

NUMERACY SELECTIVITY OF SPANISH MIGRANTS IN HISPANIC AMERICA
(16th- 18th CENTURIES)

Mari Carmen Pérez-Artés [∞]

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SELECTIVIDAD ARITMÉTICA DE LOS INMIGRANTES ESPAÑOLES EN AMÉRICA LATINA (SIGLOS XVI-XVIII)

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RESUMEN

Este trabajo evalúa el capital humano de los inmigrantes españoles que fueron a América Latina en la época colonial durante los siglos XVI al XVIII. Para estimar la capacidad numérica, proxy del capital humano en esta investigación, de los españoles que dejaron España para establecerse en la colonia, utilizo el método basado en el redondeo de edades. El resultado principal es que los inmigrantes españoles fueron seleccionados positivamente. Se observan diferencias en el capital humano de quienes optaron por establecerse en México, con mayor nivel de aritmética, que quienes optaron por Perú. Estas diferencias podrían deberse a la estructura virreinal y la presencia de órdenes religiosas que incentivaron la emigración de personas con mayor capital humano a México. Finalmente, parece que la desigualdad entre españoles y nativos, en términos de capital humano, fue mayor en México a finales del siglo XVI, reduciéndose la brecha hacia 1710.

Palabras clave: capital humano, capacidad numérica, migraciones, América Latina colonial.

ABSTRACT

This paper assesses the human capital composition of Spanish migrants who went to colonial Latin America during the 16th to 18th centuries. To estimate the numeracy levels of the Spaniards who left Spain to settle in the colony, I use the age-heaping based method to measure the human capital. The main finding is that the Spanish migrants were positively selected. Differences are observed in the human capital of those who chose to settle in Mexico, with a higher level of numeracy, than those who chose Peru. These differences could be due to the viceroyalty structure and the presence of religious orders that encouraged the emigration of people with greater human capital to Mexico. Finally, it seems that inequality between Spaniards and natives, in terms of human capital, was larger in Mexico at the end of the 16th century reducing the gap circa 1710.

Keywords: human capital, numeracy, migrations, colonial Latin America.

[‡] Eberhard Karls University of Tübingen, Tübingen, Germany. E-mail: mcperezartes@gmail.com

NUMERACY SELECTIVITY OF SPANISH MIGRANTS IN HISPANIC AMERICA (16TH - 18TH CENTURIES)¹

1.- Introduction

The selectivity of migrants is a key factor to understand the impact of international migrations. It has been argued that during the 19th and 20th century internal migrants were, on average, positively self-selected in terms of health and human capital in Great Britain and Spain (Humphries and Leunig 2009; Quiroga 2003; Beltrán and Salanova 2017; Juif and Quiroga 2019). Sánchez Alonso (2007) found that during the 19th and 20th centuries migrants from Southern Europe to Latin America were more literate than those who stayed. In contrast, using the numeracy as a proxy for human capital, Juif (2015) observed that European immigrants in Cuba in 19th century were negatively self-selected. The crisis in the agricultural sector of the Canary Islands in the 19th century encouraged the poor and less educated population to move to Cuba to work in its plantation system. Despite this interest there are no studies analysing the characteristics and self-selection of migrants since the 16th century from European regions to Latin America.

On the other hand, the attempt of explaining the high inequality of Latin America has become one of the central topics in economic history (Coatsworth and Summerhill 2010). One branch of the literature focuses on colonial institutions and their negative impact on contemporary economic development (Acemoglu and Robinson 2013; Sokoloff and Engerman 2000). However, Arroyo Abad and van Zanden (2016) have shown a substantial increase in real wages between the 1550s and 1780s in colonial Mexico and Peru. Some researchers have also argued that high inequality was a phenomenon of the 19th century as a result of export-oriented economic growth (Coatsworth 2008; Williamson 2009). Focusing on living standards, especially heights, Dobado González and García Montero (2010) have shown that, from an international comparative perspective, Bourbon America was not a particularly unequal society.

One way to contribute to both debates (migrants self-selection and level of inequality) is to assess human capital, which is a widely recognised determinant of long-term economic growth (Becker 2008; Barro 2001; Schultz 1961). *The Oxford Handbook of Latin America History* edited by Jose C. Moya (2010) has two chapters that provide a literature review of the

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Historiography of *Nueva España* and Colonial Spanish South America. In none of them the topic of human capital is mentioned. In the same book, Coatsworth and Summerhill (2010: 419) claim: “*the most glaring omission involves the lack of systematic studies of education [...], skill acquisition, and human capital formation...*”. Instead, we know literacy (or illiteracy: per cent of the population which can neither read or write) rates for the countries of Central and Latin America since the 19th century after independence. In 1870 Argentina had between 75-80% population above 15 years old illiterate, Chile 70-80% and Cuba 70-75%. In 1890 the percentages were 55-60% in Argentina, 60-65% in Chile and Cuba and 80-85% in Mexico (Sánchez Alonso 2007:416). In 1877 in Spain, the illiterate rates were 38% in Madrid, the less illiterate region, and 80% in eastern Andalusia, the most illiterate region in the peninsula. In 1887, these rates were 34% and 77% respectively (Núñez 1992: 132). The national averages were 67% in 1877 and 62% in 1887 (Núñez 1992: 94).

In the last years the number of studies that assess the human capital in colonial Hispanic America has started to flourish. Using the age-heaping technique it is possible to estimate the numeracy level, as a proxy for human capital, for those societies where the lack of data hampers to know the literacy rates. Although various authors have estimated numeracy levels in Latin America, only a few of them have studied the time period before the independence. Manzel et al. (2012) performed the first attempt to estimate the development of human capital for seven Latin American countries from the 17th to the twentieth century. They concluded that Argentina, Mexico and Peru experienced a rise until the late 18th century reducing the gap from 50 to 30 per cent separating them from Western Europe by the 1780s. However, between the late 18th century and the early 19th century, coinciding with the wars of independence, the numeracy levels stagnated for both countries. At the same time those of Western Europe soared, triggering the divergence between both regions. During the onset of the globalization this inequality was even higher (Baten and Mumme 2010). Calderón-Fernández et al. (2020) found that the population of central Mexico during the 18th century had levels of numeracy similar to those of Italy and Portugal. Furthermore, around 1820 Ireland and most of Eastern Europe had lower numeracy skills than the Mexican population².

However, within all these studies that quantify human capital and aim to identify its determinants, very few analyse the impact of migration. Juif and Baten (2013) found that Spanish settlers had twice the numeracy level than those of Peruvian Inca *Indios* in the Andean region. Focusing on Brasil, Stolz et al. (2013) established that in those states where most emigrants arrived, the human capital grew strongest even after controlling for educational expenditures. Sánchez Alonso (2007: 418) concluded that Southern European migrants in Latin America during the 19th century “*carried higher literacy rates than native populations. On the whole, Latin America benefited clearly from European immigration*”. The same is claimed by Droller (2018) who demonstrated that the most qualified Europeans contributed to increasing literacy rates in the Pampas (Argentina) and played a decisive part at the beginning of the industrialisation.

² Numeracy levels (ABCC index) of Mexican population during 18th century: 67.9 in Oaxaca, 64.1 in Mexico City and 63.7 in other 24 localities (Calderon-Fernández et al. (2020: 14).

