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Inequality in Early Modern Spain:
New evidence from the Ensenada Cadastre in Castile, c. 1750[*]

1. PRE-INDUSTRIAL INEQUALITY IN SPAIN: REVIEW OF THE LITERATURE

As in other pre-industrial societies, the main problem when studying inequality in Spain is the absence of documentary sources that incorporate long-term data series on individual income or wealth.[1] To overcome this data limitation, researchers have resorted to tax sources, to indirect data such as the ratio of land rents to wages,[2] and to social tables that group the income-receiving population into occupational categories whose respective income levels can then be inferred.[3] The literature specializing in the study of inequality in the Early Modern Age gives four major explanations: (i) the Kuznets effect, or the association between industrialization and the growth of inequality; (ii) the Williamson effect, which relates a sustained process of growth and economic development to an increasing demand for skills and qualifications (human capital); (iii) changes in the functional distribution of income (i.e., how the contribution of production factors varies with family income); and (iv) the effect of institutions in a broad sense.[4]

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[1] See E. NICOLINI, F. RAMOS-PALENCIA, *Comparing income and wealth inequality in pre-industrial economies: Lessons from 18th-century Spain*, in "European Historical Economics Society," working papers 0095, 2016.

[2] J.G. WILLIAMSON, *Land, labor, and globalization in the Third World, 1870-1940*, in "Journal of Economic History", 62, 2002, n. 1, pp. 55-85.

[3] B. MILANOVIC, P.H. LINDERT, J.G. WILLIAMSON, *Pre-industrial inequality*, in "Economic Journal", 121, 2011, pp. 255-272.

[4] For excellent summaries of recent empirical research into pre-industrial inequality, see: J. REIS, *Deviant behaviour? Inequality in Portugal 1565-1770*, in "Cliometrica", 11, 2017, n. 3, pp. 297-319; W. RYCKBOSCH, *Economic inequality and growth before the industrial revolution: A case study of the Low Countries (fourteenth-nineteenth centuries)*, in "European Review of Economic History", 20, 2016, n. 1, pp. 1-22; and J.L. VAN ZANDEN, *Tracing the beginning of the Kuznets curve: Western Europe during the Early Modern Period*, in "Economic History Review", 48, 1995, n. 4, pp. 643-664. Regarding the Kuznets "obsolescence" curve, see P. LINDERT, *Three centuries of inequality in Britain and America*, in *Handbook of Income Distribution*, vol. 1, A.B. ATKINSON, F. BOURGUIGNON eds., North Holland 2000 (Elsevier), pp. 167-216; and G. ALFANI, M. DI TULLIO, *The Lion's Share: Inequality and the Rise of the Fiscal State in Preindustrial Europe*, Cambridge 2019 (CUP), pp. 11-12.

Inequality in pre-industrial Spain was not uniform in space or in time, either. Álvarez-Nogal and Prados de la Escosura used the land rents–wages ratio to show that economic inequality in Spain was cyclical, periodically rising and falling in response to epidemics, disease, and war. These authors also claimed that the fluctuations in inequality cannot be explained by the Kuznets hypothesis.[5]

Santiago-Caballero used the price of wheat to estimate income concentration, in the former Crown of Castile, during the last third of the 18th century in Central Spain (Guadalajara). In his opinion, inequality decreased because the redistribution of communal lands after the Esquilache riot in 1766 allowed many small peasants to produce above the subsistence level and, by extension, to take advantage of trade and high grain prices.[6] Nicolini and Ramos-Palencia used annual income data from the Ensenada Cadastre for the Palencia province (Castile) to demonstrate how different production factors affected inequality. For these authors, the chief cause of income inequality was land. Their results are in line with other European income patterns observed in pre-industrial societies, where the distribution of nonhuman wealth is usually the foremost determinant of economic inequality. Although land contributed to more than half (52%) of inequality, labor income also contributed significantly (18.5%).[7] This latter contribution is relevant for analyzing the relationship between labor income and human capital: Álvarez and Ramos-Palencia argued that human capital could have contributed to income inequality (and hence to household income) before the 19th-century industrialization in the north and center of Spain (Palencia and Guadalajara provinces). In theory, the wage differences associated with human capital should have been greater in urban than in rural areas. Note also that literacy made a difference in the tertiary sector, as did numerical skills in agriculture. The implication is that reaching the highest level of professional qualification was better paid in the primary and tertiary sectors than in the secondary one, outcomes that were consistent with Castilian manufacturers' low level of technological development.[8] Taking an entirely different approach, García-Montero used anthropometric measures as indicators of biological and nutritional well-being; he documented a significant correlation between height disparity and economic inequality in Central Spain (Toledo province) in the 18th century.[9] Espín-Sánchez et. al reported that, in the Mediterranean periphery and also in the former Crown of Castile, the levels of labor income inequality (which always exceeded 0.509 in the mid-18th century) were reduced at the same time as the city of Murcia's

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[5] C. ÁLVAREZ-NOGAL, L. PRADOS DE LA ESCOSURA, *The decline of Spain (1500-1850): Conjectural estimates*, in "European Review of Economic History", 11, 2007, pp. 319-66; IDEM, *The rise and fall of Spain (1270-1850),* in "Economic History Review," 66, 2013, n. 1, pp. 1-37.

[6] C. SANTIAGO-CABALLERO, *Income inequality in central Spain, 1690-1800*, in "Explorations in Economic History", 48, 2011, n. 1, pp. 83-96.

[7] E. NICOLINI, F. RAMOS-PALENCIA, *Decomposing income inequality in a backward pre-industrial economy: Old Castile (Spain) in the middle of the eighteenth century*, in "Economic History Review", 69, 2016, n. 3, pp. 747-772.

[8] B. ÁLVAREZ, F. RAMOS-PALENCIA, *Human capital and earnings in eighteenth-century Castile*, in "Explorations in Economic History" 67, 2018, n. 1, pp. 105-133.

[9] H. GARCÍA-MONTERO, *The nutritional status of manufacturing workers and craftsmen in Central Spain in the eighteenth century*, in "Revista de Historia Industrial" 64, 2016, pp. 51-75.

urbanization rate increased during the 18th century. That reduction reflects an advanced process of "de-skilling" in the secondary sector.[10]

The same trend was evident also in the Barcelona area during the second half of the 18th century, when increased of inequality diminished – despite economic growth – or were interrupted by the Napoleonic Wars. Brea-Martínez and Pujadas-Mora pointed out that, between 1715 and 1860, inequality among economic sectors (including the secondary sector of textiles) increased owing to a process of "proletarisation"; however, inequality decreased in the tertiary sector and remained fairly constant in the primary sector.[11] García-Montero similarly argued that a "super Kuznets curve" could not account for the inequality of wealth in rural Catalonia between 1400 and 1800. According to this author, the growth of inequality proceeded in parallel with per capita GDP growth starting in the mid-17th century; but the trend of inequality in previous periods was unrelated to economic growth.[12]

2. DATA: THE ENSENADA CADASTRE, C. 1750

Following the War of Spanish Succession (1701-1714), the Bourbon regime sought to recover the economic ground lost to England, France, and the Netherlands by centralizing its administration and homogenizing its taxes.

In the former Crown of Aragon, the tax system implemented after the Nueva Planta Decrees established a single tax; this tax was known as the *single* or *royal contribution* in the Kingdom of Aragon (1714-1715), as the *cadastre* in Catalonia (1715), the *talla* in Mallorca (1717), and the *equivalente* in Valencia (1715-1716). The most revenue was generated via the cadastre applied in Catalonia: the so-called Patiño Cadastre. This new direct tax comprised three parts: the royal cadastre, which taxed real estate property (e.g., houses, land, mills) and any mortgage interest thereon; the personal cadastre, which applied to the wages of craftsmen and day laborers over the age of 14; and the *ganancial*, which taxed the profits from commerce, industry, banking, and the liberal professions. Yet the absence of reliable statistics and inventories to establish either taxpayers' income or Catalonia's property wealth condemned this tax scheme to failure, and in practice it amounted to a fixed levy between 1720 and 1845. In any case, the Patiño Cadastre became the point of reference for future Spanish cadastres and was the example followed by the Marquess of Ensenada's much later attempt to enact sweeping fiscal reform in the Crown of Castile.

