Fecha de recepción: 9 de diciembre de 2025
Fecha de aceptación: 12 de marzo de 2026
Disponible en línea: 6 de mayo de 2026

Vol. 13 N.º 1
Enero - Junio del 2026
pp. 1- 36

HISTORIA ECONÓMICA, EMPRESARIAL Y DEL PENSAMIENTO
TIEMPO & ECONOMÍA

Sugerencia de citación: Meisel Roca, A., Nieto Martelo, B. (2026). Falling Through Time: The Height of Military Conscripts in the Viceroyalty and the Republic of New Granada, 1720-1840. *tiempo&economia, 13*(1), 1-36. https://doi.org/10.21789/24222704.2212

DOI:
https://doi.org/10.21789/24222704.2212

Falling Through Time: The Height of Military Conscripts in the Viceroyalty and the Republic of New Granada, 1720-1840

Cayendo a través del tiempo: La estatura de los conscriptos militares en el Virreinato y la República de Nueva Granada, 1720-1840

Adolfo Meisel Roca
Master and doctor in Economics from the University of Illinois.
Rector of the Universidad del Norte, Colombia.
https://orcid.org/0000-0003-1255-9867
ameisel@uninorte.edu.co

Brandon Nieto Martelo
Economist and Master in Urban Planning and Territorial Development from the Universidad del Norte.
Universidad del Norte, Colombia.
https://orcid.org/0000-0002-2022-4154
martelob@uninorte.edu.co

ABSTRACT

There are no estimates of the height of Colombians during the 18th and early 19th centuries. This article contributes to closing this gap. We have constructed a database using military affiliations found in the Archivo General de la Nación, comprising a total of 373 observations (male recruits). The results show a sustained decrease in height during the 18th and first decades of the 19th century. In the case of conscripts born in New Granada, the average height declined from 167.8 cm in 1720 to 164.6 cm in 1800. We argue that these results are mainly explained by the deterioration in the biological standard of living due to numerous epidemics—especially of smallpox—the presence of extreme climatic conditions such as droughts, floods, and frosts, and the rapid increase of the population, which was still recovering from the demographic catastrophe of the 16th century.

Keywords: Biological standard of living; physical stature; Colombia; 18th century; Economic history.

JEL Codes: N36, I15, J11, C24

RESUMEN

Hasta la fecha no hay estimaciones de la estatura de los colombianos en el siglo XVIII y principios del XIX. Este artículo contribuye a llenar este vacío. Hemos construido una base de datos utilizando afiliaciones militares encontradas en el Archivo General de la Nación de Colombia, alcanzando un número total de 373 observaciones (hombres reclutas). Los resultados muestran una reducción sostenida de la altura durante el siglo XVIII. En el caso de los conscriptos nacidos en América la estatura promedio disminuyó de 167,8 en 1720 a 164,6 cms en 1800. Argumentamos que estos resultados se explican principalmente por el deterioro del nivel de vida biológico debido a numerosas epidemias, especialmente de viruela, la presencia de condiciones climáticas extremas, sequías, inundaciones y heladas, y el rápido aumento de la población, que aún se recuperaba de la catástrofe demográfica del siglo XVI.

Palabras clave: Nivel de vida biológico; estatura física; Colombia; siglo XVIII; Historia económica.

Códigos JEL: N36, I15, J11, C24.

Introduction

The standard of living has been studied through multiple variables. Recently, the Sustainable Development Goals (SDG) have promoted a holistic view of development (United Nations, 2018). Measures such as multidimensional poverty, life expectancy at birth, years of schooling, performance in standardized academic tests, among many others, help us determine the level of well-being. Unlike modern societies, evaluating the standard of living in the colonial era is not straight forward, mainly due to the absence of basic indicators such as the Gross Domestic Product (GDP), which was not developed until the 1940s (Coyle, 2017). As a result, researchers have examined the standard of living of European colonies in America using proxy variables such as real wages (Gelman & Santinilli, 2018). However, there remains a gap in the literature regarding the performance of countries using indicators such as births, mortality, production, wealth, and height. Robert Fogel (1997) showed that height is influenced by food consumption, health conditions, and work effort; therefore, it can be interpreted as a measure of the biological quality of life.

This document contributes to our understanding of living conditions in colonial Spanish America through the study of the heights of adult men in the military born between 1720 and 1820 in New Granada, as well as in Spain and Portugal. Economic historians have traditionally faced the challenge of limited data availability for the preindustrial period. As a result, there are relatively few studies on the standard of living in 18th century Latin America. Notable exceptions include López-Alonso (2012) for Mexico, Salvatore and Baten (1998) for Argentina, and Llorca-Jaña et al. (2018) for Chile.

An important methodological contribution to the study of biological welfare in Latin America comes from the work of López-Alonso on Mexico. Her research combines multiple sources of anthropometric evidence—including military conscription records, passport applications, skeletal remains, and modern health surveys—to reconstruct long-term trends in stature and nutritional status. By triangulating these different types of evidence, López-Alonso is able to address concerns about sample bias and extend the analysis of biological welfare across several centuries (López-Alonso, 2025). This multi-source approach has become increasingly influential in anthropometric history, particularly in anthropometric history, particularly in regions where conventional demographic and economic data are scarce.

Recent research on Chile further illustrates the value of expanding the range of anthropometric sources used in historical analysis. Llorca-Jaña and Allende compile new datasets derived from military, prison, school, and health survey records to reconstruct long-term trends in height and biological inequality. Their findings highlight the persistence of significant socioeconomic disparities in stature across regions, occupations, and levels of education, as well as the importance of public health interventions in improving biological welfare during the 20th century (Llorca-Jaña & Allende, 2025). The Chilean evidence thus reinforces the view that changes in health infrastructure and social policy played a central role in shaping anthropometric outcomes in Latin America.

As mentioned by López-Alonso (2016) and Llorca-Jaña et al. (2018), given the heterogeneous conditions of the region, it is important to present the evolution of height in as many countries as possible, in order to have a clearer understanding of changes in living conditions in Spanish America during this period.

Despite these limitations, we have managed to construct a new database using height data from military affiliation records of recruits found in the Archivo General de la Nación (AGN). The total number of observations is 373. The source and structure of the data are briefly

described below. We then present several hypotheses to explain the observed decline in height during the period 1720-1840. A descriptive and inferential analysis of height in the sample is subsequently conducted using a truncated regression methodology. Finally, the main conclusions of the study are discussed.

The data

The height of Colombians during the 20th century has been analyzed using government documents rich in anthropometric information. The data supporting these studies have been obtained from administrative records related to personal identification, such as national identity card, passports, and judicial records (Meisel-Roca & Vega-Acevedo, 2004; Meisel-Roca & Vega-Acevedo, 2005). However, as one attempts to analyze the evolution of height in earlier periods, issues of incomplete or nonexistent information begin to arise.

Since the late 19th century Colombian authorities established a personal identification document in other for citizens to be able to vote (Bushnell, 1971). The first law that establishing this document in Colombia dates back to 1853 and was issued by President José María Ovando (Registraduría Nacional del Estado Civil , 1988). However, it was not until 1934 that the citizenship card was issued for men. For women it was not issued until 1956 (Meisel-Roca & Vega-Acevedo, 2004). To analyze heights before 1905, Meisel & Vega (2010) used passport records from 15,911 Colombians—mainly belonging to the elite—who were born between 1870 to 1919. In Colombia, passports date back to 1824, when they were required by law for Colombians residing abroad in order to travel to other countries. However, for the period prior to 1870, many passports did not include height information, and before 1859 there are no passport records available in the archives of the Ministry of Foreign Affairs or the AGN.

Documents containing information on the biological well-being of Colombians prior to 1870 have not been found in significant numbers. In order to address this gap, we conducted a systematic search in the AGN. During process, we identified historical documents on the affiliations of

Spanish-American infantry in New Granada, as well as records for Colombian militias in the years following 1821. These sources include records for 373 young conscripts whose ages range from 18 to 45 years. Of these, 192 were born in Spanish-America—most of them in the Viceroyalty of New Granada—and 175 in Spain (see Table 1). These records allow us to study the evolution of the height of men born between 1720 and 1810. Specifically, they contain information on parents' names, region of origin, occupation, height (measured in feet and inches), age, and physical characteristics such as skin color, eye color, hair type, and hair color. All individuals were assigned to the main port in the viceroyalty, Cartagena de Indias, where most military personnel were stationed due to its status as a fortified port.

Table 1. Place of Birth of Military conscripts

Place of Birth	Number of records
New Granada	192
Spain	175
Portugal	2
Italy	1
Mexico	1
France	1
Unknown	1
Total	373

Source: Authors' calculations with data collected from the *Sección Colonia*, Archivo General de la Nación (2024).

As mentioned by Llorca-Jaña et al. (2018), recruits typically belonged to middle-income families, which is why they can be considered a good representation of the overall population. For this reason, and given the limited number of observations, we consider the analysis of this sample to be relevant to the literature. According to the census of 1777-1778 (Mapoteca 7, Archivo General de la Nación) the provinces of the Colombian Caribbean had 169,020 inhabitants, of which 70% lived in the province of Cartagena (118,403) (see Table 2). Using the same source and combining census records from all provinces, Solano (2015) estimates that the population of New Granada in 1788 was around 1,279,440 inhabitants.