Using the age-heaping technique to estimate the numeracy skills as a proxy for human capital, this work contributes to the literature in two ways. The main result is that migrants moving to Hispanic America during the 16th and 18th century were positively self-selected. Then I am providing new evidence about the self-selection of migrants studying a period for which data is scarce. In a second step, I analyse the inequality in terms of human capital between Spanish migrants and the indigenous Mexican population during the late 17th century and at the beginning of the 18th century. The data reveals that Spaniards had a higher level of numeracy than the native Mexicans, but it tended to converge over time.

The database comprises 31,089 individual observations including migrants and the control sample (non-migrants). Most of the data involve Andalusians, the largest group of Spaniards who left the country to go to Latin America. To complement the analysis, a smaller sample of migrants from the rest of the peninsula is also assessed. The remainder of the paper is structured as follows: Section 2 briefly introduces the historical context of colonial Spanish Latin America. Section 3 follows with the explanation of the methodology and the data used in this study. In section 4, the empirical results and descriptive analysis are provided. Section 5 concludes.

2.- Historical Background of Latin America: 15-18th centuries

2.1.- Spanish conquest of Latin America and the era of the Bourbons

Columbus arrived with fifteen hundred Spanish settlers on the island Hispaniola in 1493. La Isabella, in honour of the queen of Castile, was the first European town founded on the American continent. After a couple of years Santo Domingo, today capital of the Dominican Republic, became the capital of Hispaniola in 1496. Twenty-five years after the first voyage of Columbus in 1492, Spanish colonies were established on the four largest islands of the Caribbean: Hispaniola, Cuba, Puerto Rico, and Jamaica (Restall and Lane 2011).

Chronologically the conquest of the rest of the territory continued as follows: in 1508 from Hispaniola, Juan Ponce de León took Puerto Rico. In 1509, Juan de Esquivel settled Jamaica. The first Spanish town on the American mainland (*Tierra Firme*) was founded in 1511 called Santa María la Antigua de Darién. At the same time, Cuba was conquered. During 1519 to 1521 Hernán Cortés conquered the Aztec Empire (located in the current area that goes from southern Mexico to Guatemala). From 1532 to 1536 Francisco Pizarro did the same with the Inca empire placed in the Peruvian Andes, being the major conquest in South America. The foundations of Santa Fe de Bogotá, of Santiago de Chile and Guadalajara, took place in 1538, 1541 and 1542, respectively (Bakewell 1997).

The territorial organization was divided into two levels. There was a superior government in charge of the supervision of the general administrative activity. On the second level, there were different institutions and foundations for the issues of justice, war and finance. The districts of superior government, *Nueva España*, Peru, Santo Domingo, Guatemala and New Granada, grouped several provinces in the 17th century. While in the first two there was a

viceroy, in the others there was a president of the *audiencia*. They depended on the *Consejo de Indias* and the king of Spain³. However, in the provinces of Chile and Rio de la Plata, although *audiencias* established seemed subordinated to the viceroy of Peru, they exercised their government with relative independence. Since 1543 the administration of the viceroyalties of *Nueva España* and Peru was composed of two organs: the viceroy and the *Audiencia*. Although the viceroy was president of the *Audiencia*, which dealt with the administration of justice, the power of the viceroy was separated from it (Ramos Pérez and Lohmann Villena 1985).

At the same time, in the crown of Castile in the Iberian Peninsula, it became necessary to create an institution to control all matters related to the New World. To carry this objective out, in 1503 the *Casa de la Contratación de las Indias* was created in the city of Seville⁴. This organism was the administrator in the displacement of the emigrants to the New World (Martínez Martínez 1993). During the 17th century the departure of the fleets was in the cities of Seville, San Lúcar de Barrameda (Cádiz) and the city of Cádiz. In 1680 Cádiz became the head of the *Indias* fleets, therefore it was the only harbour from which the trip to the Hispanic America could be undertaken⁵. Epidemics and the problems of river navigation were among the reasons behind this decision. Finally, with the Bourbons, in 1717 the *Casa de la Contratación* was moved to Cádiz (Peña Díaz, 2012).

After 1700, the Hispanic world changed. The “door to the New World” switched from Seville to Cadiz, and the monarchy of the Bourbons replaced those of the Habsburgs. The war of succession in Spain (1701-1714) led to the second era of significant migrations (Hugon 2019). One of the objectives of Phillip V was the restriction of the functions and capabilities of the *Consejo de Indias*. Phillip V also changed the social origin of the bureaucratic and representative positions from the nobility to the bourgeoisie and the professional military. The change of the *Casa de Contratación* from Seville to Cádiz was to formalise an influential bourgeoisie (Menéndez Pidal 1988). Other substantial reforms in the government of the Bourbons were the addition of a third viceroyalty, New Granada in 1739 and the one of Río de la Plata in 1776. The purpose of creating New Granada was to mitigate the inefficiency in the *audiencia* at Santa Fé de Bogotá and to enlarge the capacity of collecting taxes due to the rise of the gold in this region. The motivation for the creation of Río de la Plata was similar since Buenos Aires was rising economically and commercially (Bakewell 1997).

³ The *Consejo de Indias* was created in 1524 grouping all the ministers appointed by the Crown for the functioning of administrative and judicial matters (Alvar Ezquerra 2003).

⁴ The *Casa de Contratación* was an institution that regulated commercial traffic between the *Indias* and the Peninsula. It also dealt with the technical aspects of navigation (Alvar Ezquerra 2003).

⁵ *Indias* was the Spanish term to refer to Hispanic America since Columbus believed incorrectly that he had achieved his objective of reaching Asia (known in Spanish as *Indias*) (Elliott, 1984).

2.2.- Education in colonial Latin America during the Early Modern era

During the 16th century it became essential to transfer culture from the Old World to the New World, as evidenced in the *Leyes de Indias* (Indian laws)⁶. For example, in 1535 Charles V ordered the creation of schools to educate the children of the caciques in the Catholic religion, “good habits” and the Spanish language⁷. In 1557, Philip II supported the continuation of the school for poor and *mestizos* children in Mexico City to prevent them from staying on the street. In this school, children also learned both Christian doctrine and good habits⁸. Since the beginning, the colonisers were concerned with the evangelisation and the instruction of the Americans, therefore, at the same time as the military conquest, schools and universities emerged. In all of Hispanic America thirty-three universities were founded since 1538, when in North America the first university-college was founded in Harvard in 1636. By 1769 only nine universities were created in the English colonies of North America (Stoeckel 1976: 45). In Spanish territories, the first was placed in Santo Domingo in 1538 (*Universidad de Santo Tomás de Aquino*). The school established in 1530 by Bishop Ramírez y Fuenleal was the precedent for the *Universidad de Santiago de La Paz* authorized by Charles V in 1540 and founded by the Dominicans. They aimed at protecting the rights of the Americans at the same time that they evangelized and taught them (Delgado Criado 1993; Catholic University of America 1967).

The first school in Mexico was founded by Pedro de Gante (Franciscan) in 1525. This institution was focused on the teaching of arts and crafts for American boys. Later, in the school of *San José de los Naturales* (1577), “the natives learned all kinds of trades” (tailors, carpenters, blacksmiths) and even learned to construct musical string instruments and to play them. During this century the chronicles wrote that this captures “the imitative ability of the natives concerning any art of craft”. The daughters of Caciques in *Nueva España* could also attend schools for girls since 1534 in Texcoco, Huejotzingo, Cholula and Mexico City (Catholic University of America: 149). Later, the San Juan de Letrán School accepted all children, without taking into account their ethnicity. When the young students had the right age, they started to work in an artisan workshop.