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[10] J.A. ESPÍN-SÁNCHEZ, S. GIL-GUIRADO, W.D. GIRALDO-PAEZ, C. VICKERS, *Labor inequality in pre-industrial Mediterranean Spain: Murcia in the 18th century*, in "Explorations in Economic History", 2019, https://doi.org/10.1016/j.eeh.2019.05.002.

[11] G. BREA-MARTÍNEZ, J.M. PUJADAS-MORA, *Estimating long-term socioeconomic inequality in southern Europe: The Barcelona area, 1481-1880*, in "European Review of Economic History", 2018, https://doi.org/10.1093/ereh/hey017; IDEM, *Transformación y desigualdad económica en la industrialización en el área de Barcelona, 1715-1860*, in "Revista de Historia Económica" 36, 2018, n. 2, pp. 241-273.

[12] H. GARCÍA-MONTERO, *Long-term trends in wealth inequality in Catalonia, 1400-1800: Initial results*, in "Dondena Working Paper," 79, 2015.

Taking advantage of the rivalry between the French and English (e.g., in the War of Austrian Succession, 1740-1748, and the Seven Years' War, 1756-1763), the Marquess of Ensenada – who between 1743 and 1754 served as Secretary of Finance, Secretary of War and the Navy, and Secretary of the Indies – tried to increase the efficiency of trade with the American colonies and to increase the production capacity of Spanish shipyards. He therefore opted to increase tax revenues through a series of measures that included not only an increase in customs duties on monopolies (tobacco) but also a reform of the tax system based on provincial taxes (*Rentas Provinciales*).[13] Direct involvement (i.e., without the aid of intermediaries) in the collection of revenues generated in the various Spanish Bourbon monarchy ports, and of many other taxes for which collection responsibilities had previously been delegated, tripled tax revenues between 1740 and 1770. At the same time, the Marquess tried to simplify the inefficient and unfair Castilian tax system. The Catastro de Ensenada was designed to replace provincial taxes and other taxes (the *alcabalas* and the *sisas*) by a single tax that was proportional to the taxpayer's individual income. However, these reforms did not succeed because the Anglophile sector of the Monarchy (led by José de Carvajal and Lancaster, Secretary of State) deposed the Marquess of Ensenada. There was, in fact, widespread opposition to Ensenada's fiscal reforms from pressure groups that controlled Spain's commercial policy with America and the transfer of silver to Europe (viz., merchants who controlled the colonial trade from Cádiz). In addition, Castilian lobbies that opposed the "single contribution" tax included privileged minority groups (the clergy and nobility), urban oligarchies, major landowners, and farmers and livestock owners from different towns as well as a large number of tenants, subtenants, and other intermediaries who had benefited from collecting taxes. So even though most cadastral information had been assembled by 1756, this fiscal reform was completely abandoned in 1779.[14]

The information preserved from the Catastro of Marquess de La Ensenada (for short, *Catastro de Ensenada* or Ensenada Cadastre) can be grouped into five large segments, as described next.[15]

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[13] The *rentas provinciales* were applied not only to basic necessities (e.g., meat, wine, vinegar, oil, soap, tallow candles, and imported consumables) but also to contracts (ranging from the sale of property and real estate to small daily market sales) and the within-province trade of products. These taxes fluctuated over time and varied among the different provinces of the Castilian Crown; moreover, collecting the *rentas provinciales* was problematic because they were not collected directly by the State Treasury. See F. COMÍN, B. YUN-CASALILLA, *Spain: From composite monarchy to nation-state, 1492-1914*, in *The Rise of Fiscal States: A Global History, 1500-1914,* F. COMÍN, author, B. YUN-CASALILLA, P. O'BRIEN eds., Cambridge 2012 (CUP), pp. 243-48.

[14] For a summary of the economic and historical context of the Catastro of Ensenada Cadastre's reforms, see P. RUIZ TORRES, *Reformismo e ilustración*, in *Historia de España*, vol. 5, J. FONTANA, R. VILLARES eds., Barcelona and Madrid 2008 (Crítica), pp. 280-285. On the foundations, applications, and development of the Catastro, see C. CAMARERO BULLÓN, *Vasallos y pueblos castellanos ante una averiguación más allá de lo fiscal: El Catastro de Ensenada, 1749-1756*, in *El Catastro de Ensenada: Magna Averiguación Fiscal para Alivio de los Vasallos y Mejor Conocimiento de los Reinos, 1749-1756*, I. DURÁN, C. CAMARERO BULLÓN eds., Madrid 2002, pp. 113-388.

[15] The supervision of these tax procedures involved more than 14,000 officials, and the process required nearly 1,000 judges, 6,000 assistants, and 90,000 experts. The information collected affected

i. General Answers (*Respuestas Generales*). The information in this segment consists of the responses from each taxed place to 40 questions regarding, inter alia, the number of inhabitants (and sometimes their wages), its type of business, its number of hospitals and convents, and the local council's income and expenses. Thus, the *Respuestas Generales* constitutes a general overview of each town's economic features.

ii. Private Answers (*Respuestas Particulares*). This documentation owes its name to Antonio Matilla (1947), who established the Private Answers as a counterpart to the General Answers.[16] These responses – which were given separately by lay and religious populations – are essentially individual declarations that are made by household heads and that rely on the following types of documentation.

(a) Family Registers / Books of the Head of Household (*Libros de Cabeza de Familia*). These books contain personal data: the family head's full name and profession (and sometimes that of other family members); his age (the spouse's age and that of the rest of the family are often not given); the number of individuals in the "family economy", including children (with special attention to male children more than 18 years old), siblings, servants, journeymen, and apprentices; and the title (Mr or Mrs) taken by each person.

(b) Real Estate Books (*Libros de Hacienda*, a.k.a. *Libros de lo Real, Mayores de lo Raíz, de lo Raíz, Maestros, de Bienes*). These books record the annual income from rural (land) and urban properties (houses and buildings), mortgage and/or property interest collectible and payable, livestock, entrepreneurial activities, and personal income more generally (i.e., daily wages and/or benefits derived from a profession). It is worth noting that the government's experts were typically knowledgeable about the place they were tasked with examining and that their analysis was exhaustive; in included the physical dimensions of each plot of land and house in addition to precise wage allocations.[17]

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more than 7 million inhabitants, hundreds of millions of land plots, all *diezmos* (tithes) paid in the preceding 15 years, and documents certifying the nobles' privileges. This final component is of great significance because the Ensenada Cadastre's principal innovation was to tax also the privileged classes. See C. CAMARERO BULLÓN, *La lucha contra la falsedad de las declaraciones en el Catastro de Ensenada (1750-1756)*, in "Revista CT/Catastro" 37, 1999, pp. 7-33.

[16] More details are available in A. MATILLA, *La Única Contribución y el Catastro de la Ensenada*, Madrid 1947 (Ministerio de Hacienda).