Table 1. Place of Birth of Military conscripts

Table 2. Population of the New Granadian Caribbean (circa 1777-1778)

Province	Population	Percentage
Cartagena	118.403	70%
Santa Marta	46.651	28%
Territory of La Guajira	3.966	2%
Total	169.020	100%

Source: Authors' calculations with data from the *Archivo General de la Nación (AGN)*, *Mapoteca 7*, No. 1353(21) and Tovar Pinzón et al. (1994).

The constructed database includes only records of men over 18 years of age, the age at which individuals, on average, stop growing (Steckel, 1995). Among the variables of interest, the database contains the names of the recruits and their parents, place of origin, assigned position, previous occupation, and physical characteristics such as height, sex, hair color and type, and skin color. As Steckel (1995) explains, the first three years of a person's life are the most important in determining final adult height. For this reason, in order to compare the evolution of height in the 18th century, we calculated the average height by decade of birth, since economic and health conditions may have varied over time. Thus, we assume that recruits born in the same decade were exposed to similar general conditions; therefore, changes in average height between decades reflect economic, climatic, health, and other factors influencing the biological quality of life of the population. We also assume that the requirements for entry into the infantry did not change substantially during this period. As Torres Ramírez (1969) explains, regulations for the militia in Spain and Spanish America were established to determine the urban and rural population suitable for military service. According to these regulations, men were expected to be between 15 and 45 years of age. Only in exceptional cases, such as wartime, could individuals outside of these age range be recruited. Additionally, a minimum height requirement—usually 5 feet, equivalent to 162.4 cm—was imposed (Dobado-González & García-Montero, 2014)[1].

As described by Farfán and Marín (2014), colonels, marshals, and sergeants faced several difficulties in increasing the number of soldiers,

[1] Additionally, recruits were required not to be emplyed as lawyers, notaries, doctors, apothecaries, solicitors, surgeons, revenue administrators, sacristans, schoolteachers, or grammar schoolteachers. This restriction existed because, if they were incorporated into the infantry, they would cease working in these occupations, which were considered essential at the time (Torres Ramírez, 1969).

including the cost of recruiting them from Spain, the ability of the new recruits to handle weapons, and the identification of suitable men. For this reason, the requirements described previously were sometimes relaxed, particularly the minimum requirement. This situation is reflected in the height distribution observed in many studies analyzing military personnel (Llorca-Jaña et al., 2018; Komlos, 2003; Salvatore & Baten, 1998).

It is also important to clarify that, in conducting this analysis, we followed the recommendations of Cámara (2006) and Challú (2009) to use the Paris foot to convert measurements from feet (32.48 cm), inches (foot/12), and lines (inch/12) into centimeters. The reason is that the Paris foot was used in Spanish America at the time, as Bourbon monarchs had imposed French military codes.

Main Results

As Komlos (2003) explains, the analysis of height dates back to the 1830s with the works of Adolphe Quetelet and Luis R. Villermé. However, it gained importance for historians only in the 1960s, when the French School of Annales began to analyze the correlation between height and other socioeconomic variables (Le Roy Ladurie et al., 1969)[2]. Since the 1970s, Robert W. Fogel and his associates have studied the determinants of height in the United States and Great Britain. They applied the main methods of the New Economic History, including the explicit use of economic theory and rigorous statistical analysis. This work led to a boom in anthropometric studies worldwide (Steckel, 2009).

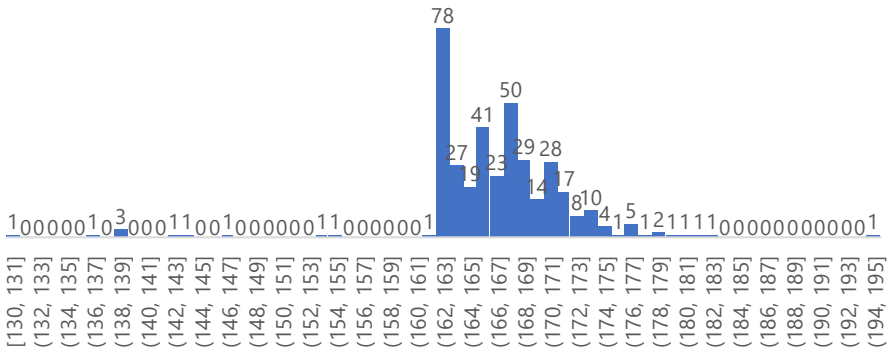
Recent research in anthropometric history has emphasized the importance of integrating biological indicators into the study of long-term economic development. As Martínez-Carrión and Cámara demonstrate in their review of Spanish anthropometric history, height trends reflect the combined effects of demographic, epidemiological, and nutritional transitions, and therefore provide a multidimensional indicator of living

[2]For more information about the analysis of height, see Komlos (2003); Fogel (1996); and Steckel (2009).

standards beyond conventional economic measures (Martínez-Carrión & Cámara, 2025). This literature has increasingly adopted interdisciplinary approaches, combining economic history with demography, epidemiology, and biological anthropology to reconstruct historical patterns of inequality in human welfare.

As stated in the previous section, prior to the 19th century, the main sources of height data were records of prisoners, passport holders, and military recruitment affiliations. Affiliations, unlike other records, are subject to minimum height requirement (MHR), which is known in the literature as the height requirement (HR) problem. This MHR often causes samples derived from these records to be an incomplete representation of the population, since individuals below the minimum height are underrepresented or not represented at all, possibly due to the rounding up of measurements by recruiters. Such samples typically exhibit a break in the distribution, or "shortfall" as it is referred to in the literature. In our database, a clear break in the height distribution can be observed between 162 and 163 cm, with only 11 observations below this threshold. The high concentration of records within this range suggests that many conscripts may in fact have been shorter than the minimum required height (see Figure 1).

Figure 1. Height distribution (cm) for all affiliations in New Granada, 1720-1810



Source: Authors' calculations based on data collected from *Sección Colonia*, Archivo General de la Nación (2024).
Note: The conversion from feet, inches, and lines to centimeters was performed using Paris foot equivalences.

Another important characteristic of the distribution is the heaping of the data in certain heights, such as multiples of 5. The distinct peaks in the distribution suggest that height was probably not measured with high precision and that observations were rounded to the nearest unit, either in inches or centimeters.

In the presence of these two problems, Komlos (2003) argues that the sample is normally distributed only within a range (τ_m, τ_x), where τ_m is the lower limit and τ_x is the upper limit. The covariances of this dependent variable with other independent variables can be determined using the truncated regression method (TR) using a maximum likelihood procedure. Unlike other methods, such as Truncated Ordinary Least Squares (TOLS)—which allow estimation only the direction of the trend—TR allows calculation of the magnitude (average height), standard error, and correlation of the variable of interest (its association with other explanatory variables). In accordance with these recommendations, the descriptive analysis applied to our data set is presented below, along with the results of a truncated regression using the maximum likelihood procedure.

On average, the height of conscripts in New Granada decreased by 7.2 cm between 1720 and 1810, from 168.2 cm in 1720 to 161 cm in 1810, indicating a continued deterioration in biological well-being. The highest average height was recorded in the 1740s (169.2 cm), and the lowest in 1810 (161 cm).

Unlike the results reported by Llorca-Jaña et al. (2018), Mörner (1969), Dobado-González & García-Montero (2017), and Challú (2010), white recruits were not the tallest among the different ethnic groups. Individuals classified as black had the highest average height (169.8 cm), while whites had the lowest (165.8 cm) (see Table 3). This difference may suggest the influence of genetic and/or environmental factors. Authors such as Mörner (1969), Dobado-González & García-Montero (2017), and Challú (2010) argue that these environmental and genetic factors are associated with the material well-being of different income strata or social classes.

Table 3. Height (cm) and number of records according to skin color for military conscripts born between 1720 and 1820, raw averages

Skin color	Number of observations	Percentage of observations	Average Height	Minimum height	Maximum height	Standard Deviation
Dark (*mor|eno*)	12	3%	169.8	162.4	194.9	8.6
Black (*Zambo* o *Mulato*)	12	3%	166.9	162.4	168.3	2.1
Unspecified	112	30%	166.5	129.9	182.7	5.8
Light brown skin (*Trigueño*)	123	33%	166.3	136	181.8	5.7
White	114	31%	165.8	138	179.5	6.1
Total	**373**	**100%**	**166.3**	**129.9**	**194.9**	**5.9**

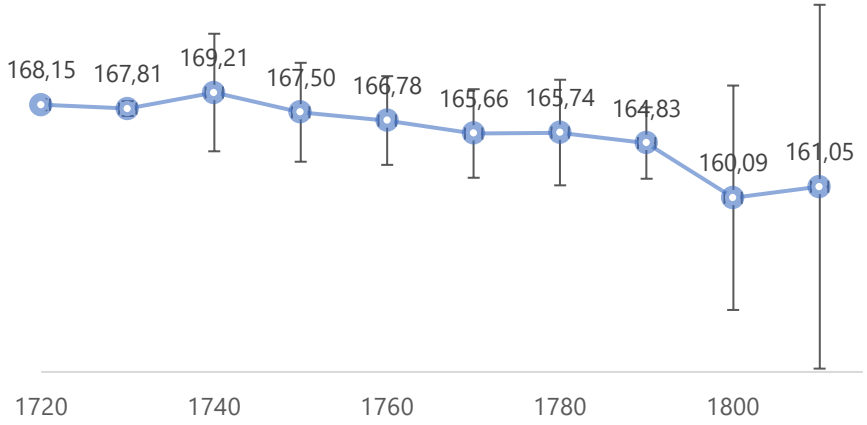
Source: Authors' calculations using data collected from the *Sección Colonia*, Archivo General de la Nación.