Regarding the universities, Lima and Mexico had the two most important universities. In 1551 both were official and royal obtaining the pontifical confirmation in 1571 and 1595, respectively. In addition, university academies were also frequently understood as small universities or faculties. Although theoretically these institutions were open to Spaniards and Americans, the incorporation of the natives was slow and scarce (Delgado Criado 1993).

Jesuits also played an important role as educators but mostly in rural places. Under the influence of the Crown, the Church was the main promoter of educational institutions. There

⁶ The *Leyes de Indias* were the laws enacted by the kings of the Hispanic monarchy to regulate all aspects of life in their territories in America.

⁷ Recopilación de las leyes de los reinos de Indias, Título veinte y tres, de los colegios y seminarios, Ley XI: 141.

⁸ Recopilación de las leyes de los reinos de Indias, Título veinte y tres, de los colegios y seminarios, Ley XV: 142.

were elementary schools where catechism, reading, writing, number and music were taught. From 1503 the missionaries were required to establish a house next to the church where the chaplain taught and evangelized the Americans in each new town. In some cases, children of conquerors and natives were instructed in the same centres. An example of this is the school of *del Cercado*, founded in Lima by Jesuits. In 1582, the seminary of *indios* of Tepotzotlan admitted all kinds of children, those who belonged to the nobility and those who did not. However, other centres were reserved for the sons of the *caciques* (Saavedra Inaraja 2008).

3.- Sources and method

The database of this research consists mainly of two samples: Spanish migrants to Hispanic America and Spaniards that were born and stayed in Spain (non-migrants sample). The first sample is composed of 7,220 and the second of 26,685 individual observations of population aged 23-62.

The data of migrants were collected from the passenger books (*Libros de Asiento de Pasajeros*) created from the licenses granted to passengers to the *Indias*. The licenses were indispensable requirements to travel to the new world and were usually granted by the king. After arriving in Seville passengers had to verify their documents in the presence of the president and the judges of the *Casa de la Contratación*. These documents recorded the personal data of the passenger and the place of destination for which it was granted. However, fraud was common among those who did not obtain licences by legal means. Buying licenses, bribes, and even dressing up as sailors were the most common practices. This kind of emigration is impossible to account for (Martínez Martínez 1993).

The creation of the database utilised in this research has been possible using several published sources. The dataset of migrants to Spanish Latin America contains individual data of 7,220 as stated above. The birth decades considered are between 1540 and 1750. The sources used are summarised in Table 1. In the original works cited in Table 1 the number of passengers is larger than 7,220 migrants. However, the age of the passengers was not always recorded. For this reason, the number of observations is significantly lower in my sample.

Table 1. Sources and Number of observations in my sample

Source	Number of Observations
García-Abásolo et al. (2006)	446
Macías Domínguez (1999)	1,329
Martínez Martínez (1993)	1,024
Díaz Trechuelo (1990)	4,421
Total	7,220

How many emigrants were there? First, we need to consider that as the opposite of the era of mass migration, for this time it is not possible to have a reliable long-run series of migration (Taylor and Williamson, 1997). Considering the partial documentation and the lack of knowledge of the volume of clandestine emigration, it has been estimated that in the 16th century 200,000 Spaniards went to the *Indias* and 305,000 in the 17th century (Mörner 1975: 64). During the 18th century, this number decreased to 55,000 emigrants (Hernández Sánchez-Barba 1954: 117-118). The total population of the Castilian crown was about 5 million inhabitants at the beginning of the 16th century, rising to 6,6 million at the end of the century. In 1712, the population was around 7,5 million. Thus, the proportion of the emigrated population was relatively significant (Hugon 2019).

Microstudies allow us to know the origin of these individuals and thus offer us a complete picture of the migratory phenomenon towards the New World. In the following, we compare several samples of migrants with our data in order to assess the representativeness of our sample relative to the migrants recorded in this other samples. Before 1520 it was possible to identify the place of birth of 5,481 individuals known to be in the *Indias*. The Andalusians were the largest group. Only the provinces of Sevilla and Huelva “*furnished over 30% of the total number of colonialists for the entire period*” (Boyd-Bowman, 1956: 1156). It seems that this was the pattern during the next years, even centuries: Andalusia at the top followed by the regions of Extremadura, New Castile, Old Castile and Leon in the number of emigrants (Table 2)⁹.

Table 2. Passengers to Hispanic America 1493-1600, by origin

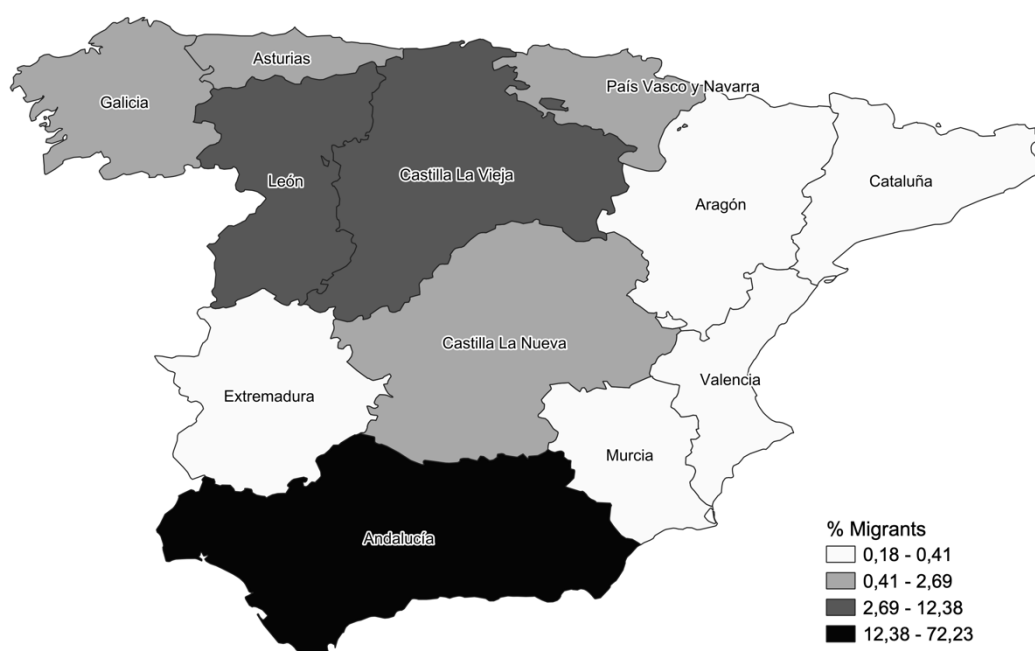
	1493-1519		1520-1539		1540-1559		1560-1579		1580-1600		1493-1600	
	T	%	T	%	T	%	T	%	T	%	T	%
Andalusia	2,172	39.6	4,247	32.0	3,269	36.1	6,547	37.2	3,994	42.0	20,229	36.9
Extremadura	769	14.0	2,204	16.6	1,416	15.7	3,295	18.7	1,351	14.2	9,035	16.5
New Castile	483	8.8	1,587	12.0	1,303	14.4	3,343	19.0	1,825	19.2	8,541	15.6
Old Castile	987	18.0	2,337	17.6	1,390	15.4	1,984	11.3	970	10.2	7,668	14.0
Leon	406	7.4	1,004	7.6	559	6.2	875	5.0	384	4.0	3,228	5.9
Basque Country	257	4.7	600	4.5	396	4.4	515	2.9	312	3.3	2,080	3.8
Foreigners	141	2.6	557	4.2	332	3.7	263	1.5	229	2.4	1,522	2.8
Galicia	111	2.0	193	1.5	73	0.8	179	1.0	111	1.2	667	1.2
Val., Cat.+ Bal.	40	0.7	131	1.0	62	0.7	113	0.6	55	0.6	401	0.7
Aragon	32	0.6	101	0.8	40	0.4	99	0.6	83	0.9	355	0.6
Murcia	29	0.5	122	0.9	50	0.6	96	0.5	47	0.5	344	0.6
Navarra	10	0.2	71	0.5	81	0.9	112	0.6	52	0.5	326	0.6
Asturias	36	0.7	77	0.6	49	0.5	90	0.5	71	0.7	323	0.6
Canarias	8	0.1	31	0.2	24	0.3	75	0.4	24	0.3	162	0.3
Total	5,481	100	13,262	100	9,044	100	17,586	100	9,508	100	54,881	100