[17] For instance, for computing the income from land, plots in each town were classified into a small number of different types (1st, 2nd, 3rd, etc.) according to their yield, crop prices and the farming cycle. Then the *Mayor*, *Regidores* and supervisors estimated a five-year average yield of each land type and the price at which the output was sold. Income derived from the houses and non-land properties (buildings) was its imputed annual rent, presumably calculated by the Ensenada Cadastre officers. The criteria for measuring income generated by livestock were more complex. In general, farm animals used for domestic purposes and linked to non-market activities were counted in the Ensenada Cadastre but they were generally excluded from the calculation of income flows; regarding the market-oriented livestock, the Ensenada Cadastre usually provides information on the quantity of animals and a value of the income generated by them but without clarifying the underlying calculations. Finally, the legal interest rate for Spanish *Censos* (perpetual mortgage rents) was 3%. See E. NICOLINI, F. RAMOS-PALENCIA, *Decomposing income inequality,* cit., p. 753; and, A. MATILLA, *La Única Contribución*, cit., pp. 77-86.

In the documentation, the earned and unearned income obtained by "outsiders" (*Forasteros*) residing in the focal town usually appears *after* the income from all the local family heads is listed. This means that, to establish with absolute certainty the total annual income obtained by a specific household head, it would be necessary to check for any income derived from the more than 15,000 registered places within the 22 provinces of the former Crown of Castile. Of course, that would be possible only if all the relevant Cadastre data were actually collected – a practical impossibility. One remedy would be to inspect the post-mortem inventories of those who appear in the Ensenada Cadastre to see what portion of their assets were located outside their place of residence. The problem with this approach is that the few inventories remaining from that time are biased toward households with the most assets. Hence it would be better to check the income of household heads located within 10–30 kilometers of where the focal family resided; that income can be obtained from the *Libros de Forasteros* (Foreigners Books). Although this approach will not yield a figure for total income, it will reveal what percentage of household heads received income from outside their place of residence and also how those households' income affected inequality.[18]

(c) *Memoriales*. This documentation consists of individual declarations made by all family heads and to which, after verification by the experts, the Single Contribution Officers added all the information gathered from the official registers described in sections (a) and (b). In addition to the information from those registers, the *Memoriales* might include the wages received by other male members of the family unit and by domestic servants. The household head sometimes also detailed the amounts paid for the labor performed by his wife and daughter(s). Once the income declaration was complete, it was signed by the individual being taxed – or by a third party, on his behalf, if he did not know how to write. The information collected in the *Memoriales* was consequently more extensive than that available elsewhere. However, not all of this information was included in the official registers and there were no *Memoriales* kept for many registered places.

iii. Overview Maps (*Mapas Generales*). These maps summarize, over all the places, the information obtained from the documents just described. The overviews (registers) are grouped into categories (letters from D to H), each of which distinguishes between lay and religious contributions. These registers include the following information:

- Letter D: Provincial agricultural incomes.
- Letter E: Income generated, place by place, from (for example) house rentals, censuses, farm produce, mills, bakeries, ovens, shops, butchers, ironworks, mines, ponds, fairs, and markets.
- Letter F: Annual profit, place by place, earned by money changers, wholesale merchants, open-store merchants, surgeons, apothecaries, innkeepers, mule drivers, etc.
- Letter G: A place-by-place count of the number of individuals who received a daily wage in agriculture, the secondary sector, or the services sector.

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[18] E. NICOLINI, F. RAMOS-PALENCIA, *Decomposing income inequality,* cit., pp. 769-771.

- Letter H: Livestock.

iv. Census (*Vecindario del Catastro*). After all the information just described had been collected, a census of people and buildings was undertaken in 1756 followed by a population census (the *Vecindario General*) in 1759.

v. Major Landlord Register (*Libros de los Hacendados Mayores*). This register was also prepared after the completion of the General Answers, Private Answers, and Overview Maps. It refers to the largest *dezmera* households (i.e., those that paid the most tithe or *diezmo* taxes). This documentation was requested for negotiations, between the Marquess of Ensenada and the Holy See, over signing the New Concordat.[19]

2.1. Labor income in the Ensenada Cadastre

The labor income collected in the Ensenada Cadastre can be confusing because two separate terms – "personal" and "utility" – are used to describe the income earned by a household head.

Personal refers not to the wage received by heads of households but rather to a kind of taxable base for the income from individual labor.[20] The *personal* applied to all male household heads of age 18-60 who received a daily wage working in agriculture, crafts, or services. This wage was an estimate based on the statements of family heads in the *Memoriales*. To estimate the final *personal*, officials assumed that household heads worked 120 days in the primary sector and 180 days in the secondary and tertiary sectors; coachmen and servants were assumed to work 250 days each year.[21] Note that craftsmen earned different wages depending on whether they were master craftsmen, journeymen, or apprentices. For all practical purposes, *personal* can be viewed as potential wages. In other words: it is plausible that the daily wage was equal to the market salary, but there is no evidence regarding the number of days actually worked. Moreover, there are many statements in which household heads use the expression "those days when I work"; such words strongly suggest the existence of seasonal unemployment, which is difficult to quantify. We should also mention that, at the time of assigning the *personal*, not only the nobility and the ecclesiastical sector but also all women were excluded.

The concept of *utility* applied to the gross wages of professionals and to the gross profit from business operators (e.g., money changers, wholesale merchants, open-store merchants, shopkeepers, officials, lawyers, surgeons, apothecaries, scribes, innkeepers, muleteers, millers, bakers, bakers, butchers, smithies). Unlike the case of *personal*, for *utility* neither women nor the privileged sectors (the nobility and the Church) were excluded.

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[19] Camarero Bullón suggested that a more appropriate name for this documentation would be the "largest dezmera houses register" (*libro de la casa mayor dezmera*). See C. CAMARERO BULLÓN, *El libro de mayor hacendado, ¿una denominación equivocada?*, in "Estudios Geográficos" 48, 1987, n. 188, pp. 333-58.

[20] GRUPO 75, *La Economía del Antiguo Régimen. La 'Renta Nacional' de la Corona de Castilla*, Madrid 1977, p. 22.

[21] A. MATILLA, *La Única Contribución*, cit., pp. 85, 110.

Given the inherent hardship of pre-industrial society, many people and families were more likely to diversify their earnings through "by-employment". This trend is reflected in many *Memoriales* that include the remuneration received by male children, relatives (brothers and brothers-in-law), and even wives and daughters. Thus household heads tried to supplement their income in three ways: (i) other employment (e.g. it was common for the sacristan of a small town or village to also be a teacher or organist); (ii) income earned through access to certain place concessions (via serving as a village's legal *obligado*: the one responsible for supplying meat, coal, soap, firewood, or wax); and/or (iii) being paid as an employee working on the agricultural properties of a third party – in which case the household head received income from which he had to deduct the rent he paid to the landowner. In other words, income was computed by including a labor factor (wages for agricultural work) and a land factor (estimated income from the land under lease); the lease paid to the owner was seldom recorded.

2.2. Sample selection criteria[22]

We first excluded the provinces of Cuenca, Extremadura, Huelva, Seville and Cádiz (ordered from north to south) because the Private Answers for those provinces were not preserved (see the left-hand side of Graph 1's upper panel). The city of Madrid was excluded for the same reason; however, Private Answers from mid-18th-century Guadalajara and Toledo – in Madrid province – were preserved. The provinces of Asturias and Murcia were discarded because their Private Answers were incomplete. Thus our first filter required places where all the Family and Real Estate Books had been preserved.

Our second selection criterion accounted for gross domestic product (GDP) per capita and economic activity in the provinces; see the right-hand side of Graph 1's upper panel. For this reason, different places were selected from the provinces of Guadalajara (high GDP per capita), Palencia (intermediate GDP per capita) and Granada (low GDP per capita). Also, towns in Jaén were selected so that we could study how large estate properties affected inequality. The cities of Granada, Palencia, Guadalajara, Úbeda, Motril, and Sigüenza were included. Granada was selected for being the most densely populated town for which data were available and because its administrative and industrial structure was representative of large Spanish cities in the 18th century.[23] Palencia and Guadalajara were selected because

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[22] Elaboration based on data from Servicio de Reproducción de Documentos de Archivos Estatales (SRDAE), Madrid.

