 1920s and first eight years of the 1930s were far more important in improving children's welfare. Another novel finding refers to the persistence over time of some forms of social and regional inequality in net nutrition. Despite progressive national sanitation and food policies, students continued to be taller than skilled workers and internal migrants continued to be shorter than recruits born in the Buenos Aires industrial belt. A third finding relates to the fall in stature during the period 1939–45, when income and employment were growing.

To understand these atypical findings we examine first the relative biological wellbeing of the 1930s against the Peronist years. Welfare and redistribution policies then tended to benefit organized labor and particularly skilled adult workers. Perón was unable or unwilling to eliminate poverty and malnutrition among the population with the lowest incomes—particularly those residing in the Buenos Aires *Conurbano*. In spite of the attempt to regulate food prices, growing demand generated inflation and this eroded the budgets of poor families. This interpretation would be consistent with a view of the "New Argentina" as a country of enhanced educational opportunities for the sons and daughters of the working class.[39]

The second finding is perhaps less revisionist and easier to integrate into existing explanations of Argentine socio-economic growth. The persistence of inequality in regional and social terms is not inconsistent with the existence of upward social mobility. If an internal migrant could improve his position by moving to the indus-

[39] That is, that many of those recruits classified as students in 1963–1968 (born in the years 1945–1950) were sons of workers who had been able to attend secondary school, thanks to the welfare policies of Peronism.

Table 4
Estimated rates of stunting (compared to national standards)[a]

Year of birth	Buenos Aires Conurbano	Whole sample
1916	22.8	21.8
1918	22.1	22.0
1920	18.1	18.4
1922	22.7	22.3
1924	22.0	22.4
1926	21.0	22.0
1928	20.3	21.1
1930	20.9	20.9
1932	18.7	19.5
1934	14.2	15.0
1936	14.0	14.9
1938	12.1	12.4
1940	13.8	14.6
1942	17.3	17.8
1944	14.0	14.4
1946	17.3	18.6
1948	13.6	15.9
1950	13.9	15.0

[a] Del Pino et al. "Peso y estatura de una muestra nacional de 1.971 adolescentes," 2005 (mean height 18-year-old = 172.6 cm; SD = 6.85) Fixed benchmark 165.7 = mean height −1 SD.

trial belt, if his sons earned more through schooling or skills learned on the job, then there was inter-generational and life-cycle social mobility.[40] But this by itself could not reduce regional or social inequalities, at least not in this time span. If internal migrations continued and actually intensified beyond our period it was because sanitary conditions and income did not converge sufficiently to make people stay in their provinces of origin. In other words, the job-creating engine of the Conurbano attracted its workforce from the interior without giving in return a proportional spatial re-distribution of income and wealth.[41] Next, I present some informed speculations about these puzzles, resulting from the tensions between real wage and height data.

9.1. Puzzle 1: stature increase in the period 1922–1938

Available statistics on income and wages during this period show marked cyclical variations. Per-capita income grew strongly in 1924–1929, and fell precipitously during the great depression (1929–1932). From 1934 to 1939 import-substituting industrialization generated continuous growth, but real per-capita income in 1940 was lower than in 1929.[42] Real wages rose strongly after World War I, reaching a peak in 1928, as workers re-adjusted nominal wages to compensate for wartime inflation.[43] Afterward, real wages showed a moderate decline during the first years of the depression (1929–1930), recovering later as a result of price deflation.[44] During the rest of the 1930s real wages remained fairly stable and by 1940 they were higher than in the early 1920s (the real wage index for the Capital Federal district went from 113 in 1920–24 to 143 in 1935–39), but most of the gains had been achieved in the period 1924–1929.