Source: Boyd-Bowman (1988, 606)

⁹ Martínez Martínez (1993: 82) quantified 9,085 emigrants from Castile and Leon during the years 1517-1600 and a total of 11,345 during 1515-1700 (91).

Based on a smaller sample of 1,263 emigrants for the years 1794-1796, Delgado Ribas (1982: 119) established the five most common regions of origin of emigrants as followed: Andalusia (24.6%), Castile and Leon (16.2%), the Basque Country (16.1%), Catalonia (15.1) and Galicia (11.2%). In our sample the migrants analysed were mostly from Andalusia, Castile and Leon which is in line with the literature (Figure 1).

**Figure 1. Origin of emigrants to Hispanic America in our sample
(1540-1750 birth decades, historical regions)**



Source: See table 1

How representative is our sample? Assuming that the numbers of migrants given by the literature for the 16th, 17th and 18th centuries are reliable, our sample represents 0,4%, 2% and 4%, respectively. For the two largest samples (Andalusia and Old Castile including Leon) we have assessed the share of rural and urban passengers. In Andalusia, 63.8% of the migrants were born in urban places and 36.2% from rural places. We need to consider that at that time

Andalusia was the most urbanised region of Spain. From Old Castile and Leon, the shares were 36.7% and 63.3%, respectively¹⁰.

The database of non-migrants has been collected from census and *padrones* (individual population counts)¹¹. It includes different regions, rural and non-rural, for the following provinces in Spain: Almería, Ávila, Badajoz, Cáceres, Cádiz, Ciudad Real, Córdoba, Cuenca, Granada, Guadalajara, Jaén, La Rioja, Madrid, Málaga, Murcia, Navarra, Sevilla, Soria, Toledo, Valencia and Valladolid. The random sample contains 26,685 individuals of which 17,613 are men, and 9,072 are women, aged 23-62¹².

To estimate numeracy, the method used is the “age-heaping” technique (A'Hearn et al. 2009; Crayen and Baten 2010). This method is based on the share of individuals who are able to state their precise age in years instead of reporting an age rounded to a multiple of five. For instance, one person lacking the knowledge of their age could state that she or he is 55 when she or he is actually 54. As it has been pointed out before that if the signature is used as a proxy for basic literacy, age heaping can serve as a proxy indicator for basic numeracy. The main findings of A'Hearn et al. (2009) are that the most basic mathematical skills diffused earlier than literacy and that there is a robust correlation of literacy and numeracy. They suggested an index that was later called the ABCC index¹³. It is a simple linear transformation of the Whipple index and enables the estimation of the share of individuals who state their age precisely:

$$ABCC = \left(1 - \frac{(Wh - 100)}{400}\right) \times 100 \text{ if } Wh \geq 100; \text{ else } ABCC = 100$$

The index ranges from 0 to 100 (100 means that everybody reports the correct age). The age groups used are 23-32, 33-42, 43-52, 53-62 and 63-72 years, due to the bias that younger and older groups could present (Crayen and Baten 2010).

As mentioned in the introduction, studies on the estimation of human capital in Spanish Latin America had never been addressed before 2010 due to the lack of data. Thus, numeracy allows us to estimate the basic mathematical skills of societies based on age data. Table 3 summarises all the samples in our database by birth decade, gender and migrants and non-migrants. The number of observations for the age groups between 23-32 and 33-62 years are shown to avoid possible bias as migrants usually consisted of young adult males between 20 and 30 years of age (Martínez Martínez 1993; Díaz Trechuelo 1990). In our sample, 61.3% of migrants are in the group of age 23-32. In total, we have 31,032 observations for the age group 23-62 and 19,046 for the age group 33-62. When comparing migrants and non-migrants birth

¹⁰ Urban is defined as places with more than 5,000 inhabitants by the end of 16th century according to Reher (1994:3). The urban-rural share of Old Castile is based on Martínez Martínez (1993).

¹¹ See appendix Table A 1. This database has been previously used by Pérez-Artés and Baten (forthcoming).

¹² 12,220 males and 5,674 females aged 33-62.

¹³ “ABCC” are the initials of author’s last names plus Gregory Clark, who commented on their paper.

decades are included from 1580 since this is when the non-migrant sample starts. When only migrants are considered, we use the total sample: 7,220 observations.

Table 3. N° individual observations by sample and birth decades

BDEC 1580-1750		
Gender	Sample	Ind. Obs.
<i>Age group 23-62</i>		
Male	migrant	3,054
Female	migrant	1,293
Male	non-migrant	17,613
Female	non-migrant	9,072
<i>Age group 33-62</i>		
Male	migrant	663
Female	migrant	489
Male	non-migrant	12,220
Female	non-migrant	5,674
BDEC 1540-1750		
<i>Age group 23-62</i>		
Male	migrant	4,534
Female	migrant	2,686

Note: Individual observations for migrant and non-migrant age group 23-62 (1580-1750 b.d.): 31,032

Individual observations for migrant and non-migrant age group 33-62 (1580-1750 b.d.): 19,046

Individual observations for migrants age group 23-62 (1540-1750 b.d.): 7,220

One of the advantages of this research is to be able to estimate the level of human capital accurately. For example, we know the number of occupations of 3,879 emigrants and hence we could know their skills-levels. Only the abcc levels for the individuals including in the groups of “clergy”, “highly qualified professionals” (administrators, governors, doctors) or “servants” can be calculated due to the number of observations (51, 93 and 3,605). The abcc index of these groups is as follows: highly qualified professionals (89), clergy (88) and servants (75). The abcc levels for professionals and clergy are in line with the literature of 18th century but the servant group seems to be slightly high (Tollnek and Baten, 2017). However, more than 92% defined themselves as servants (71% of men and 21% of women) and this could lead to misunderstandings since “servant” in this context could have different meanings. For example, some individuals went to Hispanic America as servants of graduates and doctors for working as prosecutors or governors among others, namely, occupations that involve a high level of human capital. Others appeared as a servant of a master. It was probably because they did not get the license to travel. In this case they paid this lord in exchange for being able to travel with him on a servant's license (Martínez Martínez 1993). This practice continued even during the second half of the eighteenth century. Among the immigrants to Madrid looking for work, there were who offered themselves as servants of a master or family who went from Cadiz to America (Sarasúa 1994).