When analyzing the dispersion of the data, we observe that those classified as dark-skinned show the highest standard deviation (8.6), indicating greater variability in heights, while the Black category has the lowest standard deviation (2.1), suggesting greater homogeneity. Examining the evolution of the variability by decade of birth shows a sustained increase in the standard deviation, with the highest value in 1810 (15.8) and lowest in 1720 (0.5) (see the appendix). This could indicate increasing diversity in living conditions or in the composition of the military population.

The data shows four subperiods: 1720-1740 (in which the highest average height is observed, remaining above 167 cm), 1740-1790 (where there is a gradual but moderate decline), 1790-1800 (where the steepest drop is observed, reaching 160.1 cm), and 1800-1810 (where height stabilizes slightly, with a small variation between 160.1 and 161.1 cm (see Figure 2).

Figure 1. Height distribution (cm) for all affiliations in New Granada, 1720-1810

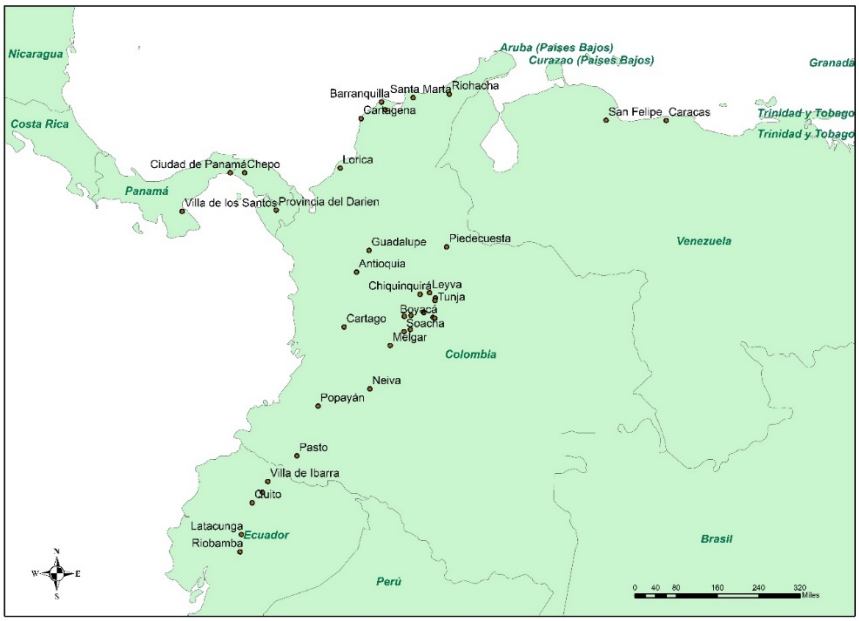
Figure 2. Average height and standard deviation (cm) of military conscripts born between 1720 and 1810



Source: Authors' calculations using data collected from the *Sección Colonia*, Archivo General de la Nación.

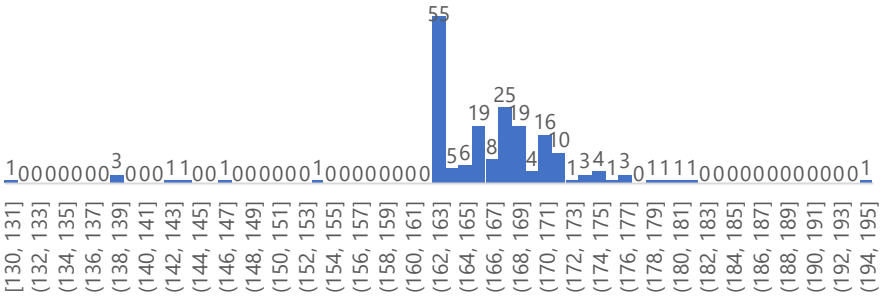
The characteristics of the sample described above are maintained when analyzing the subgroup of recruits born in the Americas. Soldiers classified as black or brown had an average height 6 cm greater than those classified as white (see Table 4). Average height declines from 1740 onwards (see Figure 5). Figure 3 shows the places where these recruits were born. A large number of soldiers were born in the Andean region of the Viceroyalty of New Granada and in the most important towns of the Caribbean and Pacific coasts.

Figure 3. Place of birth of the recruits of New Granada and Audiencia de Quito born between 1720 and 1800 in the Americas



Source: Prepared by the authors using data collected from the *Sección Colonia*, Archivo General de la Nación.

Figure 4. Height distribution (cm) for individuals born in the Americas in the period 1720-1810



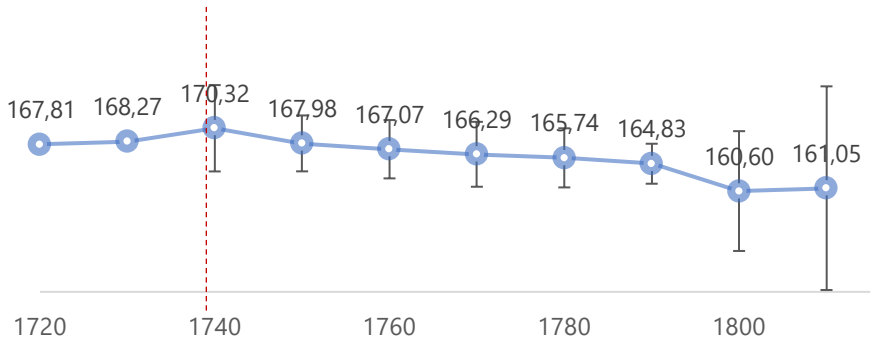
Source: Authors' calculations using data collected from the *Sección Colonia*, Archivo General de la Nación.

Table 4. Height (cm) and number of records according to skin color for military conscripts born in the Americas between 1720 and 1820

Skin color	Number of records	Average Height	Minimum height	Maximum height	Standard Deviation
Dark (Moreno)	6	172.6	162.4	194.9	11.8
Black (Zambo o Mulato)	12	166.9	162.4	168.3	2.1
Light brown skin (*Trigueño*)	79	166.7	142.1	181.8	5.5
White	77	165.1	138.0	179.5	6.9
Unspecified	18	163.6	129.9	175.5	11.2
Total Americans	**192**	**165.9**	**129.9**	**194.9**	**7.0**

Source: Authors' calculations using data collected from the *Sección Colonia*, Archivo General de la Nación.

Figure 5. Average height and standard deviation (cm) of American-born conscript military personnel by decade of birth between 1720 and 1810



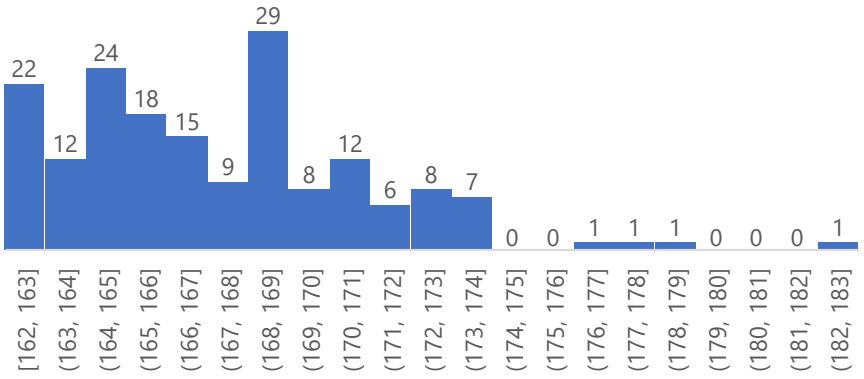
Source: Authors' calculations using data collected from the *Sección Colonia*, Archivo General de la Nación.

lMost of the affiliated military personnel who were not born in the New World were of Spanish or Portuguese origin (see Figure 6). Within this subsample, the skin color with the highest average height was white. However, the category *trigueño* (which at the time referred to a skin tone similar to the color of wheat or light brown) shows the lowest average (see Table 5). The average height of those born in Spain and Portugal also decreased after 1740 (see the appendix and Figure 8).

Figure 6. Place of birth of origin of the Spanish and Portuguese recruits in New Granada born between 1720 and 1800

Source: Elaborated by the authors using data collected from the *Sección Colonia*, Archivo General de la Nación.

Figure 7. Height distribution in cm for individuals born in Spain and Portugal between 1720 and 1810.