CATASTRO DE ENSENADA, Section *Respuestas Generales*: http://pares.mcu.es/Catastro/

CATASTRO DE ENSENADA, Section *Respuestas Particulares* from provinces of Granada, microfilms no. 0001-0071; Guadalajara, microfilms no. 0001-0154; Jaén, microfilms no. 0001-0058; León, microfilms no. 0001-0326; Madrid, microfilms no. 0001-0031; Palencia, microfilms no. 0001-0170; Santander (former province of Burgos), microfilms from Santillana del Mar; and Toledo, microfilms no. 0001-033.

[23] The data from Granada are most useful because, in the middle of the 18th century, it was one of the cities with the greatest number of inhabitants: 54,604 if we multiply the number of households (13,651, according to the Census of Ensenada) by 4. In this respect it trailed only Madrid (31,779
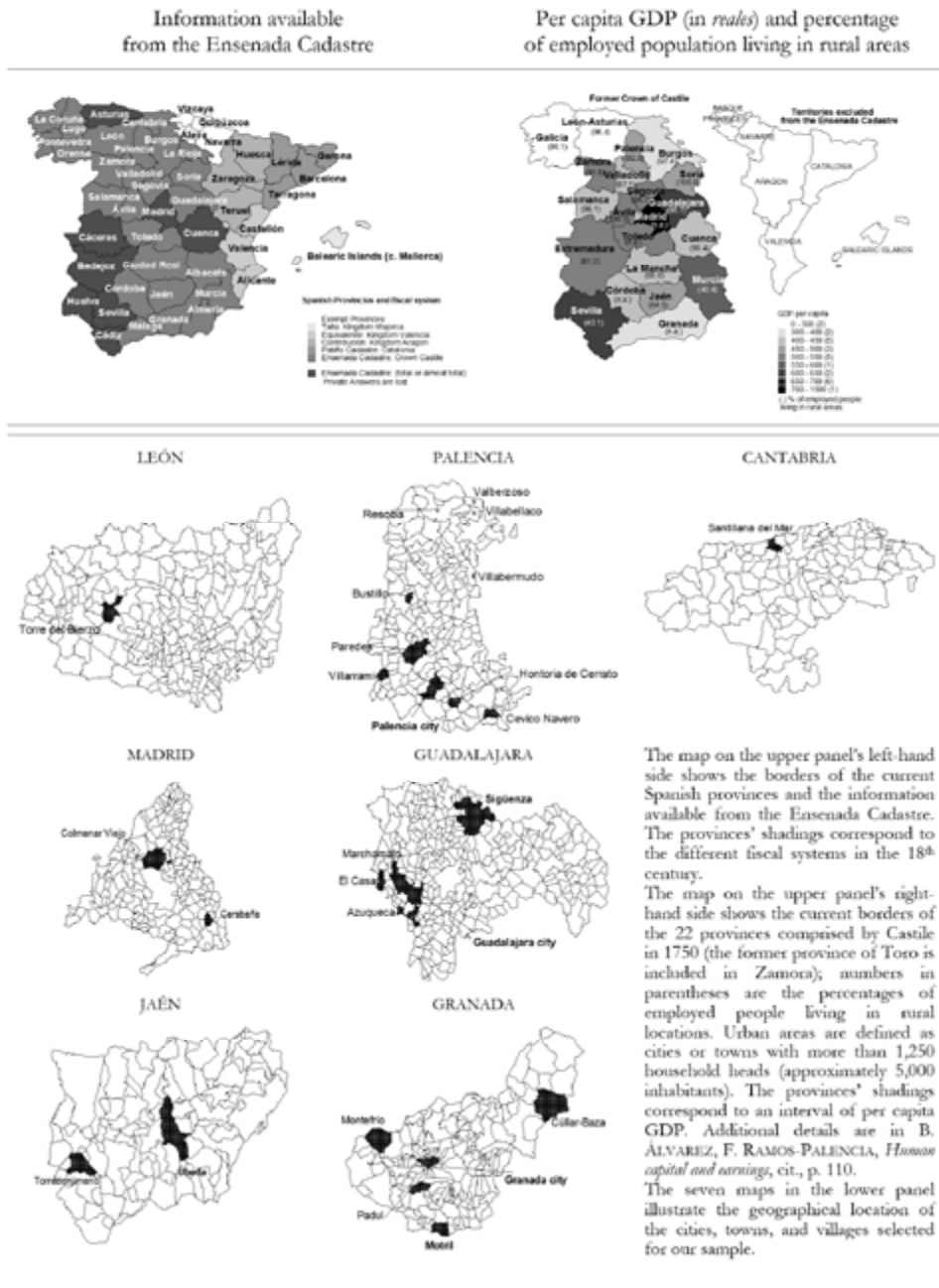
of their textile industry: the former as an example of private textile industry; the latter because it was headquarters of the Royal Manufacturing Factory. Úbeda (an inland city) and Motril (a coastal city) were included because they exemplify Andalusian agro-cities. Sigüenza, the "city of bishops", was included for being a small inland city near Madrid and the seat of a minor university. Finally, we selected 20 rural centers from the provinces of León, Palencia, Cantabria, Madrid, Guadalajara, Jaén, and Granada (ordered from north to south) to obtain a variety of demographics, agricultural property structure (smallholdings in the north; large landowners in the south), and percentage of employed individuals living in rural areas.

To homogenize the sample, we consider the income only of those household heads who were older than 18 years. Thus our an initial approximation ignored the income of children, male relatives, domestic service, wives, and daughters because not all observations include these data; in other words, no type of income was imputed to them. Also, heirs were considered only if they resided with an identified household head. All calculations were performed while excluding, in each place, the GDP due to the ecclesiastical sector. So when measuring the impact of inequality, we computed the total annual income of household heads. Recall that those incomes amount to the sum of income derived from labor, urban real estate (houses and buildings), land, livestock, and interest from a mortgage or any financial asset.

A methodological problem with this compilation of income was due to the existence of numerous households with *zero* total income. The underlying question is whether these households really did have no income. We can see from Table 1 that the number of households without any income varied widely depending on the place. In the city of Granada, for example, 22.5% of the sample had no type of income; this figure seems plausible in that it nearly matches the percentage of poor households (21.5%) Although a similar observation can be made for Úbeda (13.9% and 9%, respectively), there were strong disparities in Palencia (16.3% vs. 1.6%) and Motril (19.3% vs. 5.1%). We remark that most households *without* real estate were located either in a city or in a town of high population density. The greatest number of household heads with zero labor income resided in southern Spain – probably because that region featured both a landowner structure dominated by large agricultural enterprises and the existence of seasonal unemployment. Our discussion of the results therefore reports Gini indexes based on the computation of zeros as well as indexes that exclude all observations of zero income. In short, our final sample covered 26 places that were home to a total of 27,180 households and thus to (an estimated) 108,720 inhabitants.

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households, according to the same census), Seville (19,166 households, according to the same census), Valencia (75,733 inhabitants, according to the Census of Aranda, c. 1768), and Barcelona (62,000 inhabitants, c. 1759); Granada's population was about the same as that of Murcia (13,920 households, according to the Census of Ensenada). With regard to population data in Catalonia, see P. VILAR, *Cataluña en la España Moderna,* vol. 2, Barcelona 1987 (Crítica), p. 50.

Graph 1. **Territory covered by the Ensenada Cadastre and sample selection**

The map on the upper panel's left-hand side shows the borders of the current Spanish provinces and the information available from the Ensenada Cadastre. The provinces' shadings correspond to the different fiscal systems in the 18th century.