4.- Analysis

Did the Spanish migrants present higher levels of numeracy than those who stayed? The positive self-selection of migrants in the internal migrations in Spain and Great Britain during the 19th and 20th century has been confirmed in terms of their literacy, heights and socio-economic status. In Great Britain, Humphries and Leunig (2009) studied a group of seamen born outside London in mid-19th century. The authors found that the highest, literate and those who could remember the exact day, month and year when they were born, were more likely to leave London. Beltran and Salanova (2017) have showed that the literacy gap between Spanish migrants to Madrid and non-movers in Spain by province of origin was, on average in the period of time 1880-1887, 41% for men aged 16-30 and 37% for women in the same range of age. Quiroga (2003) has estimated that the literacy rate among the interprovincial migrants in Spain between 1893 and 1954 was 90%, while those who remained in their province of birth was 78%. If only the period of time between 1893 and 1899 is taken into account, this gap in literacy rates between movers and stayers (12%) was even higher: around 24% since the literacy rate of stayers was around 66%. Juif and Quiroga (2019) have proved that up to 1915, movers showed 15-20% higher literacy than stayers. After that and until mid-1920s, the gap shrank to 5-10%, converging both groups by 1950. According to the occupational groups, the share of white-collar workers was double among the movers and the share of students, professional and modern services was triple. According to heights, between 1893 and 1945 the height of movers within Spanish regions was on average one centimetre more than the height of stayers. This height gap reached almost three centimetres in the 1920s to early 1930s.

Our data confirms these previous findings: migrants were positively self-selected in terms of numeracy levels when comparing the two largest subsamples, Andalusia and Castile. As indicated before, I performed this analysis for the two age groups separately (23-62 and 33-62) since individuals at the age of 23 were more likely to emigrate than those aged 32: the assumption of similar representation of end digits (apart from heaping on multiples of 5) is violated. In any case, for the two age groups, we found a positive selection of emigrants. The difference is higher between the Andalusians (17.4% for individuals aged between 23-62 and 19.5% for individuals older than 33 years) than among the Castilians (16.5% and 18.9% respectively).

Table 4. Selectivity of migrants (ABCC migrants-ABCC non-migrants)

BDEC 1580-1750	ABCC	Nº Obs.	Age Group
Andalusia			
Migrant	80.5	2,910	23-62
Non-migrant	61.6	13,718	
Selectivity (ABCC migrants — ABCC non-migrants)	18.9		
Migrant	80.2	874	33-62
Non-migrant	58.6	9,430	
Selectivity (ABCC migrants — ABCC non-migrants)	21.6		
Castile			
Migrant	92.3	767	23-62
Non-migrant	78.7	10,924	
Selectivity (ABCC migrants — ABCC non-migrants)	13.6		
Migrant	92.1	146	33-62
Non-migrant	77.1	6,978	
Selectivity (ABCC migrants — ABCC non-migrants)	15.0		

Source: see Table 1 and appendix Table A 1

In order to estimate the selectivity of migrants more carefully, we carried out a linear probability model (LPM) and logit regressions. The LPM has the following specification and applies similarly to the logit model (Table A 2 appendix).

$$\text{Numerator}_{itr} = \alpha + \beta_1 \text{migrant}_i + \beta_2 \text{age2332}_i + \beta_3 \text{age4352}_i + \beta_4 \text{age5362}_i + \mu_r + \gamma_t + \varepsilon_{itr}$$

i refers to each respective individual, t indicates the decade of birth, and r represents the place in which the individual was born. The main variable of interest is *numerate*, coded as 0 when the age stated was a multiple of five and 1 if otherwise. The variable *migrant* is equal to 1 if the individual is a migrant and 0 if not. *Age2332* is equal to 1 if the individual belongs to the age group between 23 to 32 years which applies the same way for *age4352* and *age5362*. The model includes region fixed effects (μ_r) that reflect the provinces of origin of Spaniards. We also control for time fixed effects (γ_t) for all half-century periods from 1600 to 1750. Finally, the equation allows for the constant term (α) and the standard errors (ε).

Table 5. Migrant's skill selectivity in Linear Probability Model (LPM)

	(1)	(2)	(3)	(4)
Samples included	Males aged 23-62	Females aged 23-62	Males aged 33-62	Females aged 33-62
Migrant LA	28.39*** (0.000)	8.52* (0.087)	37.00*** (0.000)	10.71 (0.127)
Age 2332	1.24 (0.251)	3.61** (0.014)		
Age 4352	-3.05** (0.014)	-8.54*** (0.000)	-2.31* (0.065)	-8.49*** (0.000)
Age5362	-2.19 (0.199)	-22.72*** (0.000)	-0.90 (0.639)	-19.91*** (0.000)
Constant	33.06 (0.222)	-0.91 (0.920)	-20.11 (0.555)	-0.12 (0.992)
Observations	20,667	10,365	12,883	6,163
Adjusted R-squared	0.05	0.03	0.06	0.03
Time FE	YES	YES	YES	YES
Region FE	YES	YES	YES	YES

Note: The dependent variable is "not heaped age" (more likely to be numerate). The constant refers to male non-migrants aged 33-42. We multiply the coefficient of the regressions by 125 to report percentages and to adjust them for the 20% of ages that were truly multiples of five, given a normal age distribution. Robust p-Values are given in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

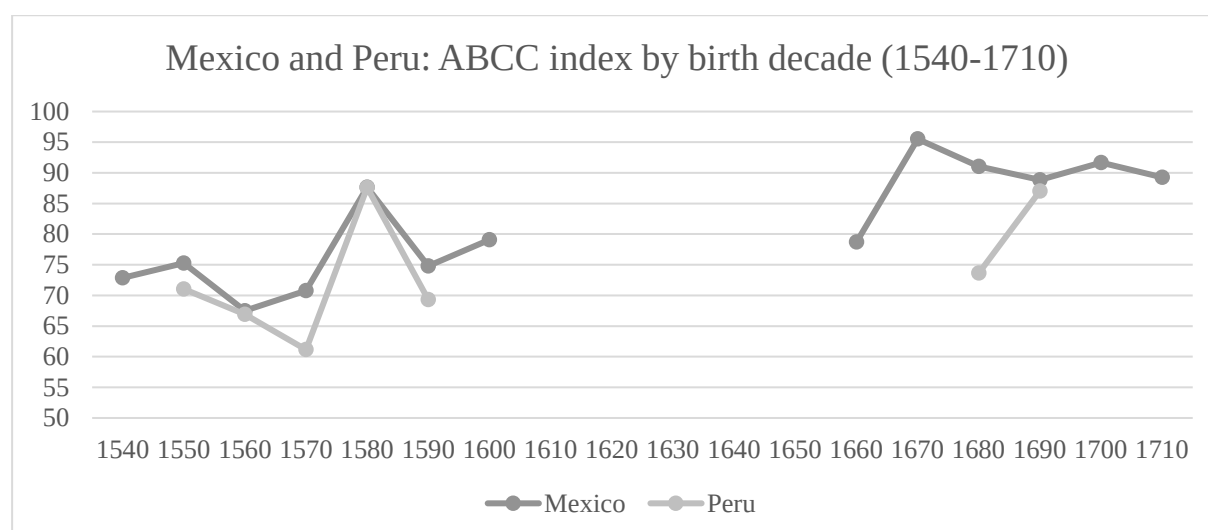
We tested different models, and in all of them, numeracy is high and correlates positively with being a male migrant (Table 5). Only females aged 23-62 appear slightly positively correlated. Columns 1 and 2 include all the observations (individuals aged between 23-62) and columns 3 and 4 include those that are older than 33. Columns 2 and 4 tested differences between migrants and non-migrant females and the rest of the columns include only males. In order to avoid potential biases because of the issue of the age of migrants, we control for all age groups.