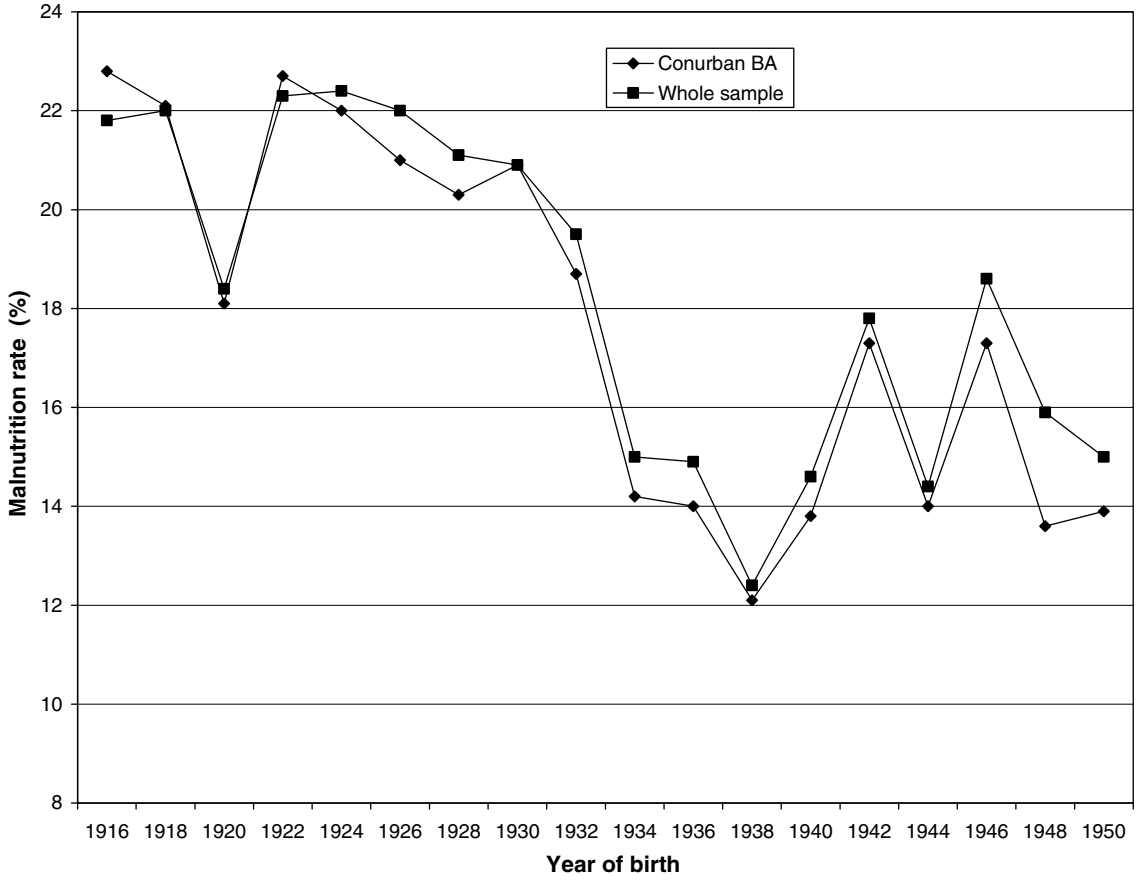
[40] In a changing economy, going from depression to rapid industrialization, the rewards for additional education or better skills were probably not as easy to estimate for migrant households. Nevertheless, I am assuming here that parents and sons extrapolated their expectations about these rewards based upon experiences gathered from neighbors and relatives. While occupational outcomes could not be planned, migrant households could form expectations about these outcomes.

[41] Similarly, if internal migrants can improve the nutrition and health of their children by the educational opportunities and the job skills offered in the industrial belt, it is clear that the supply of skills and secondary education in the interior did not increased sufficiently to reduce the net-nutrition premium to students and skilled workers.

[42] See Salvatore, 2004a, Fig. 3, and Salvatore "Better-off in the Thirties."

[43] Between 1924 and 1928, as real wages grew faster than per-capita income, there is the presumption that income was re-distributed in favor of waged workers (Cortés Conde 2005: 63, 65, and 118).

[44] Meanwhile, industrial workers reduced their weekly work hours from 49.5 to 45.3 (Díaz Alejandro 1975: 54).



Graph 7. **Estimated malnutrition rate 1916–1950**. (Calculated with fixed benchmark). The whole sample includes provincial migrants.

By contrast, average stature in the industrial belt rose continuously throughout this period, not interrupted by the great depression. From the viewpoint of biological welfare, the 1930s showed sustained gains that continued the improvements since 1922. These improvements were apparently the result of a combination of favorable circumstances: the decline in working hours, stricter enforcement of child labor legislation, more balanced diets, and reduced risks of contagious disease. From 1924–24 to 1935–39, industrial workers reduced their work load from 49.5 to 45.3 hours a week (Diaz Alejandro 1975:54). Child labor regulations during the 1930s reduced the number of children under twelve employed in industrial and commercial establishments. With modest increases in real wages, working-class families were able to withdraw their younger members from the labor market. Per-capita caloric intake remained fairly stable during the period 1934–1937: milk and beef consumption showed moderate declines with regard to the peak levels of 1922–24, but the consumption of other food items increased.[45] State provision also played a role. In the early 1930s the provincial school system started a program to provide breakfast for school children (chiefly milk and bread). This probably reduced the overall inequality in the distribution of nutrients. Between 1927 and 1933 a significant fall in infant mortality rates took place at the national level, replicating a decline attained by the city of Buenos Aires in the second half of 1920s.[46]

Most of the evidence on these subjects is available for Argentina as a whole or for the city of Buenos Aires; none refers to the Buenos Aires Conurbano. What type of environment was found by the internal migrant who

[45] Apparently, during the depression, working-class families learned to substitute more expensive foods (meat) for less expensive products (rice, potatoes), keeping constant the amount of calories consumed.