The map on the upper panel's right-hand side shows the current borders of the 22 provinces comprised by Castile in 1750 (the former province of Toro is included in Zamora); numbers in parentheses are the percentages of employed people living in rural locations. Urban areas are defined as cities or towns with more than 1,250 household heads (approximately 5,000 inhabitants). The provinces' shadings correspond to an interval of per capita GDP. Additional details are in B. ÁLVAREZ, F. RAMOS-PALENCIA, *Human capital and earnings*, cit., p. 110.

The seven maps in the lower panel illustrate the geographical location of the cities, towns, and villages selected for our sample.

Tab. 1. **Percentage of households without income or property**

Place	No house-property	No land-property	No labor income	No annual income	Poor
Azuqueca	35.5	57.9	21.1	7.9	2.6
Bustillo	26.5	29.4	17.6	2.9	0.0
Carabaña	34.1	34.6	20.1	0.6	6.7
Casar, El	30.2	44.4	21.4	3.2	4.0
Cevico Navero	23.5	50.0	11.4	0.0	0.0
Colmenar Viejo	31.6	45.2	15.6	0.3	0.3
Cúllar Baza	35.5	59.3	30.7	3.1	0.3
Granada	82.0	97.2	32.3	22.5	21.2
Guadalajara	59.5	81.9	17.0	6.3	0.5
Hontoria	18.8	13.0	13.0	0.0	0.0
Marchamalo	44.7	66.8	17.6	2.0	0.0
Montefrío	60.4	84.6	28.7	12.2	0.5
Motril	74.0	95.4	30.0	19.3	5.1
Padul	37.6	46.9	24.8	1.2	3.5
Palencia	94.2	96.3	18.1	16.3	1.6
Paredes de Nava	24.2	41.7	25.5	1.2	0.7
Resoba	16.1	8.1	16.1	0.0	0.0
Santillana del Mar	24.7	42.9	31.2	0.6	0.0
Sigüenza	90.0	97.0	18.3	12.4	1.1
Torre del Bierzo	0.0	3.1	0.0	0.0	0.0
Torredonjimeno	49.2	73.3	27.0	12.1	0.1
Úbeda	64.3	69.7	30.3	13.9	9.0
Valberzoso	20.0	0.0	13.3	0.0	0.0
Villabellaco	18.8	12.5	25.0	0.0	0.0
Villabermudo	27.3	15.6	18.2	2.6	1.3
Villarramiel	29.1	28.5	17.9	0.3	3.2

Note: Places are ordered alphabetically.
Source: Author calculations based on data from the Ensenada Cadastre's *Respuestas Particulares*.

3. RESULTS AND DISCUSSION

Table 2 presents the main indicators related to the distribution of income, inequality, and poverty: the per capita annual income of household heads, the Gini index (including and excluding zero-income family heads, as described previously), the Theil index, and income gap measures (percentage of all income earned by each place's richest 10% and poorest 50% households). The table also reports poverty measures based on the Foster, Greer, and Thorbecke (FGT) index via three parameters, which range from lower to higher intensity: $\alpha = 0$, which denotes the percentage of household heads below the poverty line; $\alpha = 1$, which denotes the poverty gap; and $\alpha = 2$, which denotes the severity of poverty.[24]

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[24] J. FOSTER, J. GREER, E. THORBECKE, *The Foster-Greer-Thorbecke (FGT) poverty measures: 25 years later*, in "Journal of Economic Inequality", 8, 2010, n. 4, pp. 491-524.

Tab. 2. **Comparative household income inequality in Castile (Spain), c. 1750**

Place	Province	House-holds	Popu-lation	Annual income per capita	Gini index (including zeros)	Gini index (excluding zeros)	Theil index	Bottom 50% share	Top 10% share	FGT poverty measures		
										$\alpha = 0$ Head-count ratio	$\alpha = 1$ Poverty gap ratio	$\alpha = 2$ Severity of poverty
Montefrío	Granada	1,304	5,216	662.9	0.697	0.655	1.140	9.9	60.1	25.6	21.3	19.0
Granada	Granada	11,907	47,628	1,296.2	0.686	0.595	0.815	7.9	56.0	28.5	26.3	25.3
Úbeda	Jaén	2,253	9,012	894.1	0.660	0.605	1,034	11.3	55.8	24.6	20.6	18.8
Cúllar Baza	Granada	670	2,680	813.3	0.618	0.606	0.981	13.9	52.9	23.7	17.2	13.8
Guadalajara	Guadalajara	1,299	5,196	987.0	0.613	0.587	0.821	13.1	51.5	29.5	16.2	11.9
Paredes de Nava	Palencia	722	2,888	1,084.8	0.611	0.606	0.827	14.1	53.2	24.2	17.0	13.4
Padul	Granada	258	1,032	1,243,6	0.608	0.604	0.747	13.5	49.7	17.4	14.3	12.4
Palencia	Palencia	2,254	9,016	953.7	0.608	0.531	0.608	13.3	49.8	17.9	17.3	17.0
Sigüenza	Guadalajara	805	3,220	1,052.3	0.591	0.533	0.610	13.5	46.3	17.5	15.8	15.1
Carabaña	Madrid	179	716	934.4	0.560	0.557	0.569	13.4	42.0	31.8	14.1	10.1
Torredonjimeno	Jaén	840	3,360	633.0	0.552	0.490	0.539	16.0	42.9	25.4	20.6	18.1
Bustillo	Palencia	34	136	1,350.2	0.544	0.530	0.540	15.0	43.3	26.5	7.9	4.6
Azuqueca	Guadalajara	76	304	831.7	0.535	0.496	0.511	16.6	42.0	18.4	14.3	12.3
Casar, El	Guadalajara	252	1,008	1,294.1	0.529	0.514	0.534	17.1	42.4	26.2	12.8	9.4
Motril	Granada	2,174	8,696	483.3	0.510	0.393	0.412	17.2	38.8	28.5	25.7	24.1
Colmenar	Madrid	975	3,900	1,668.8	0.497	0.495	0.476	18.4	39.0	12.0	7.7	6.0
Marchamalo	Guadalajara	199	796	1,095.6	0.495	0.485	0.440	16.0	34.3	31.2	12.5	8.9
Santillana	Cantabria	170	680	489.8	0.466	0.463	0.410	20.5	35.6	30.0	19.1	13.8
Villabellaco	Palencia	32	128	870.2	0.461	0.461	0.361	17.3	31.2	28.1	12.0	8.0
Villabermudo	Palencia	77	308	943.6	0.409	0.394	0.270	22.3	28.9	23.4	11.1	8.4
Villarramiel	Palencia	375	1,500	1,049.9	0.407	0.406	0.291	22.9	30.0	24.8	9.5	5.5
Hontoria	Palencia	69	276	1,069.2	0.358	0.358	0.231	25.1	26.3	15.9	5.5	3.2
Resoba	Palencia	62	248	884.3	0.333	0.333	0.181	25.9	20.8	24.2	9.6	6.0
Cevico Navero	Palencia	132	528	1,039.5	0.317	0.317	0.199	30.5	25.1	20.5	10.6	7.9
Valberzoso	Palencia	30	120	957.2	0.289	0.289	0.131	29.1	19.1	23.3	6.1	2.5
Torre del Bierzo	León	32	128	650.9	0.179	0.179	0.064	38.1	17.1	9.4	3.6	2.1

Note: Places are ordered by their Gini index (sixth column; calculated while including observations of zero income). Population figures are obtained by multiplying the number of household heads by 4.
Source: Author calculations based on data from the Ensenada Cadastre's *Respuestas Particulares*.