Although it is difficult to make generalizations due to the period of time and geographic scope of my study, I would argue that the largest number of emigrants came from the most developed subpopulations with greater labour diversification (or were the most qualified within the less developed regions). One of the reasons why these individuals decided to go to the *Indias*

was the "call of a relative". This is reflected in the documentation through the "call letters" that the emigrants already living in the *Indias* sent to their families. They usually illustrated a positive view of life in the colony and gave advice on how to do the crossing the best possible way (known in the classical literature on migration as chain migration). In addition, Hispanic America remained governed by the same monarch, with the same laws and the same behaviours as in Spain, but the hope of enrichment was added (Martínez Martínez 1993). This is supported by the literature: if the pull effect of the destination is stronger than the push effect from the provinces of origin, migrants are probably going to be positively self-selected due to their better life conditions (Juif and Quiroga 2019).

Figure 2 shows the evolution of numeracy of the Spaniards in the two countries where they went mostly, that is Mexico and Peru (44% and 22% respectively of our sample), by birth decades (1540-1710). The total number of observations is 4,355 (2,919 for Mexico and 1,436 for Peru). Emigrants who went to Mexico had a higher level of numeracy than those who chose to go to Peru. There was an increase in numeracy levels at the end of the 16th century. In 1580 we found the highest level of numeracy in both countries. Analysing book productions (considered as an alternative index of human capital) Peru, with 6 titles per million inhabitants, was also behind of Mexico with 8.5 during the 18th century. In terms of real GDP per capita, Mexico was ahead of Peru since 1650. Furthermore, the number of cities with population over 5,000 inhabitants was larger in Mexico in this year: 11 cities in Mexico and 6 in Peru (Arroyo Abad and Van Zanden 2016). Moreover, Mexico was the region of colonial Spain where markets, free labour and silver mining, were more developed. Also, wages were higher, and the working conditions were better there than in Peru (Salvucci 2014). During the next century, for the years that we have more than 100 observations, we see that these levels increase in both countries and stabilize in Mexico in the first two decades of the 18th century.

Figure 2. Spaniards in Mexico and Peru: ABCC index by birth decade (1540-1710)



Source: see Table 1

Although both countries had an important university (*La Real y Pontificia Universidad* of Mexico and the *Universidad de San Marcos* in Lima) in 16th century, the school network was more widespread in Mexico than in Peru (Delgado Criado 1993). Around 1600 there were 36 schools, one university and one school-university in Mexico. In Peru there were also one university, and one school-university but in this case it have been accounted only 12 schools. Furthermore, the number of cities with printing presses was larger in Mexico than in Peru (Figure 3)¹⁴. Mexico had five towns with presses by the end of the eighteenth century (Mexico, Puebla, Antequera, Guadalajara and Nueva Veracruz) while Peru had only one (Lima). Also, the number of print shops within the viceroyalty of Mexico was larger than in the Peruvian viceroyalty. Moreover, the imprints published in Mexico were more distinguished than those published in Lima, with better ink and greater industrial technique (Guibovich Pérez 2001; Del Palacio Montiel, 2004)¹⁵. This could indicate a possible differentiated emigration between *Nueva España* and Peru where in the former the activities and works required people with greater human capital¹⁶. According to the occupations in our sample (1,040 for Mexico and 482 for Peru) the individuals in the “clergy” and “professional” groups were larger in Mexico than in Peru. In the first case these two occupational categories represented 3.6% of the total while in Peru it was 2.3%. In both cases “servants” were more than 90% of the individuals.

The religious orders had also more importance in Mexico than in Peru as literature has demonstrated. For example, in Mexico, regions where the Mendicant missions were active are positively correlated currently with a higher literacy rate of educational attainments until post-secondary levels (Waldinger 2017).

In *Nueva España* the Franciscans were stablished in 1523, Dominicans in 1526 and Augustinians in 1533. Finally, the Jesuits arrived in Mexico in 1572 continuing with the evangelization of the natives began by the previous religious orders. A year after their arrival, the Jesuits opened the first school in Mexico City (*Colegio de San Pedro y San Pablo*), founding up to 1751 other twenty schools outside the capital of the viceroyalty. The Franciscans had greater importance in *Nueva España* both in the number of schools and students, and in the results achieved. In 1531 there were almost twenty Franciscan convents to instruct the children of the most important people. In Peru there is not so much evidence. As in the rest of the colony, we could assume that, in general, there was a house next to each church as a school to teach the children of the *caciques* (Delgado Criado 1993).

¹⁴ Convents and missions of religious orders are not shown on this map.

¹⁵ The first printer in Mexico was Esteban Martín (in 1535) and the first printed work was *La escala espiritual para llegar al cielo* by San Juan Clímaco, translated by Fray Juan Estrada (Torre Revello, 1940). In Puebla de los Ángeles it is not clear who was first printer. However, it is known that the press worked from 1642 to 1821 (although it was settled in 1640) producing 2,700 documents. In Antequera there was a printing workshop since 1687. Francisca Flores was the owner of it since 1720. In Guadalajara the first printer was Mariano Valdés (1792) and in Nueva Veracruz, Manuel López Bueno was the first official printer of the consulate since 1794. (Del Palacio Montiel, 2004). In the Peruvian viceroyalty the first printing shop was founded in Lima in 1584 by the Italian printer Antonio Ricardo. Philip II through the Royal Decree on 22 August (1584) to the Viceroy and the Audience of Lima, ordered that a printing press be installed in the city (Torre Revello, 1940; Guibovich Pérez 2001).

¹⁶ We need to consider that the first years for which we have migrant departure data (not when they were born) are especially for the last two decades of the 16th century.

As for women's education, it is also in the *Nueva España* where we have the most direct and early references. In 1529 a Spanish midwife instructed the daughters of the lords of the region. Later the education of Indian girls was also established. In Peru, female education was mostly limited to instruct mestizos who were abandoned by their parents which was in this region a problem greater than in Mexico or Guatemala. It seems that there were also differences: in Mexico there is evidence that, at least the daughters of lords and principal American people, were taught to read and write while in Peru it was mostly house skills (Delgado Criado 1993)¹⁷.

In our sample, if we take into account the origins of emigrants in Mexico and Peru by region from the last decades of the 16th century to the first half of the 18th century, the proportions are quite similar (Table 6). In Mexico, 65.8% of migrants were from Andalusia, 17.6% from Castile, 13.3% from the provinces of the north and 0.9% from the other Mediterranean area. In Peru these percentages were 74.2%, 17%, 7.4% and 0.5% respectively. The percentages that are missing to complete 100% correspond to the cases where we do not know the place of origin (2.4% in Mexico and 0.9% in Peru). Therefore, we can argue that apparently the origin regions of the migrants cannot account for these differences.