[46] After 1934, however, infant mortality rates at the national level suffered a setback for two years, declining later at a much slower pace.

in the early 1930s moved in great numbers to the cities surrounding the capital? Did wage differentials compensate for larger families, higher transportation costs, and greater health risks?

We can hypothesize that those migrants who came in the 1930s fared better than those who arrived in the 1940s. In the early years of import-substituting industrialization the competition for jobs must have been less intense than during the 1940s when the inflow of internal migrants almost doubled. Unlike migrants in the 1940s, the first wave in the 1930s faced a situation of semi-urbanization, with low levels of population density and risks of disease similar to those in Buenos Aires city. Because industry was newly established, levels of water and air contamination were low. In the mid 1930s, bad rural employment conditions (mostly due to mechanization and low prices for grain) pushed workers and tenants in the Pampa region off the land; many of them moved to the city and its surrounding areas (Hora 2002: 319) Though endowed with rural skills, these migrants were healthier than those who in the 1940s would come from the northwest, the center, and the northeast.

9.2. Puzzle 2: stature decline in the period 1938–1946

For this period, there is a remarkable disparity between income-wage indicators and average heights. In 1939–44 the economy grew at a rate of 3.6 percent per year, experiencing a recession only in 1945. The scarcity of foreign exchange, the German blockade, and the shift of the US economy to war production almost stopped the import of manufactures, and this facilitated the development of domestic manufactures (Gerchunoff and Llach 2005: 158–159). On the export front, Great Britain continued purchasing Argentine beef but continental Europe remained closed to Argentine grain. Exports of cereals fell from 11.2 million tons in 1935–39 to 3.6 million tons in 1942. This situation worsened the conditions of income and employment in the Pampa region, whose producers were already burdened by debt and high rents (Hora 2002: 326–327). Nominal wages in manufacturing kept pace with inflation. During the war, internal prices rose significantly. In Buenos Aires province, the cost of living increased by 38 percent (1939–45), the price of food rose by 33 percent, and housing costs went up by 35 percent.[47] With a lag, nominal wages were able to match the rise in prices, so that on average real wages changed little.[48] Wartime shortages of oil caused farmers to use corn crops as fuel. In urban areas too, the shortage of fuel may have affected the budgets and working conditions of lower-class families.

Unfortunately, most available statistics on wages and prices (based on regular surveys conducted by the Department of Labor) refer to the capital, not to the *Conurbano* districts. It is possible that, due in part to the massive inflow of migrants to the industrial districts surrounding the city, nominal wages started to diverge from those paid in the city and that, consequently, salaries in the *Conurbano* failed to keep up with wartime inflation. Further research is needed on this issue. Migrant families who settled in the industrial belt had more children and were probably more likely to fall below the poverty line. Hence, we need to estimate per-capita family incomes in order to measure more accurately workers' economic wellbeing during this period.[49]

Cross-sectoral national data for the 1924 birth cohort shows that *provincianos* were about 2.5 cm shorter than natives of Buenos Aires.[50] Is it possible that a massive and concentrated migration of *provincianos* generated a downward pressure on heights in the *Conurbano*? Without further information about the differential fertility of migrants and urbanites, it is difficult to answer this question. To speak of a "migration overshoot" we need here nothing short of a *provinciano* "baby boom;" that is, a sudden and important increase in fertility following the mass migration of *provincianos*.[51] But in order to affect the average height of children, we need in

[47] "Nivel de vida de la familia obrera", 1945.

[48] It is possible that real wage inequality rose so that despite stagnant real wages, the poverty level increased.

[49] Research in progress on the disease environment indicates that the industrial districts had higher mortality rates than the city of Buenos Aires, but there is no evidence that there was any particular sanitary crisis during the years 1939–1946.

[50] Measured in their provinces of birth, *provinciano* recruits (born outside the Pampa region) were 2.9 cm shorter in average than those born in the Pampa region for the cohort born in 1924. *Provincianos* were 2.5 cm shorter in comparison to those born in Buenos Aires city (Salvatore, 2000, Table B). For heights of the northwest region, see Salvatore, 2004b.