The highest Gini coefficients were seen in cities or other population centers with the greatest number of inhabitants. During the 18th century, the former crown

of Castile (and, broadly speaking, Spain as a whole) remained a mostly agricultural region; it was scarcely urbanized and had poor transport connections. At the end of that century, only 24% of the Spanish population lived in an urban environment (cities of more than 5,000 inhabitants). Regions with the highest urban concentration were Andalusia (53%), Valencia-Murcia (50%), and the Balearic Islands (43%); those with the lowest urbanization rates were Extremadura (13.5%), Aragón (13.4%), Castile-León (6.6%), and Galicia (2%).[25]

Within our sample, five cities were among locations with the highest Gini indexes: Granada (2nd highest), Úbeda (3rd), Guadalajara (5th), Palencia (8th), and Sigüenza (9th). In these cities, the richest 10% account for at least half of the total income (GDP) earned. The greatest inequality was evident in Montefrío, where the top 10% accumulated 60% of the wealth while the bottom 50% barely accumulated 10%. All areas (except for Motril, Colmenar Viejo, and Villarramiel) with a Gini index below 0.55 had fewer than 250 households, the equivalent of about 1,000 inhabitants. The Theil index yields qualitatively similar conclusions. When we use the Gini index that *excludes* household heads with zero income, the patterns do not change – although the coefficients are naturally lower.

Regarding the percentage of people below the poverty line, we find that almost one in every four Spaniards was poor. This result is obtained from the FGT index ($\alpha = 0$) when the poverty threshold is set at about 60% of the median of each location's distribution of household heads' total income: approximately 324 *reales*, on average, for the 26 towns considered.[26] The severity of poverty (FGT index, $\alpha = 2$) was especially high in Granada (25.3%), Motril (24.1%), and Úbeda (18.8%); these are the same three sites at which the Ensenada Cadastre counted the greatest number of poor people (21.2%, 5.7%, and 9.0%, respectively). In the mid-18th century, Madrid and Seville-Cádiz-Jerez could be viewed as an axis whose endpoints were two islands in a sea of rural deprivation in the former Crown of Castile.[27] As described by Herr, there was an imaginary line that ran from Salamanca to Albacete. Above this line lived farmers and day laborers who worked on small and heavily indebted farms. Below the line were large areas of privately owned land on which more than 70% of the work was performed by day laborers who earned low wages and faced high levels of seasonal unemployment.[28]

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[25] D.S. REHER, *Town and Country in Pre-industrial Spain. Cuenca 1550-1870,* Cambridge 1990 (CUP), pp. 37-43.

[26] This result is largely consistent with previous qualitative studies. For the middle of the 18th century, Yun-Casalilla estimated a minimum subsistence income of 300 *reales* for a family of 3.5 members; Donézar considered the minimum and/or subsistence amount for a farmer and his family to be 500 *reales*. See B. YUN-CASALILLA, *Sobre la Transición al Capitalismo en Castilla. Economía y Sociedad en Tierra de Campos 1500-1814*, Junta de Castilla y León 1987, pp. 463-64; and J.M. DONÉZAR, *Riqueza y Propiedad en la Castilla del Antiguo Régimen. La Provincia de Toledo del Siglo XVIII*, Madrid 1996 (Ministerio de Agricultura, Pesca y Alimentación), pp. 338-341.

[27] More details are available in P. VILAR, *Hidalgos, Amotinados y Guerrilleros*, Barcelona 1999 (Crítica), pp. 27-62.

[28] R. HERR, *España y la Revolución del Siglo XVIII*, Madrid 1988, p. 28.

Graph 2. **Inequality, income, and poverty in Castile (Spain), c. 1750**
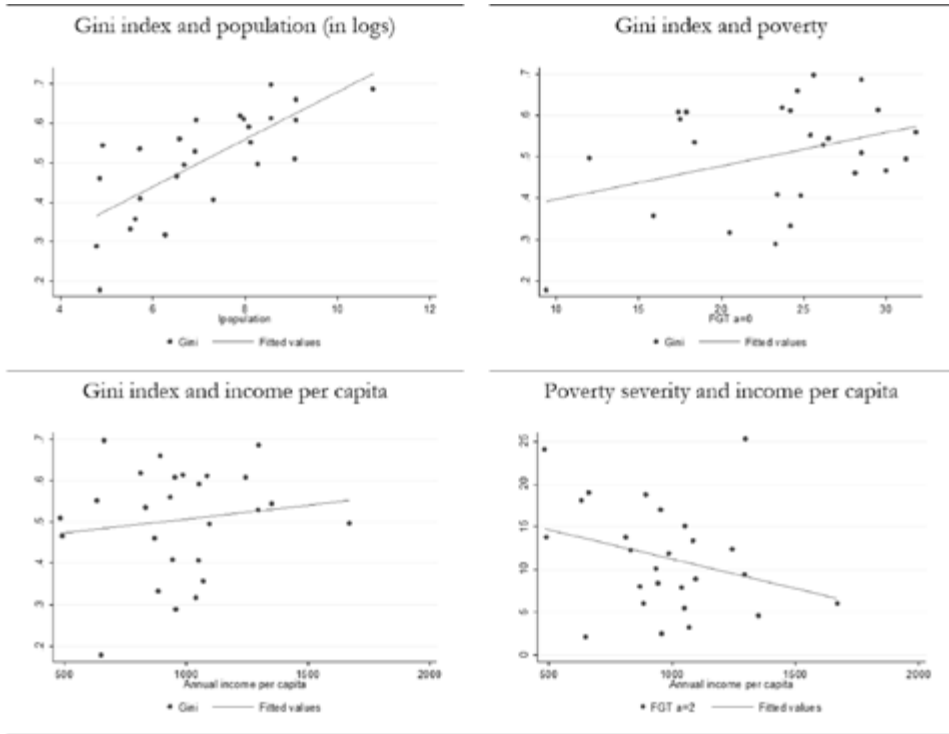
Notes: In these graphs, the Gini index is calculated while including observations of zero household head income. Population figures (in logs) are obtained by multiplying the number of household heads by 4; members of the clergy are excluded. The poverty is the percentage of population that is below the poverty line – in other words, the Foster, Greer, and Thorbecke index when $\alpha = 0$. When $\alpha = 2$, the FGT index measures the severity of poverty (i.e., the poverty gap squared).

In this context, one cannot rule out associations among inequality, poverty, and social conflict. Although there were no true revolutions in 18th-century Spain, there were certainly episodes of major social conflict. Perhaps the most significant event was the Esquilache riot in 1766, which was due primarily to rising prices for basic necessities (e.g., bread, oil, and bacon). Episodes involving assaults and considerable physical violence occurred, among our sample locations, in Palencia (Gini coefficient of 0.608) and Quesada (40 km from Úbeda, for which the Gini coefficient is 0.660). These were hardly the only upheavals that occurred during the 18th century. Among the most documented episodes, for example, were conflicts associated with high food costs in the Granada region of Baza[29] (1723) and in the

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[29] In 1723, a group of farmers and locals in Cúllar-Baza (Gini index = 0.618) took 34 carriages to Madrid for the purpose of "acquiring" 500 *fanegas* of wheat. See *Archivo Histórico Municipal de Cúllar* (AHMC), Chapter Book from 1723 and Accounts Book from the deposit of 1712-1733 (file 12, vol. III).

city of Granada (1748). There was also labor unrest throughout the 18th century in the Royal Manufacturing Factory in Guadalajara[30] (Gini coefficient = 0.613).

Although the Ensenada Cadastre offers an richly detailed snapshot of the 18th century, more information is needed if we are to understand how economic growth interacts with changes in income inequality and in the reduction of poverty – an interaction that Bourguignon defined (in contemporary terms) as the growth–inequality–poverty triangle.[31] Figure 2 sketches the intuitive relationships among inequality, per capita income, and poverty. On the one hand, there is evidently a positive relationship between inequality and per capita income, between inequality and population, and between inequality and poverty. On the other hand, there is (as one would expect) a negative relationship between poverty and per capita income. Thus the correlations among these factors in a pre-industrial society are no different from those in the 21st century.[32] Given that the Ensenada Cadastre is an excellent source of data on income levels in *both* tails of the distribution (unlike most other sources pertaining to pre-industrial economies) this finding opens potentially fruitful avenues for research on poverty in both the rural and urban environments of 18th-century Spain.