Table 6. Origins of emigrants in Mexico and Peru by region from the last decades of the 16th century to the first half of the 18th century (%)

	Mexico (%)	Peru (%)
Andalusia	65.8	74.2
Castile	17.6	17
Provinces of the north	13.3	7.4
Other Mediterranean areas (excluding Andalusia)	0.9	0.5

¹⁷ An example is the figure of *Sor Juana Inés de la Cruz*, daughter of a *criolla* (born in America with European parents) and a Spanish captain, born in Mexico circa 1648. *Juana Inés de la Cruz*, who knew how to read and write at the age of three, decided to profess in the convent of San Jerónimo (only for *criollas*) in order to be an intellectual and have access to the culture, being an extraordinary poet. (Paz, 1982).

Figure 3. Schools, printing presses and main universities in Mexico and Peru (16th-18th century)



Source: HGIS de las Indias and Catholic University of America (1967: 148-157)

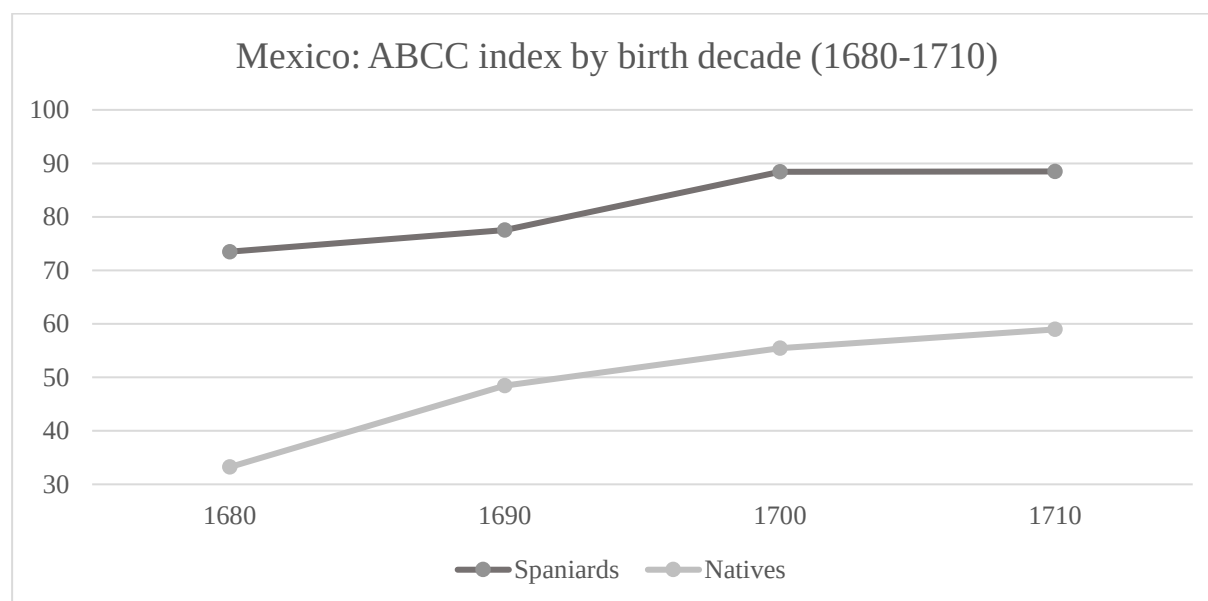
Were there high levels of inequality in Mexico to which the migrants have further contributed by their migration into the middle and upper classes? Figure 4 shows the numeracy levels of 731 people of Spanish origin and the numeracy levels of 992 indigenous people in Mexico during the first half of the 18th century. This is the most suitable comparison that can be done with the studies that we have about the native population's numeracy since in the native sample, including *Indios*, *mestizos*, *pardos* and other *castas*, we have in total 1,228 observations¹⁸. From 1680 to 1700, the levels of numeracy of both groups increased

¹⁸ The data comes from the 1740-4 censuses (Manzel et al. 2012).

considerably although the numeracy level of natives was behind of those with Spanish origin. During the decade of 1680 the abcc level of Spaniards was 73% and during 1710 was 88%. For the same period of time, among the native group, these levels were 33% and 59%. Therefore, the gap between the two groups fell from 40% to 29% by 1710. During the second half of the 18th century, the gap between Spaniards from the peninsula and the rest of the population (including *indios* and the rest of *castas*) decreased to 13.5% in Mexico City (Calderón-Fernández et al. 2020: 19). In terms of heights also there were a reduction in the gap between European (*blancos*) and non-Europeans (*pardos*) in Southern Mexico since 1730s to 1780s: from about 4 centimetres to close zero (Dobado González and García Montero 2010: 266).

How large are the differences between migrants of European origin and indigenous people elsewhere in the world? As an international comparison in the Cape colony (current South Africa) the European settlers had higher levels of numeracy than non-Europeans during the late 17th century and the late 18th century, that is, more than 60% of abcc index (Baten and Fourie 2015). This difference indicates a more unequal society than Hispanic America since, following our analysis, the higher gap in terms of abcc between Spaniards and natives was 40% (Figure 4).

Figure 4. Spaniards and indigenous Mexico: ABCC index by birth decade (1680-1710)



Sources: Mexico see table 1 and Hidalgo/Guanajuato/Oaxaca Manzel et al. (2012)

Over time, these differences might have not disappeared but decreased as in the mining district of Pachuca, northeast of Mexico City. By 1520, labour shortage affected the forced recruitment of American workers. During the 18th century, the census of Real del Monte 1768 reveals that there were still social differences in the work done by the Americans. The occupations of the natives usually were the least qualified and most dangerous, but there were also qualified American workers as merchants, artisans and even a schoolteacher, musician and painter (Navarrete, 2015). The same pattern of reduction of differences is found in the mines of

the Real de Monte. Although there were laws prohibiting slave labour, there is evidence that it existed during the 16th century disappearing in the 17th century. Furthermore, in the work of the mines all the *castas* or ethnic groups were represented (Gaona Rivera, 2019: 168)¹⁹. Moreover, religious orders played a role to reduce the differences among ethnic groups. In Mexico, the Mendicant missions focused on the native population and the decrease of inequality (Waldinger 2017).

5.- Conclusions

This paper contributes to the literature of migrations and human capital formation obtaining new empirical evidence for Hispanic America during the early modern period. The analysis was carried out at different levels. The main conclusion to be drawn is that Spanish migrants had higher human capital than those who stayed in the Iberian Peninsula from the 16th to the middle of the 18th century. In general, the numeracy of Spanish migrants was relatively high by the standards of the time (A'Hearn et al. 2009; Juif et al. 2019). This finding is in line with the results obtained in other researches about positive migrant's self-selection in Great Britain and Spain during 19th and 20th century (Humphries and Leunig 2009; Quiroga 2003; Beltrán and Salanova 2017; Juif and Quiroga 2019).