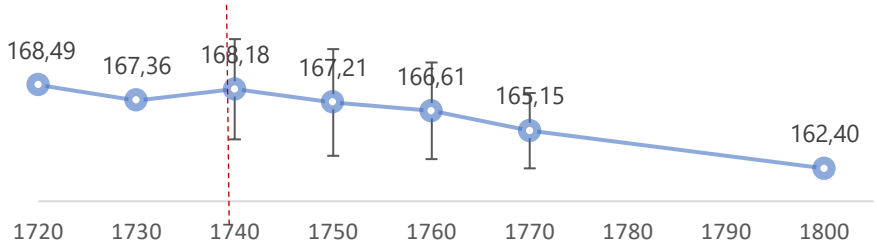
Source: Elaborated by the authors with data collected from the *Sección Colonia*, Archivo General de la Nación.

Table 5. Height (cm) and number of records according to skin color of military conscripts born in Spain and Portugal between 1720 and 1800, raw averages

Skin color	Number of records	Average Height	Minimum height	Maximum height	Standard Deviation
White	36	167.1	162.4	176.4	3.6
Dark	6	167.1	165.1	171.6	2.7
Unspecified	91	166.9	162.4	182.7	3.8
Light brown skin (Trigueño)	41	166.7	161.7	177.1	3.6
Total	**174**	**166.9**	**161.7**	**182.7**	**3.7**

Source: Elaborated by the authors with data collected from the *Sección Colonia*, Archivo General de la Nación.

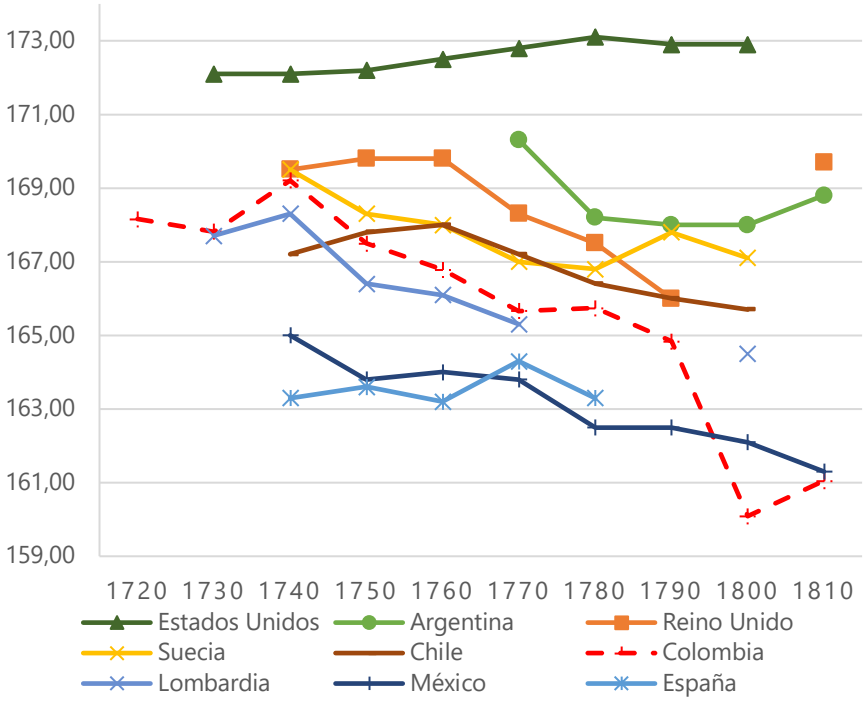
Figure 8. Average height and standard deviation (cm) of Spanish and Portuguese military conscripts born between 1720 and 1800



Source: Elaborated by the authors with data collected from the *Sección Colonia*, Archivo General de la Nación.

The downward trend in the average height of military conscripts in New Granada from the 1740s onwards is consistent with a similar pattern in other parts of the world in this same time period. In Mexico, for example, Grajales-Porras and López-Alonso (2011) found a reduction of about 2 centimeters in the population of Puebla during the last decades of the 18th. When comparing our estimates with the average heights reported by authors such as Llorca-Jaña et al. (2018) and Dobado-González & García-Montero (2014) in the Americas and parts of Europe, we observe that the United States was the only territory with available data for which the average height increased (see Figure 9). The causes behind this global trend are multidimensional. The literature highlights the decline in real wages in Spanish America, as well as in most European countries, which anticipated the economic crisis of the colonial system (Dobado-Gonzáles, 2014).

Figure 9. Evolution of height in different countries, 1720-1810, raw averages



Source: For Colombia, author´s calculations using data collected from the *Sección Colonia*, Archivo General de la Nación; for Sweden, Spain, Argentina and Mexico, Llorca-Jaña et al. (2018), and for the United States and Lombardy, Dobado-Gonzáles (2014).

The decline in real wages is one of the strongest hypotheses in the literature to explain the reduction observed in heights (Dobado-González, 2015). However, other probable determinants of the global decline in height identified in the literature in this period include increasing income inequality, rising food prices, reduced daily nutrient intake (deterioration of nutritional status) (García-Montero, 2018), climate variability associated with the Little Ice Age and resulting agricultural crises[3] (García Torres , 2021), urban penalty Llorca-Jaña et al. (2020) and epidemics[4] (Carson, 2020).

Anthropometric studies such as that of Galofré-Vilà et al. (2018) delve into the impact and the mechanisms through which climatic changes have

[3]The Little Ice Age produced severe disruptions in agriculture due to the occurrence of periods of extreme weather conditions, such as droughts, frosts, and storms. In Mexico City, for example, the agricultural crises of 1771–1772 and 1785–1786 caused severe socioeconomic impacts, such as food shortages and increased mortality rates (García Torres, 2021).
[4]Height is inversely related to various diseases, especially if the infection occurs during childhood (Marques et al., 2019).

affected living standards and human stature over the past two centuries. The authors argue that while climate had a measurable influence on human stature during the 19th century—mainly through its effects on food availability, disease environments, and energy expenditure—this relationship weakened significantly over time. The attenuation of climatic effects on height reflects what Fogel and Costa (1997) termed "technophysio evolution," a process through which technological and economic modernization progressively insulated human biological outcomes from environmental constraints. Today, such climatic impacts are more evident in lower-income countries, where dependence on local agriculture and limited infrastructure still link physical development closely to weather conditions. In the next section we will discuss other possible hypotheses.

Why Did Heights Fall?

The decline in the observed heights of military conscripts in Cartagena born between 1720-1810 is multifactorial. In the case of those born in New Granada, which represented 51.5% of the sample, several factors played a central role. In the first place, the 18th century was a period of recurring and often severe epidemics in the viceroyalty. As Katherine Mora (2021) and Christian Bejarano (2023) have documented, epidemics occurred in New Granada in 1744, 1775-1776, 1782-1784, 1801-1803, and 1815-1817. In all of this cases smallpox was present; in 1775-1776 chicken pox was also reported, along with dysentery in Cartagena and Santa Marta.

Although the percent of children who died of smallpox was higher than that of adults, adult mortality was also high. For example, in the epidemic of 1782-1783, adult mortality increased 3.7 times and children mortality 4.9 times (Bejarano, 2023). In that same epidemic, the annual smallpox mortality rate per 1,000 inhabitants was 39.3 (Bejarano, 2021). Smallpox could have affected the final height of individuals under 18 through two channels. The most commonly discussed is the link between net nutrition and height, as the body expends additional energy to combat the disease. In addition, if many parents die—especially in lower income

groups—the economic conditions of the family would deteriorate, leading to poorer diets.

Several economic historians have examined the effects of smallpox on height. In 1996, Hans-Joachim Voth and Timothy Leunig published a paper in which they argued that smallpox led to a reduction of the average height of men of about one centimeter during the period 1770-1873 (Voth & Leunig, 1996).[5]

The negative consequences of epidemics on final height have been a key element in anthropometric explanations of what is known in the literature as the "Antebellum Puzzle." This anomaly was initially discussed in the early 1980s and refers to the observed reduction in the height of adult white males in the United States in the decades before the Civil War (Haines et al., 2003). The paradox lies in the fact that the United States economy was growing very rapidly at the time: real per capita GDP increased at annual rate of 0.92% between 1800 and 1860 (Brinkman & Drukker, 1998). Robert W. Fogel (1986) explained this paradox by noting that the period preceding the Civil War was marked by a high incidence of epidemics, including typhus, smallpox, tuberculosis, yellow fever, malaria, and cholera, which negatively affected net nutrition. The spread of disease during this period was driven by increases in internal migration and travels associated with advances in transportation network, particularly the expansion of railroads. In addition, immigration and urbanization contributed to the diffusion of contagious diseases.[6]

A second factor that probably contributed to the reduction in height in New Granada in the period under discussion was the presence of extreme climatic conditions during the 18th century and early 19th century. Katherine Mora says that from 1743 to 1809, there were 24 years with some type of extreme climatic condition such as droughts, frosts, and floods, that is 36% of the time (Mora, 2015). According to Prieto and Rojas, extreme

[5] Although Peter Razzell (1998) questioned the results obtained by Voth and Leunig, his criticism refers more to the quality of the data they used, as Leunig and Voth (1998) have responded. However, the authors have defended the quality of the information they used. For another study that found a reduction of more than 1 cm due to smallpox in the Belgian town of Thielt from 1820 and 1839, see Vervaeke and Devos (2017).