[51] The migration itself resulting from push factors in the capital city (migrants moved to the suburban districts due to high prices of housing in the city) and from the sustained deterioration of economic conditions in the interior.

addition a high degree of intra-*provinciano* marriages. These demographic and reproductive phenomena are quite rare.

A more likely explanation is that the decline of average heights in the *Conurbano* reflects deteriorating living conditions in the industrial belt: a rise in the rate of poverty or increasing levels of inequality not detected by the existing indicators of income and wages. A scenario of continued mass migration from the interior widening the base of the labor pyramid (unskilled laborers) might have produced a situation of increasing wage inequality. Those newcomers who came with no skills, low literacy, and no experience in industrial relations must have accepted jobs with long hours and low pay, in still non-unionized economic activities. Their ability to protect themselves from inflation may have been relatively low. Migrating to the *Conurbano*, they could lower the costs of housing but at the cost of distancing themselves from the food offered by elementary schools and the better sanitary conditions of Buenos Aires city.

9.3. Puzzle 3: the best peronist years (1946–50)

There is consensus that the redistributive policies of Peronism were quite effective during the years 1946–49. Real wages in 1949 were 62 percent higher than in 1945.[52] Our evidence on stature does not reveal similar gains in net nutrition for lower-class families. Certainly, there were gains in stature between 1946 and 1950, but the estimated average stature for 1950 was similar to or below that attained in 1938. It is difficult to explain this without additional information regarding employment, dual labor markets, child labor, and food prices. However, some speculations are possible.

Between 1949 and 1951, the combination of a natural disaster (two consecutive years of drought) and unfavorable external conditions (the failure of Argentina to join the Marshall Plan as a food supplier and the fall in export prices) translated into a dramatic drop in food production. In June 1950, in an attempt to restore exports, Perón raised by 23 percent the price the government paid ranchers for their cattle, causing a significant increase in the domestic price of meat.[53] By 1952 the shortage of wheat was so severe that the government promoted the production of "black bread" (made of rye and millet flour), causing alarm among middle-class Argentines (Gerchunoff and Antúnez 2002: 165). After two years of drought in which they were forced to liquidate stocks, ranchers began to retain stocks, significantly increasing the prices of cattle and beef. This might explain why the government, as part of the 1952 austerity plan, launched a campaign to reduce beef consumption. Butchers' shops, restaurants, and hotels were forbidden to buy and sell beef on Fridays (Milanesio 2006: 100).

In 1952, a year after his re-election, the government called on the Argentine people to support an austerity plan designed to limit domestic consumption and accelerate production. Domestic food shortages were already evident. The government's failure to generate an export surplus and, at the same time, to control domestic inflation, was the main reason behind the adoption of a stabilization plan that year. Since earlier price controls had had little effect and currency devaluation was politically impossible, the new minister Gómez Morales tried to reduce fiscal deficits, make bank credit more selective, and reduce popular consumption through tax increases (Gerchunoff and Antúnez, 2002). But in addition, as Milanesio (2006) shows, the government appealed to housewives to reduce the "waste" in their cooking.

This austerity plan (1952) and the possible food shortage of the period 1950–52 may have affected the recruits of our two last cohorts (born in 1948 and 1950) at ages two to four; two cohorts which appear not to have suffered food deficiencies. We still need to find out more about nutrition, food prices and rent, and shortages of in the distribution of produce during World War II and its aftermath. The critical cohorts are those born between 1939 and 1946, who reached three years of age between 1942 and 1949. Further research should look particularly to those years, and search for phenomena particular of the Buenos Aires *Conurbano*. Getting information on family incomes in the industrial belt and about wages for non-unionized workers would be particularly useful.

It is reasonable to assume that the benefit of Peronist social policies concentrated on the formal labor force, excluding informal workers. In a context of inflation, workers not affiliated with unions may have had increas-

[52] In spite of a business slowdown in 1949–50, real wages continued to grow, declining only after 1954 (Gerchunoff 1989: 62–63).
[53] Juan Domingo Perón, "Perón habla a los ganaderos," Radio boadcast on June 7, 1950.

ing difficulties in adjusting their incomes to rising prices. It is possible that the war years (1939–45) saw an increased participation of children in the workforce, due to lower state controls and the dissemination of small-scale industries. It may have taken time for the Labor Department to catch up with the supervision of new factories of the *Conurbano*. When internal migrations became massive and came from the "deep interior," a dual labor market was formed. A greater number of unskilled people, willing to accept sub-standard wages, moved to the Buenos Aires *Conurbano*. These migrants would seek the favor and protection of Evita, at a time during which the Argentine economy ceased to be a workers' paradise.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.eeh.2008.02.002.

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