Differences in numeracy levels of migrants are observed between those who went to Mexico and those who went to Peru. On average, migrants in Mexico had a higher level of human capital than those in Peru. These differences could be due to the religious orders that encouraged a higher network of schools in *Nueva España* and the viceroyalty characteristic: in Mexico the wages were higher, and the number of cities and the book production was larger than in Peru (Arroyo Abad and van Zanden 2016).

In a more detailed analysis, I assess the numeracy inequality among different ethnic groups. Levels of numeracy in Mexico between people of Spanish and native origins indicated a relative high inequality during the late 17th century, to which the selectivity and relatively high level of numeracy of Spanish migrants might have further contributed. However, at the beginning of the next century these differences decreased. This result is consistent with the decrease differences in heights between *whites* and *pardos* in Mexico since 1730 (Dobado González and García Montero 2010).

¹⁹ 1798 the occupation of *barretero* (those who works with a bar, wedge or pick) was composed by: *criollos* (40%), *mestizos* (38%), *indios* (10%), *mulatos* (4%) and *castizos* (3%). Pawns were 40% of *mestizos*, 32% of *criollos* and 23% of *indios*.

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7.- Appendix

Table A 1. Description of the sources

Local community	Year of Source	Source
Abanilla	1756	Cadaster of Ensenada, Family Search
Abarán	1756	Cadaster of Ensenada, Family Search
Abenójar	1752	Cadaster of Ensenada, Family Search
Adanero	1752	Cadaster of Ensenada, Family Search
Adradas	1752	Cadaster of Ensenada, Provincial Historical Archive Soria
Aguaviva de la Vega	1752	Cadaster of Ensenada, Provincial Historical Archive Soria
Aguilar de Montuenga	1753	Cadaster of Ensenada, Provincial Historical Archive Soria
Albudeite	1756	Cadaster of Ensenada, Family Search
Alcubilla del Marques	1753	Cadaster of Ensenada, Provincial Historical Archive Soria
Aldea de San Esteban	1753	Cadaster of Ensenada, Provincial Historical Archive Soria
Aldeasenor	1753	Cadaster of Ensenada, Provincial Historical Archive Soria
Alentisque	1752	Cadaster of Ensenada, Provincial Historical Archive Soria
Alía	1752	Cadaster of Ensenada, Family Search
Almaluez	1753	Cadaster of Ensenada, Provincial Historical Archive Soria
Almarza	1753	Cadaster of Ensenada, Provincial Historical Archive Soria
Almazán	1753	Cadaster of Ensenada, Provincial Historical Archive Soria
Almería	1753	Cadaster of Ensenada, Family Search
Almuñecar	1752	Cadaster of Ensenada, Provincial Historical Archive Granada
Alovera	1751	Cadaster of Ensenada, National Historical Archive Madrid
Andaluz	1753	Cadaster of Ensenada, Provincial Historical Archive Soria
Arcos de Jalon	1753	Cadaster of Ensenada, Provincial Historical Archive Soria
Arevalo	1753	Cadaster of Ensenada, Provincial Historical Archive Soria
Arganda	1753	Cadaster of Ensenada, Regional Archive Madrid
Atauta	1753	Cadaster of Ensenada, Provincial Historical Archive Soria
Berchules	1752	Cadaster of Ensenada, Provincial Historical Archive Granada
Bubion/Capileira	1750	Cadaster of Ensenada, Provincial Historical Archive Granada
Cavanillas	1751	Cadaster of Ensenada, National Historical Archive Madrid
Colomera	1752	Cadaster of Ensenada, Provincial Historical Archive Granada
Cordoba	1643	Padrón, Family Search
Cordoba	1693	Padrón, Family Search
Cordoba	1718	Padrón, Family Search
Cordoba	1761	Padrón, Family Search
Ecija	1645	Padrón, Family Search
Ecija	1704	Padrón, Family Search
Ecija	1775	Padrón, Family Search
El Casar	1751	Cadaster of Ensenada, National Historical Archive Madrid
Estepona	1752	Cadaster of Ensenada, Provincial Historical Archive Granada
Fuente El Sol	1752	Cadaster of Ensenada, Family Search

Granada	1752	Cadaster of Ensenada, Provincial Historical Archive Granada
Inestrillas	1752	Cadaster of Ensenada, Family Search
Iznalloz	1753	Cadaster of Ensenada, Provincial Historical Archive Granada
Jaen	1771	Padrón, Family Search
Laujar de Andarax	1751	Cadaster of Ensenada, Provincial Historical Archive Almería
Logroño	1751	Cadaster of Ensenada, Family Search
Loja	1750	Padrón, Family Search
Loja	1753	Cadaster of Ensenada, Provincial Historical Archive Granada
Lorca	1756	Cadaster of Ensenada, Family Search
Málaga	1751	Cadaster of Ensenada, Municipal Archive Málaga
Málaga	1776	Padrón, Municipal Archive Málaga
Marchamalo	1752	Cadaster of Ensenada, National Historical Archive Madrid
Montilla	1752	Cadaster of Ensenada, Family Search
Móstoles	1753	Cadaster of Ensenada, Regional Archive Madrid
Navas de San Juan	1752	Cadaster of Ensenada, Family Search
Olite	1786	Floridablanca, Municipal Archive Olite
Ontalvilla de Almazán	1753	Cadaster of Ensenada, Provincial Historical Archive Soria
Pinto	1753	Cadaster of Ensenada, Family Search
Puerto de Santa María	1719	Padrón, Family Search
Puerto de Santa María	1734	Padrón, Family Search
Puerto de Santa María	1762	Padrón, Family Search
Saelices	1752	Cadaster of Ensenada, Family Search
Sueca	1794	Padrón, Family Search
Toledo	1752	Cadaster of Ensenada, Regional Archive Madrid
Torreandaluz	1752	Cadaster of Ensenada, Provincial Historical Archive Soria
V. de la Torre	1751	Cadaster of Ensenada, National Historical Archive Madrid
Valdecaballeros	1753	Cadaster of Ensenada, Family Search
Villanueva del Rey	1750	Cadaster of Ensenada, Family Search
Yunquera de Henares	1751	Cadaster of Ensenada, National Historical Archive Madrid
Ziria	1753	Cadaster of Ensenada, Provincial Historical Archive Soria

Table A 2. Migrant's skill selectivity in Logit Model (Marginal effects reported)

	(1)	(2)	(3)	(4)
Samples included	Males aged 23-62	Females aged 23-62	Males aged 33-62	Females aged 33-62
Migrant LA	27.93*** (0.000)	8.65* (0.079)	35.18*** (0.000)	10.78 (0.122)
Age 2332	1.34 (0.235)	3.73** (0.015)		
Age 4352	-3.11** (0.016)	-8.72*** (0.000)	-2.43* (0.068)	-8.79*** (0.000)
Age5362	-2.10 (0.244)	-24.22*** (0.000)	-0.91 (0.661)	-21.44*** (0.000)
Observations	20,664	10,353	12,867	6,148
Pseudo R2	0.0269	0.0269	0.0269	0.0269
Time FE	YES	YES	YES	YES
Region FE	YES	YES	YES	YES

Note: The dependent variable is "not heaped age" (more likely to be numerate). The constant refers to male non-migrants aged 33-42. We multiply the coefficient of the regressions by 125 to report percentages and to adjust them for the 20% of ages that were truly multiples of five, given a normal age distribution. Robust p-Values are given in parentheses: *** p<0.01, ** p<0.05, * p<0.1.