[6] However, Komlos (2012) offers a different explanation for the decline in heights in the United States during the years preceding the Civil Wars. His argument is that the relative prices of nutrients were increasing, leading to a substitution away from food toward manufactured goods. Additionally, income inequality was rising, which also contributed to the reduction in height.

weather conditions often exacerbate epidemics (Prieto & Rojas, 2013): floods in the case of dysentery and typhus, yellow fever, and droughts for smallpox, malaria, and measles.

A third factor that may have contributed to the reduction in height among New Granadians from 1740 to 1840 was the continuous growth of the population of the viceroyalty. Between 1778 and 1825, the average annual population growth was 1.4%. It was even higher in some of the larger towns, such as Cartagena, which grew at an annual rate of 1.8% between 1777-1810 (Aguilera & Meisel, 2009). The growth in population led to increased density, which may have facilitated the spread of contagious diseases.

A possible fourth cause for the decline in height in New Granada during this period could be a reduction in real wages as a result of inflation, given that nominal wages were very stable at the time.[7] The fragmentary information available on prices for the period 1720-1840 does not show evidence of a generalized increase or deflation over the period as a whole, although there appear to be some short-term fluctuations, likely related to climatic conditions. Alberto Pardo, using price data for Santafé de Bogota, found long-run price stability from 1720 to 1840, with an extreme fluctuation in 1797-1798, that could be explained by transcription issues (Pardo, 1972). James V. Torres (2014) constructed a price index for Popayan from 1706 to 1819 and did not find a long-run price trend during those years. The same author (Torres Moreno, 2013), for Santafé de Antioquia, shows long-term stability from 1726 to 1767. However, for Santafé de Bogotá, there is relative stability from 1791 to around 1797, followed by a sustained increase in prices. A graphical inspection of the eight individual prices of the products he used suggest that all were relatively stable, with fluctuations from 1791 to 1802, except salt, which appears to show a sustained price increase from 1791 to 1808. The increase in the price of salt was marginal—5% in 17 years—and expenditure on salt is always share of household budgets; thus, its impact was likely limited. Finally, Miguel Urrutia Montoya reports stability in prices and salaries in Santafé de Bogotá from 1825 to

[7] According to Alberto Pardo from 1720 to 1826 nominal salaries were 2 reales per day (Pardo, 1972, pp. 231-233).

1860 (Urrutia Montoya, 2010). In conclusion, there is little evidence of inflation from 1720 to 1840.

For military conscripts born in Spain and Portugal, who represented 47% of all recruits, the explanation for changes in height during this period is, in most cases, related to conditions what happened in their region of origin. Unfortunately, there is very little information on the height of Spanish and Portuguese males before 1850. However, the available evidence suggests that height in Spain was declining toward the end of the 18th century and until 1850. In the case of Toledo, for example, height declined from 164-163 cm in 1777 to 162 in 1850 (Martínez-Carrión & Puche-Gil, 2011). For those born in Spain who arrived very young (under 18 years of age) in New Granada, the same negative influences on height experienced by those born in the New World apply.

In other regions of Spanish America, a decline in the heights of military conscripts during the 18th century has been documented. For Chile, Llorca-Jaña et al. (2018) using a sample of 2,399 recruits observed a reduction of average height from 168.2 in 1760 to 167.1 cm. in 1800. They attribute this decline to a reduction in real wages as a result of rising prices and to a population increase without technological change.

A reduction in the height of military conscripts has also been documented in the Viceroyalty of New Spain (Challú, 2010). In that case, from 1740s to the 1840s there was a reduction of 4.5 cm., from 165 to 160.5 cm. Challú considers that the main influences in this outcome were significant population growth, around 1.0% annually except from 1810 to 1830. Other factors included the climatic effects of *El Niño* and increases in grain prices, especially corn. However, he argues that these factors alone do not fully explain the reduction and that further analysis is needed.

To conduct an inferential analysis of the correlation between height and its determinants, this section apples a truncated regression model to the dataset, following the recommendations of Komlos (2003). As previously mentioned, the height distribution of our sample exhibits data rounding and heaping. For this reason, we conclude that the sample is

normally distributed only within the range $(\tau_m = 162{,}39\ cm, \tau_x = +infinito)$, where τ_m*is* the lower limit and $\tau_x$is the upper limit.

In this case, the truncated regression (TR) method is appropriate. Truncated regression is a statistical method used when the dependent variable is observed only within a certain range. Observations outside this range are not included in the analysis, resulting in coefficient estimates with less bias and greater statistical consistency (Komlos, 2003).

Table 6 shows the results of applying this methodology to our data, truncating the sample from the left at 162.4 cm and estimating the model using the maximum likelihood method. As mentioned in the previous section, the records we use contain the name of the recruit and his parents, the place of origin and assigned position, previous occupation, and physical characteristics such as height, sex, hair color and type, and skin color. However, for some of these variables, the information in most of the transcribed records was either illegible or missing. For this reason, the model includes only three independent variables, which serve as proxies for the nutritional status of the recruits and their income. As García-Montero (2018) notes, there were notable differences in heights by occupation and social status.[8]

Table 6. Results of a truncated regression model at 162.4 cm for the height of military conscripts in New Granada, estimated using the maximum likelihood method

Variable	Estimator	Standard error	Statistical	P-value	Significance
Intercept	166	7	24,595	< 2.2e-16	***
Day laborer/artisan	-12	5,43911	-2,212	0.02697	*
Light skin color (brown and white)	-0.76	3,55672	-0.2132	0.83116	
Born between 1745 and 1805	-4.59	5	-8.84E-01	0.37679	
sigma	9,2808	2,0934	4,4334	9.28E-06	***
Log-Likelihood: -637.81 on 5 Df					
pseudo R^2: 0.38 n=373					

Source: Authors' calculations based on data collected from the *Sección Colonia*, Archivo General de la Nación.

Note: The dichotomous variable *day laborer/artisan* takes the value of one if the conscript's occupation was day laborer, goat herder, embroiderer, artisan, merchant or

[8] For example, in Spain, landowners and highly skilled service workers were almost 5 cm taller than servants (García-Montero, 2018).

cook, and zero if the occupation was fisherman, pen worker, other, trader, without occupation, sea worker, farmer, or student. All observations in the dataset are included (individuals born in New Granada and abroad).

The results show an statistically significant intercept of 166 cm. This value represents the average height of military officers who do not belong to any of the categories of the explanatory variables (i.e., those who are not a day laborers or artisans, have dark skin, and were not born between 1745 and 1805).

The variable day laborer/artisan has a negative coefficient of –12, suggesting that military personnel in this category had an average height 12 cm lower than the reference group. This effect is statistically significant at the 5% level, with a p-value is 0.02697 (*).

The coefficient for light skin color takes a value of –0.76, indicating that light-skinned military personnel were, on average, 0.76 cm shorter than those with dark skin (the reference group). However, this variable is not statistically significant (p-value = 0.83116), implying that the difference in height by skin color is not conclusive in this model.

On the other hand, conscripts born between 1745 and 1805 were, on average, 4.59 cm shorter than those born outside this period. However, this effect is also not statistically significant (p-value = 0.37679), suggesting that variation in height by date of birth is not strong in this model.

By analyzing the standard deviation of the model errors, we infer that the dispersion of height around the mean is 9.3 cm (Sigma), which is highly significant and supports the adequacy of the model. Another measure of model fit is McFadden's Pseudo R^2, which captures the model's ability to explain variation in the dependent variable. In this case, a Pseudo R^2 of 0.38 suggests a moderate level of fit, which is common in truncated regression models, as these models may lose explanatory power due to the absence of data in certain ranges.

Conclusions

This study significantly broadens the time frame examined in the anthropometric history of Colombia, which has been well documented for the period after 1870—particularly after 1905—but had not previously covered the colonial era and the early 19th century. The data presented here contribute substantially to the historical and economic literature by providing a new database on the height of military conscripts in New Granada born between 1720 and 1810 (373 observation). Height, used as an indicator of biological well-being, allows us to infer living conditions, nutrition, and health status of the population during this period. The results reveal a downward trend in the average height of conscripts, reflecting a deterioration in living standards.

The decline in average height—from 168.2 cm in 1720 to 161 cm in 1810—was likely the result of recurrent epidemics between 1740 and 1818, adverse climatic conditions such as floods, droughts, and frosts, and a continuous population growth of about 1% between 1778 and 1825. This reduction in stature was also observed during the same period in other regions of Spanish America, such as New Spain and Chile, and possibly in Spain, where 47% of the recruits were born.

Using a truncated regression model estimated by maximum likelihood, we found that occupations such as day laborers and artisans had a negative and statistically significant impact on height, suggesting that these workers—belonging to lower socioeconomic strata—experienced harsher living conditions that affected their physical development. The variables of skin color and date of birth, while descriptively relevant, are not statistically significant in the model, possibly due to the relative homogeneity of living conditions across groups.