4. COMBATING INEQUALITY AND POVERTY IN PRE-INDUSTRIAL SPAIN

During the time of the Habsburgs, most taxes were indirect and were assessed on merchants, artisans, and peasants. As a result, household heads could easily afford to pay those taxes during periods of economic expansion – for example, in the mid-16th century. Yet at the end of the 16th century, the Spanish Habsburg Monarchy introduced the *millones* tax, which was to be paid only by *pecheros* (i.e., traders, artisans, and peasants).[33] And until 1575, the *alcabalas* sales tax was set at a higher level than that established by the Crown and the *Cortes* (Parliament).[34] Thus the cities of Toledo and Valladolid, for instance, used the *alcabalas* surplus to finance their provision of public granaries and bullfights as well as the organization of fiestas. Citizens were not subject to direct taxation and paid only moderate indirect taxes, such as the *sisas* (from which wine and meat were exempted).[35] Tax revenues enabled cities to offer educational options: primary schools, children's

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[30] A. GONZÁLEZ ENCISO, *Estado e Industria en el S.XVIII: La Fábrica de Guadalajara*, Madrid 1980 (Fundación Universitaria Española).

[31] F. BOURGUIGNON, *The Globalization of Inequality*, Princeton 2015 (Princeton University Press); M. RAVALLION, *The Economics of Poverty. History, Measurement, and Policy*, Oxford 2016 (Oxford University Press).

[32] See https://ourworldindata.org/extreme-poverty#the-link-between-economic-growth-and-poverty.

[33] Established in 1590, the *millones* taxed consumption - in particular, wine, vinegar, oil, meat, sugar, chocolate, raisins, fish, paper, and tallow candles.

[34] The *alcabalas* was a tax on all sales, including successive sales of the same good; it also taxed exchanges and swaps. Thus all goods that entered or exited any given location were subject to special surveillance, as were the movements of retail merchants and the places where products were stored.

[35] Under the *sisas*, the quantities delivered to buyers were fewer than those contractually stipulated. The difference, or excise, was used to pay national taxes or different place expenses.

teachers, and grammar classes all made it much more possible for children living in urban areas to achieve literacy.[36]

This scenario changed radically starting in 1640, when the Monarchy experienced what was arguably one of the darkest ages in its history. The period 1640-1685 witnessed Portuguese independence, the Catalan revolt, a significant population decline that affected cities and also rural areas, plague epidemics that claimed over 250,000 victims between 1676 and 1684, and strong climatic changes that caused numerous famines and led to widespread subsistence living. For example, Andalusia suffered two years of almost total drought (during 1682-1683) followed by torrential rains and floods (in 1684). These events were devastating: peasants lost their land or cattle, and ruined artisans migrated to the cities – which were increasingly indebted owing to the Spanish Monarchy's financial needs. A telling indication of these dire straits is the number of children who were abandoned.[37] At the start of the century, fewer than 10% of the children in Valladolid were abandoned; that figure rose to 15% during 1641-1645, to 17% in 1665-1670, and to 22% between 1691 and 1695. In Seville, an average of 258 children were abandoned each year from 1631 to 1640; although there was a decline to fewer than 200 in 1650-1657, the number rose to more than 300 during 1683-1690 and to 425 by 1684. In Madrid, the *Inclusa* (foundling home) took in more than a thousand newborns annually after 1680. According to Domínguez Ortiz, of the 3,000–5,000 children abandoned each year throughout Spain, three fourths (and often four fifths) of them died before their first birthday; the situation did not improve until the second half of the 19th century.[38]

This paper has analyzed the financial resources of our 26 sample towns (see Table 3) using responses to the following questions from the Ensenada Cadastre[39]:

23. The assets and income the community owned.

25. The expenses the community had to satisfy: justice and aldermen, Corpus Christi parties or others; cobblestones, fountains, servants, for example.

30. Number of hospitals and how were they financed.

Most towns and villages were heavily indebted, which means they had limited capacity to hire teachers, doctors, and surgeons or to maintain hospitals. Of the 26 places we examined, six had deficits and another seven did not submit data – which suggests that they, too, had a heavy debt load. Most expenditures were for the municipal employees, which did not always include teachers and general physician, who worked with the administration (magistrates, the mayor, notary publics, etc.), security (sheriff), or justice (attorney). All the sample places devoted a substantial portion of available funds to the organization of festivities that coincided with religious holidays; these expenses typically consisted of wax for candles, refreshments for ecclesiastical and civil authorities, and even the organization of

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[36] B. BENNASSAR, *Historia de los Españoles, Siglos VI-XX,* vol. I, Barcelona 1989 (Crítica), pp. 449-451.

[37] *Ibidem.*

[38] A. DOMÍNGUEZ ORTIZ, *España Tres Milenios de Historia*, Madrid 2004 (Marcial Pons Historia), pp. 246-47.

[39] See *Respuestas Generales* of the Ensenada Cadastre (nos. 23, 25, 30). Online: http://pares.mcu.es/Catastro/servlets/ServletController?ini=0&accion=0&mapas=0&tipo=0

bullfighting celebrations. Another revenue-consuming category was town infrastructure: cobbled streets, fountains, and the restoration of buildings dependent on the town.

Tab. 3. **Council budgets in Castile (Spain): Reconstruction of formalized social spending by place, c. 1750**

(1) Place	(2) No. of house-holds	(3) GDP (excluding ecclesiastical) (*reales*)	(4) Council: Total income (*reales*)	(5) Council: Total ex-penditures (*reales*)	(6) = (4)–(5) Council: Surplus or deficit (*reales*)	(7) No. of hospitals	(8) Council: Social spending (percentage of GDP)	(9) Council expenditures (*reales*)			
								(9a) Health and charity	(9b) Education	(9c) Local infra-structure	(9d) Religious festivities and leisure
Montefrío	1,200	864,478.5	400.0	5,530.0	–5,130.0	2	0.07–0.08	*550.0*	110.0	0.0	910.0
Granada	13,650	15,400,000.0	N/A	N/A	N/A	9	N/A	N/A	N/A	N/A	N/A
Úbeda	2,440	2,288,048.0	14,617.0	13,550.0	1,067.0	5	0.0	0.0	0.0	2,100.0	5,685.0
Cúllar Baza	700	548,149.8	250.0	5,852.0	–5,602.0	2	0.05	200.0	100.0	3,000.0	0.0
Guadalajara	1,300	1,283,121.0	37,040.0	30,700.0	6,340.0	2	0.54–0.63	*5,777.5*	2,286.0	1,935.5	7,143.0
Paredes de Nava	700	783,244.7	9,299.0	6,096.0	3,203.0	2	0.08–0.10	110.0	652.0	918.0	300.0
Padul	240	320,838.5	2,070.0	1,970.0	100.0	0	0.03	100.0	0.0	150.0	326.0
Palencia	2,500	2,154,336.0	85,000.0	10,000.0	75,000.0	2	0.0	0.0	0.0	0.0	2,000.0
Sigüenza	600	848,133.0	5,436.0	16,872.0	–11,436.0	2	0.84–0.97	*7,150.0*	1,100.0	4,000.0	0.0
Carabaña	195	170,055.0	N/A	3,500.0	N/A	1	N/A	No	Yes	Yes	0.0
Torredonjimeno	904	532,328.9	5,896.0	7,073.0	–1,177.0	0	0.11–0.14	*440.0*	300.0	0.0	1,278.0
Bustillo	28	45,905.5	1,295.0	695.0	600.0	1	0.0	0.0	0.0	70.0	0.0
Azuqueca	69	63,209.5	N/A	2,446.0	N/A	0	0.0	0.0	0.0	1,000.0	0.0
Casar, El	220	326,105.0	3,246.5	9,167.5	–5,921.0	1	0.11–0.13	0.0	432.0	6,392.0	30.0
Motril	2,000	1,050,782.0	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
Colmenar	950	1,627,062.0	42,529.5	22,169.0	20,360.5	4	0.04–0.05	780.0	0.0	2,336.0	750.0
Marchamalo	147	218,028.5	6,188.0	3,107.5	3,080.5	0	0.0	0.0	0.0	750.0	700.0
Santillana	148	83,270.5	N/A	N/A	N/A	3	N/A	N/A	N/A	N/A	N/A
Villabellaco	23	27,847.0	200.0	116.0	84.0	0	0.0	0.0	0.0	0.0	0.0
Villabermudo	62	72,658.0	2,257.5	585.5	1,672.0	1	0.0	0.0	0.0	0.0	0.0
Villarramiel	376	395,829.5	N/A	260.0	N/A	1	0.0	0.0	0.0	0.0	0.0
Hontoria	63	73,776.0	500.0	700.0	–200.0	0	N/A	Yes	Yes	0.0	Yes
Resoba	49	55,710.0	3,124.0	1,844.0	1,280.0	0	0.07–0.09	40.0	10.0	520.0	300.0
Cevico Navero	125	137,220.0	3,368.0	3,286.0	82.0	1	0.11–0.13	0.0	180.0	100.0	0.0
Valberzoso	24	28,717.0	1,502.0	241.5	1,260.5	0	0.0	0.0	0.0	0.0	200.0
Torre del Bierzo	30	20,827.8	N/A	60.0	N/A	0	0.0	0.0	0.0	30.0	0.0