The international literature indicates that the downward trend in stature during this period was not unique to New Granada but was also observed in other regions of the Americas and Europe, with the exception of the United States during the 19th century, though not in the early 19th

century. Given the sample size, these conclusions should be regarded as tentative yet suggestive, providing preliminary evidence of biological and social deterioration in late colonial society.

References

Aguilera, M., & Meisel, A. (2009). *Tres siglos de historia demográfica de Cartagena de Indias.* Banco de la República.

Bushnell, D. (1971). Voter Participation in the Colombian Election of 1856. *The Hispanic American Historical Review, 51*(2), 237-249. https://doi.org/10.1215/00182168-51.2.237

Cámara, A. (2006). Fuentes antropométricas en España problemas metodológicos para los siglos XVIII y XIX. *Historia Agraria*, (39), 105-118.

Carson, S. (2020). Net nutrition, insolation, mortality, and the antebellum paradox. *Journal of Bioeconomics, 22*(1), 77-98. https://doi.org/10.1007/s10818-020-09293-6

Challú, A. (2009). Agricultural Crisis and Biological Well-Being in Mexico, 1730-1835. *History Faculty Publications*, 1-26.

Challú, A. (2010). The great decline: Biological well-being and living standards in Mexico, 1730-1840. In R. D. Salvatore, J. H. Coatsworth, & A. E. Challú (Eds.), *Living standards in Latin American history: Height, welfare, and development, 1750-2000* (pp. 23–68). Harvard University David Rockefeller Center for Latin American Studies / Harvard University Press.

Coyle, D. (2017). *El producto interno bruto. Una historia breve pero entrañable.* Bogotá: Fondo de Cultura Económica.

Dobado-González, R. (2015). Pre-independence Spanish Americans: Poor, short and unequal… or the opposite? *Revista de Historia Economica, Journal of Iberian and Latin American Economic History*, 15-59. https://doi.org/10.1017/S0212610914000135

Dobado-Gonzalez, R., & García-Montero, H. (2014). Neither So Low nor So Short: Wages and Heights in Bourbon Spanish America from an International Comparative Perspective. *Journal of Latin American Studies, 46*(2), 291-321. https://doi.org/10.1017/S0022216X14000054

Dobado-González, R., & García-Hiernaux, A. (2017). Two worlds apart: Determinants of height in late 18th century central Mexico. *Economics & Human Biology, 24*, 153–163. https://doi.org/10.1016/j.ehb.2016.12.003

Farfán, A., & Marín, J. (2014). *Milicias y Milicias Disciplinadas del Virreinato de la Nueva Granada. La Configuración de la Defensa y la Seguridad Durante la Segunda Mitad del Siglo XVIII.*

Fogel, R. W. (1997). New Findings on Secular Trends in Nutrition and Mortality: Some Implications for Population Theory. In M. Rosenzweig & O. Stark, *Handbook of Population and Family Economics* (Vol. 1A, pp. 433–481). Elsevier. *https://doi.org/10.1016/S1574-003X(97)80026-8*

Fogel, R. W., & Costa, D. L. (1997). A theory of technophysio evolution, with some implications for forecasting population, health care costs, and pension costs. *Demography, 34*(1), 49–66. https://doi.org/10.2307/2061659

Fogel, R. W. (1996). *A life of learning: Charles Homer Haskins lecture for 1996*. American Council of Learned Societies.

Galofré-Vilà, G., Guntupalli, A. M., Harris, B., & Hinde, A. (2018). Climate effects and stature since 1800. *Social Science History, 42*(4), 763–794. https://doi.org/10.1017/ssh.2018.27

García Torres, A. (2021). "This country in no longer the New Spain, the one conquered by Cortés": Adverse meteorology and agricultural crises in the valley of Mexico (1760-1800). *Revista de Historia Moderna*, (39), 189–217. https://doi.org/10.14198/RHM2021.39.07

García-Montero, H. (2018). The nutritional status inequality in interior Spain during the late 18th century. *Nutrición Hospitalaria, 35*(Ext5), 26–30. https://doi.org/10.20960/nh.2081

Gelman, J., & Santinilli, D. (2018). Wages and standards of living in the 19th century from a comparative perspective: Consumption basket, Bare Bone Basket and welfare ratio in Buenos Aires, 1825–1849. *Investigaciones de Historia Económica - Economic History Research*, *14*(2), 94-106. https://doi.org/10.1016/j.ihe.2016.09.001

Grajales-Porras, A., & López-Alonso, M. (2011). Physical stature of men in eighteenth century Mexico: Evidence from Puebla. *Economics & Human Biology*, *9*(3), 265–271. https://doi.org/10.1016/j.ehb.2011.02.002

Haines, M. R., Craig, L. A., & Weiss, T. (2003). The short and the dead: Nutrition, mortality, and the "Antebellum Puzzle" in the United States. *The Journal of Economic History*, *63*(2), 382–413. https://doi.org/10.1017/S0022050703001839

Komlos, J. (2003). *How to (and how not to) analyze deficient height samples* (Munich Discussion Paper No. 2003-12). University of Munich, Department of Economics. https://doi.org/10.2139/ssrn.464080

Komlos, J. (2012). *A three-decade "Kuhnian" history of the Antebellum Puzzle: Explaining the shrinking of the U.S. population at the onset of modern economic growth* (Munich Discussion Paper No. 2012-10). University of Munich, Department of Economics. https://doi.org/10.2139/ssrn.2021060

Le Roy Ladurie, E., Bernageau, N., & Pasquet, Y. (1969). Le conscrit et l'ordinateur. Perspectives de recherche sur les archives militaires du XIXe siècle français. *Studi Storici, 10*(2), 260-308. http://www.jstor.org/stable/20562980

Leunig, T., & Voth, H. J. (1998). Smallpox did reduce height: A reply to our critics. *The Economic History Review*, *51*(2), 372–381. https://doi.org/10.1111/1468-0289.00097

Llorca-Jaña, M., Clarke, D., Navarrete-Montalvo, J., Araya-Valenzuela, R., & Allende, M. (2020). New anthropometric evidence on living standards in nineteenth-century Chile. *Economics & Human Biology*, *36*, Article 100819. https://doi.org/10.1016/j.ehb.2019.100819

Llorca-Jaña, M., Navarrete-Montalvo, J., Droller, F., & Araya-Valenzuela, R. (2018). Height in eighteenth-century Chilean men: Evidence from military records, 1730–1800s. *Economics & Human Biology, 29*, 168–178. https://doi.org/10.1016/j.ehb.2018.03.004

Llorca-Jaña, M., & Allende, M. (2025). The anthropometric history of Chile: Main findings for the nineteenth and twentieth centuries. In R. D. Salvatore, M. López-Alonso, M. Llorca-Jaña, & J. M. Martínez-Carrión (Eds.), *The biological welfare of Ibero-America: A new anthropometric history* (pp. 00–00). Palgrave Macmillan. https://doi.org/10.1007/978-981-95-1509-7_9

López-Alonso, M. (2012). *Measuring up: A history of living standards in Mexico, 1850-1950*. Stanford University Press. https://doi.org/10.2307/j.ctvqsdzkx

López-Alonso, M. (2016). Economics and human biology in Latin America. En J. Komlos & I. R. Kelly (Eds.), *The Oxford handbook of economics and human biology* (pp. 710–729). Oxford University Press . *https://doi.org/10.1093/oxfordhb/9780199389292.013.2*

López-Alonso, M. (2025). The long history of biological welfare in Mexico: From Mesoamerica to the present. In R. D. Salvatore, M. López-Alonso, M. Llorca-Jaña, & J. M. Martínez-Carrión (Eds.), *The biological welfare of Ibero-America: A new anthropometric history* (pp. 00–00). Palgrave Macmillan. https://doi.org/10.1007/978-981-95-1509-7_4

Marques, C., Matos, V., & Meinzer, N. J. (2019). Proliferative periosteal reactions: Assessment of trends in Europe over the past two millennia. In R. H. Steckel, C. S. Larsen, C. A. Roberts, & J. Baten (Eds.), *The backbone of Europe: Health, diet, work and violence over two millennia* (pp. 137–174). Cambridge University Press. https://doi.org/10.1017/9781108379830.007

Martínez, J. (2012). La talla de los europeos, 1700-2000: Ciclos. crecimiento y desigualdad. *InvestigacionesdeHistoriaEconómica*, 176-187. https://doi.org/10.1016/j.ihe.2012.06.002

Martínez-Carrión, J. M., & Puche-Gil, J. (2011). La evolución de la estatura en Francia y en España, 1770-2000: Balance historiográfico y nuevas evidencias. *Dynamis, 31*(2), 429–452. https://doi.org/10.4321/S0211-95362011000200009

Martínez-Carrión, J. M., & Cámara, A. D. (2025). Spain: The anthropometric history of Spain: A review. In R. D. Salvatore, M. López-Alonso, M. Llorca-Jaña, & J. M. Martínez-Carrión (Eds.), *The biological welfare of Ibero-America: A new anthropometric history* (pp. 00–00). Palgrave Macmillan. https://doi.org/10.1007/978-981-95-1509-7_2

Meisel-Roca, A., & Vega-Acevedo, M. (2004). *La estatura de los colombianos: Un ensayo de antropometría histórica, 1910-2002* (Documentos de Trabajo sobre Economía Regional y Urbana No. 45). Banco de la República de Colombia. https://doi.org/10.32468/dtseru.45

Meisel-Roca, A., & Vega-Acevedo, M. (2005). La estatura de la élite colombiana antes de la industrialización, 1870-1919. *Revista del Banco de la República, 78*(932), 37–69. https://doi.org/10.32468/chee.15

Mora, K. (2015). Los agricultores y ganaderos de la sabana de Bogotá frente a las fluctuaciones climáticas del siglo XVIII. *Fronteras de la Historia, 20(1), 14–42*. https://doi.org/10.22380/2027468815

Mörner, M. (1969). *La mezcla de razas en la historia de América Latina.* Paidos.

United Nations. (2018). *Sustainable Development Goals*. https://www.un.org/sustainabledevelopment/es/objetivos-de-desarrollo-sostenible/

Pardo, A. (1972). *Geografía económica y humana de Colombia.* Ediciones Tercer Mundo.

Razzell, P. (1998). Did smallpox reduce height? *The Economic History Review, 51*(2), 351–359. https://doi.org/10.1111/1468-0289.00095

Registraduría Nacional del Estado Civil. (1988). *Historia Electoral Colombiana.*

Salvatore, R. D., & Baten, J. (1998). A most difficult case of estimation: Argentinian heights, 1770–1840. In J. Komlos & J. Baten (Eds.), *The biological standard of living in comparative perspective: Contributions to the conference held in Munich, January 18-22, 1997, for the XIIth Congress of the International Economic History Association* (pp. 00–00). Franz Steiner Verlag.

Solano, S. (2015). La construcción de los censos de población del Nuevo Reino de Granada a finales del siglo XVIII. *El Taller de La Historia, 7*(7), 41-99. https://doi.org/10.32997/2382-4794-vol.7-num.7-2015-721

Steckel, R. H. (2009). Heights and human welfare: Recent developments and new directions. *Explorations in Economic History*, *46*(1), 1–23. https://doi.org/10.1016/j.eeh.2008.12.001

Steckel, R. (1995). Stature and the Standard of Living. *Journal of Economic Literature, 33*(4), 1919.

Torres Ramírez, B. (1969). *Alejandro O'Reilly en las Indias*. CSIC - Escuela de Estudios Hispano-Americanos.

Torres Moreno, J. V. (2013). Precios, oferta monetaria y crecimiento económico en la Nueva Granada de la segunda mitad del siglo XVIII. *Revista de Economía Institucional, 15*(29), 195–225.

Tovar Pinzón, H., Tovar Mora, J. A., & Tovar Mora, C. E. (1994). *Convocatoria al poder del número: Censos y estadísticas de la Nueva Granada, 1750-1830*. Archivo General de la Nación.

Urrutia Montoya, M. (2010). Precios y salarios urbanos en el siglo XIX. In A. Meisel Roca & M. T. Ramírez (Eds.), *Economía colombiana del siglo XIX* (pp. 7–37). Fondo de Cultura Económica; Banco de la República.

Vervaeke, A., & Devos, I. (2018). Much ado about nothing? Reconsidering the smallpox effect: Height in the nineteenth-century town of Thielt, Belgium. *Tijdschrift voor Sociale en Economische Geschiedenis, 14*(4), 56–83. https://doi.org/10.18352/tseg.987

Voth, H. J., & Leunig, T. (1996). Did smallpox reduce height? Stature and the standard of living in London, 1770-1873. *The Economic History Review, 49*(3), 541–560. https://doi.org/10.1111/j.1468-0289.1996.tb00581.x

Appendix

Tables

Table 1. Height (cm) and number of observations by decade of birth for military conscripts born between 1720 and 1820

Decade of birth	Number of observations	Percentage of observations	Average height	Minimum height	Maximum height	Standard deviation
1720	2	1%	168.2	167.8	168.5	0.5
1730	2	1%	167.8	167.4	168.3	0.6
1740	47	13%	169.2	162.4	194.9	5.1
1750	116	31%	167.5	154.1	182.7	4.3
1760	118	32%	166.8	161.7	179.5	3.8
1770	18	5%	165.7	162.4	176.6	3.8
1780	5	1%	165.7	162.4	171	4.6
1790	18	5%	164.8	162.4	170.5	3.1
1800	41	11%	160.1	136	173.7	9.7
1810	6	2%	161.0	129.9	170.5	15.8
Total	**373**	**100%**	**166.3**	**129.9**	**194.9**	**5.9**

Source: Authors' calculations using data collected from the *Sección Colonia*, Archivo General de la Nación.

Table 2. Height (cm) and number of observations by decade of birth for military conscripts born in America between 1720 and 1810

Decade of birth	Number of records	Average height	Minimum	Maximum	Standard deviation
1720	1	167.8	167.8	167.8	NA
1730	1	168.3	168.3	168.3	NA
1740	18	170.3	164.4	194.9	6.7
1750	61	168.0	162.4	181.8	4.3
1760	36	167.1	162.4	179.5	4.5
1770	8	166.3	162.4	176.6	5.0
1780	5	165.7	162.4	171.0	4.6

1790	18	164.8	162.4	170.5	3.1
1800	38	160.6	138.0	173.7	9.3
1810	6	161.0	129.9	170.5	15.8
Total America (1720 - 1810)	192	165.9	129.9	194.9	7.0

Source: Authors' calculations using data collected from the *Sección Colonia*, Archivo General de la Nación.

Table 3. Height (cm) and number of observations by decade of birth for military conscripts born in Spain and Portugal between 1720 and 1800

Decade of birth	Number of records	Average height	Minimum	Maximum	Standard deviation
1720	1	168.5	168.5	168.5	0.0
1730	1	167.4	167.4	167.4	0.0
1740	26	168.2	162.4	176.4	3.7
1750	53	167.2	162.4	182.7	3.9
1760	81	166.6	161.7	178.6	3.5
1770	10	165.2	162.4	169.6	2.8
1800	2	162.4	162.4	162.4	0.0
Total	**174**	**166.9**	**161.7**	**182.7**	**3.7**

Source: Elaborated by the authors using data collected from the *Sección Colonia*, Archivo General de la Nación.

Table 4. Observations on heights by region of origin

Country of origin	Region of origin	Number of records
New Granada 172	Bogotá	55
	Panamá	38
	Cartagena	14
	Tunja	10
	Zipaquirá	7
	Boyacá	5
	Somondoco	4
	Popayán	4
	Santa Marta	3
	Pasto	3
	Antioquia	2

	Chepo	2
	Chiquinquirá	2
	Funjaz	1
	Leyba	1
	Guadalupe	1
	Melgar	1
	Sabanagrande	1
	Villa de los Santos	1
	Sebastián de Piragua	1
	Almeyda	1
	Tunjas	1
	Caracas	1
	Riohacha	1
	Barranquilla	1
	San Felipe	1
	Piedecuesta	1
	Soacha	1
	Choconta	1
	Cartago	1
	Provincia del Darién	1
	Villa de Hibros	1
	Cundinamarca	1
	Lorica	1
	Falabeza	1
	Neiva	1
Spain 176	España	65
	Cuenca	6
	Leon	6
	Valencia	5
	Segovia	4
	Malaga	4
	Jaen	4
	Toledo	3
	Sevilla	3
	Salamanca	3
	Zamora	3
	Pamplona	2
	Alcala	2
	Santiago	2
	Exija	2
	Denia	2
	Granada	2
	Cadiz	2
	Guete	2
	Ceija	2
	Villa de Montiel	2
	Asturias	2
	Merida	2
	Mondoñedo	2
	Madrid	2
	Lugo	2
	Canarias	1