Notes: Places are ordered by their Gini index. The no. of households is from *Respuestas Generales*. "So-cial spending" (in column 8) is defined as expenditures devoted to health and charity (col. 9a) and to education (col. 9b). Values given in *italics* (col. 9a) include expenditures for a general physician. N/A = not available.

Source: Author calculations based on data from the Ensenada Cadastre's *Respuestas Generales*, questions 23 (col. 4), 25 (columns 5, 9a, 9b, 9c and, 9d) and 30 (col. 7); see
http://pares.mcu.es/Catastro/servlets/ServletController?ini=0&accion=0&mapas=0&tipo=0

The percentage of available funds that might be used for social expenditures (i.e., education, health, and charity) was tentatively calculated from the Ensenada Cadastre's General Answers data with reference to the respective towns' total GDP. Towns usually met their expenses using local resources: local taxes collected combined with the income generated by the exploitation and/or periodic leasing of their own property (communal goods as land, pasture, mills, inns, and/or stores). However, it is extremely difficult to obtain an exact figure for each place's GDP. Although the GDP generated by the civilian population can be approximated by adding the total income of all household heads, the GDP generated by male minors, domestic service, female labor, and foreign property owners is practically impossible to calculate without making a large number of possibly insupportable assumptions. The ecclesiastical contribution to each town's total GDP is not available, but we do know that contribution's percentage of each *province's* total (ordered from lowest to highest percentage): 16.1% in Guadalajara, 16.2% in León-Asturias, 16.3% in Granada, 18.7% in Burgos-Cantabria, 17.1% in Madrid, 20.4% in Palencia, and 24% in Jaén.[40] If one assumes that these percentages were similar in each place of a given province, then an approximate estimate of the ecclesiastical GDP can be made for each town.

In Table 3 (column 8) we report the minimum – that is, *excluding* ecclesiastical GDP estimates – and the maximum value – *including* ecclesiastical GDP estimates – for the weight of social expenditures in our sample of 18th-century pre-industrial Spanish councils (for instance, in Montefrío the figure 0.07-0.08 means that the minimum value is 0.07% and the maximum is 0.08%). Our results establish that the relationship between income and social spending was extremely weak, if not entirely absent, prior to establishment of the modern welfare state. In no case did social spending exceed 1% of GDP, a proportion that is lower than what the available data show for Italy, the Netherlands, and England.[41] The highest values of 0.84-0.97 and 0.54-0.63 were reached, respectively, in Sigüenza (due in no small part to pressure exerted by ecclesiastical groups) and Guadalajara, whose survival depended on the Royal Manufacturing Factory.

Only ten places budgeted for health and charity expenditures. Among those ten, only four reported payments made explicitly for a general physician's wage: Sigüenza (6,000 *reales*), Guadalajara (4,400 *reales*), Torredonjimeno (400 *reales*), and Montefrío (330 *reales*); the other six towns (e.g., Paredes de Nava) paid only for surgeons and some midwives. Most hospitals did not have their own resources and, even in the best cases, offered little more than beds. Similar statements can be made with respect to education expenses. Ten places dedicated part of their income to education, although in widely different amounts: Guadalajara budgeted 2,286 *reales* for two teachers at the Society of Jesus school; Sigüenza (university city) offered 1,100 *reales* for a teacher; Paredes de Nava dedicated 220 *reales*, plus salary in

[40] Author calculations based on data in A. MATILLA, *La Única Contribución*, cit., pp. 531-543.

41 B. VAN BABEL, A. RIJPMA, *How important were formalized charity and social spending before the rise of the welfare state? A long-run analysis of selected Western European cases, 1400-1850*, in "Economic History Review", 69, 2016, n. 1, p. 180; P.H. Lindert, *Poor relief before the welfare state: Britain versus the continent, 1780-1880*, in "European Review of Economic History", 2, 1998, pp. 101-140.

kind (wheat), to a teacher of children and 300 *reales* to a teacher of girls; Casar, 432 *reales* in kind; Cevico, 180 *reales* plus salary in kind for a teacher of children; Montefrío, 110 *reales*; Cúllar Baza, 100 *reales* for another teacher; and Resoba, 10 *reales* for a teacher. So in light of the poverty threshold level, it is not surprising that the Úbeda *Respuestas Particulares* refer to a schoolteacher as "poor". In sum: our sample communities provided hardly any public education; and access to a quality private education was reserved for high-income families. Such an environment undoubtedly hindered social mobility.

5. CONCLUSIONS

Measuring inequality of income in pre-industrial societies is difficult because there are so few sources of historical data that combine information about individual incomes and sociodemographic variables. This chapter contributes to that literature by examining income inequality in the former Crown of Castile. Our study is based on a sample of more than 27,000 households – the equivalent of some 109,000 inhabitants – as described in data that was extracted from the Ensenada Cadastre (the most complete census in Early Modern Europe) and that covers not only urban but also rural centers in the north, center, and south of the former Crown of Castile (Spain) during the mid-18th century. Our findings establish that inequality was greater in urban areas and in places, such as the Andalusian agro-cities of Úbeda and Motril, with relatively more inhabitants. There was less income inequality in rural areas, but they were characterized also by lower levels of per capita income than in the cities. The combination of income inequality and high poverty rates polarized society and led to conflict and social upheaval during periods of famine and episodes of inflation or deflation. Finally, we show that the relationship between income and social spending in pre-industrial Spain was weak or virtually nonexistent.

Our agenda for research based on the Ensenada Cadastre involves a more thorough analysis of five aspects in particular: (i) the effect of household composition on inequality; (ii) inequality when one controls for the household head's age; (iii) identifying the various sources of income and their respective impact on inequality; (iv) the relationship between human capital – as proxied by individual indicators of basic skills (literacy and numeracy) and occupational skills – and labor earnings; and (v) gender inequality.