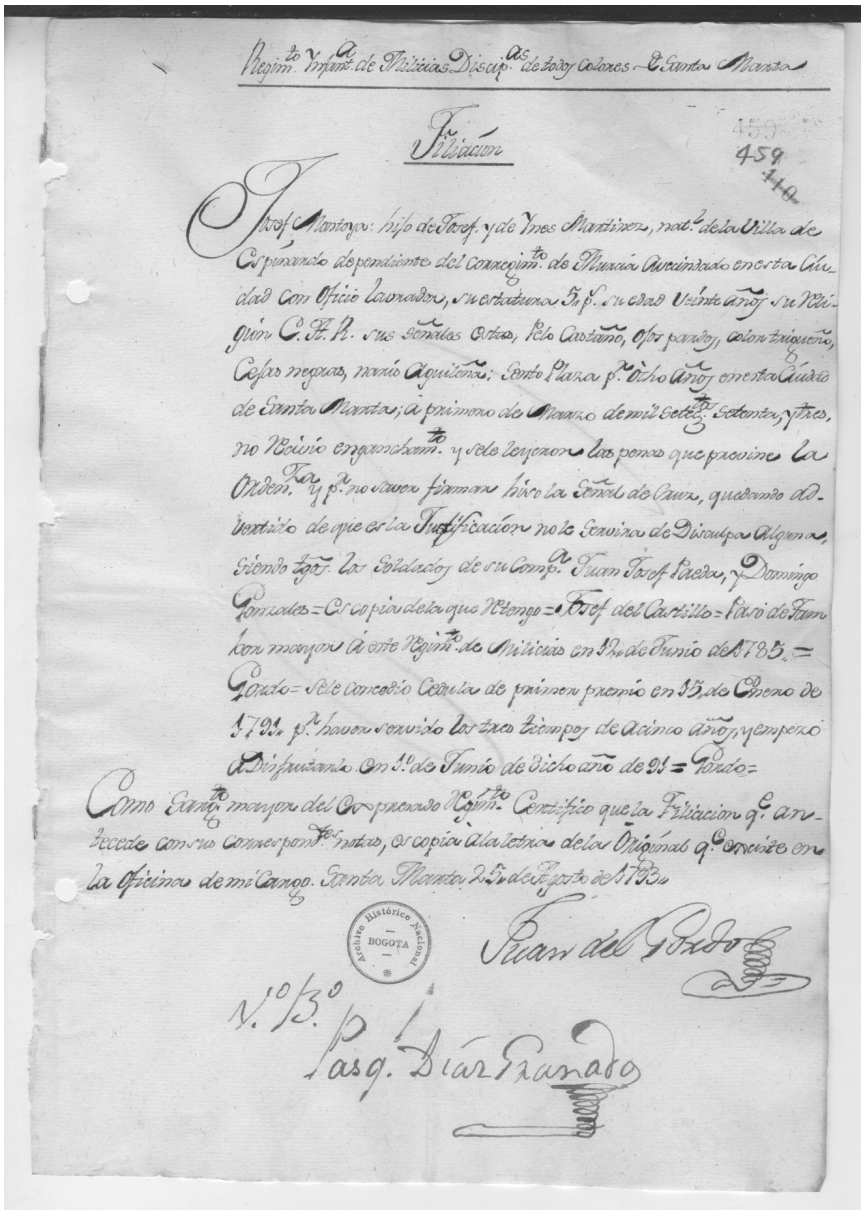
	Ubeda	1
	San Miguel de Ruvindo	1
	Zerdeña	1
	Feligresia de Orense	1
	Silecia	1
	Fiña	1
	Valladolid	1
	Furon	1
	Salma de Chita	1
	Carmona	1
	Ariensa	1
	Balverde	1
	Culatas	1
	Agreda	1
	Urdiales del Paramo	1
	La Mancha	1
	Almagro	1
	Corella	1
	Lucena	1
	San Clemente	1
	Baldemoro	1
	Cosena	1
	Ciudad de Guadizo	1
	Barcelona	1
	Almenara	1
	Tarragona	1
	Clemente	1
	Torre Nueva	1
	Cofrentes	1
	Úbeda	1
	Murcia	1
	Burgo	1
	Oviedo	1
	Villa de Consuegra	1
	Cordoba	1
	Alcira	1
	Pereda	1
	Balladolid	1
	Rueda del Almirante	1
Quito audience 17	Villa de Ibarra	6
	Quito	4
	Asiento de Latacunga	3
	Riobamba	2
	Otabalo	2
Unknown 3	Hatabato	2
	No information	1
Portugal 2	Portugal	1
	Lisboa	1
Italy 1	Italia	1
Mexico 1	México	1

France 1	Lemon de Francia	1
Grand total		373

Source: Elaborated by the authors using data collected from the *Sección Colonia*, Archivo General de la Nación (2024).

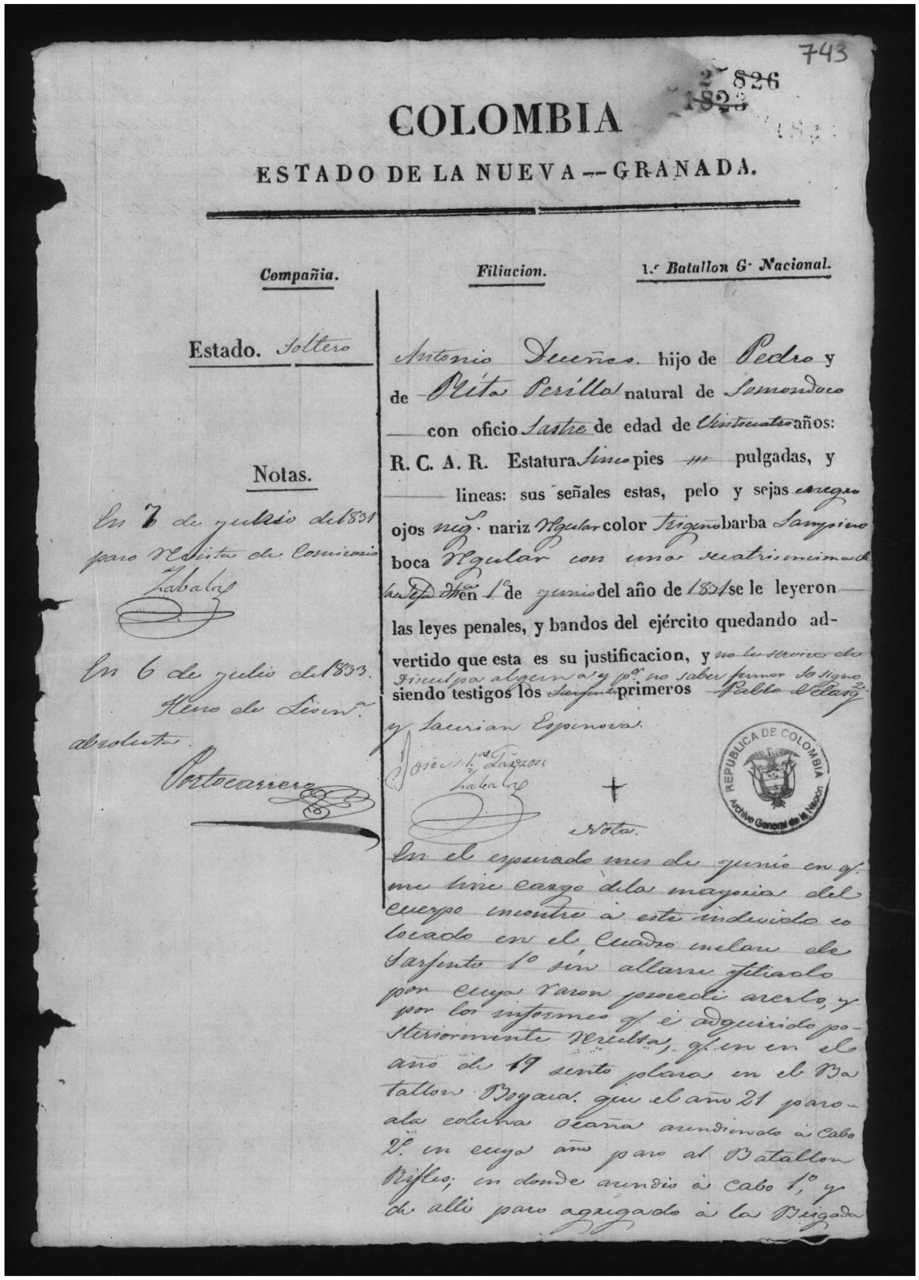
Images

Image 1. Military affiliation for the Viceroyalty of New Granada, 1793



Source: *Sección Colonia, Tesoros Documentales*, Archivo General de la Nación (2024).

Image 2. Military affiliation for the Republic of New Granada, 1833


743

COLOMBIA

ESTADO DE LA NUEVA — GRANADA.

Compañia. Filiacion. 1.er Batallon G. Nacional.

Estado. Soltero

Antonio Dueñas hijo de Pedro y de Rita Perillo natural de Somondoco con oficio Sastre de edad de [illegible] años: R. C. A. R. Estatura cinco pies — pulgadas, y — lineas: sus señales estas, pelo y sejas [illegible] ojos neg.s nariz regular color trigueño barba lampiño boca regular con una [illegible] en 1.º de junio del año de 1831 se le leyeron las leyes penales, y bandos del ejército quedando advertido que esta es su justificacion, y [illegible] siendo testigos los [illegible] primeros [illegible] y Luciano Espinosa.

Notas.

En 7 de julio de 1831 [illegible] Zabalas

En 6 de julio de 1833. [illegible] Portocarrero

Nota.

En el expresado mes de junio en q. me hice cargo de la mayoria del cuerpo encontre à este individuo colocado en el Cuadro [illegible] de Sargento 1.º sin hallarse filiado por cuya razon procedi à hacerlo, y por los informes q. e adquirido posteriormente resulta, q. en en el año de 19 sentó plaza en el Batallon Boyacá: que el año 21 paso à la columna Ocaña [illegible] à Cabo 2.º en cuyo año paso al Batallon Rifles, en donde ascendio à Cabo 1.º, y de alli paso agregado à la Brigada

Source: *Sección Colonia, Tesoros Documentales*, Archivo General de la Nación (2024).