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## Subjective well-being in Spain's decline

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## Subjective Well-being in Spain's Decline

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## Subjective Well-being in Spain's Decline\*

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### Abstract

Spain experienced economic decline from the 1570s to 1650, recovering gradually thereafter and only reaching its early 1570s per capita income in the 1820s. How did economic decline impact on people's perception of well-being and inequality? We provide an answer based on an unexplored source, the Bulls of the Crusade, an alms that, after 1574, was annually collected by the Spanish Monarchy in its territories, and that, to some material benefits, added spiritual benefits: plenary indulgencies that erased the penance for guilt after sinning. An inexpensive but fixed price alms was massively bought by those aged 12 and above. The number of bulls sold relative to the relevant population provides a measure of spiritual comfort and, hence, of subjective well-being. A subjective inequality measure, the ratio of the 8 Reales bulls sold, intended for wealthy and high social status people, to the 2 Reales bulls sold, intended for the common people, is also estimated. Our results suggest that subjective well-being deteriorated during the late sixteenth and early seventeenth century improving during its last third, while subjective inequality increased from 1600-1640 to fall in the third quarter of the century. Thus, improvements in subjective well-being were accompanied by a decline in subjective inequality.

JEL Codes: H27, I31, N33

Keywords: Subjective Well-being, Subjective Inequality, Spain, Economic Decline

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‘The constant interplay between action and perception should form an integral component of the study of a society "in decline"' (Sir John Elliott, 1977: 42)

## **1. Introduction**

The historiographical debate on the decline of Spain goes a long way back in time. More than 80 years ago, Earl Hamilton (1938: 169), noting that ‘it is impossible to date with precision the beginning of economic decline’, asserted, ‘It took Spain only a century (from the union of Castile and Aragon, in 1479, to the annexation of Portugal, in 1580) to attain political pre-eminence and only a century (from the death of Philip II, in 1598, to that of Charles II, in 1700) to fall into the rank of a second-rate power’. Quantitative historical research, inspired by Hamilton’s pioneering work, allows us to establish a more precise chronology today. After a century of sustained progress, Spain experienced an economic decline from the 1570s to 1650. It recovered only gradually thereafter, but the peak per capita income of the early 1570s was not reached again until the 1820s (Prados de la Escosura et al., 2022).

But what do we know about the impact of this economic decline on people’s welfare? Well-being is increasingly seen as a multidimensional phenomenon that goes beyond GDP. Health, education, political voice, civil liberties, personal security, and material well-being are deemed indispensable components of well-being (Deaton, 2013). Lately, subjective well-being, whose main facets are emotional well-being and life evaluation (Kahneman and Deaton, 2010), has become central to research on welfare, with happiness the most fashionable topic in Google’s Ngram database (Barrington-Leigh, 2022).

Whether there is a positive association between GDP per capita and life satisfaction has been a recurrent question in the economic literature since Easterlin (1974) claimed that no statistically significant relationship could be established between them (Clark, 2018). Yet, this relationship has never been tested in a historical context.

In this paper, we look at the subjective well-being of people living through the economic decline of Spain on the basis of their spiritual satisfaction in a society dominated by religion. And we do so by avoiding the imposition of values and ideas of the present on a society of the past.

The unexplored source we use, the Bulls of the Crusade, is an alms that, after 1574, was annually collected by the Spanish Monarchy in its territories. In addition to some material benefits (consuming meat and other goods during times of the year in which the Roman Catholic Church forbade it), acquiring the bull provided significant spiritual benefits: plenary indulgencies that erased the penance for guilt after sinning, either in life or afterwards in the Purgatory. An unexpensive fixed price alms, the bull was massively bought by the population aged 12 and above. The number of bulls sold relative to the relevant population provides a measure of spiritual and, hence, subjective well-being in a very religious world.

It is worth bearing in mind the central role of religion in people's life in Hapsburg Spain. In a deeply religious society, being part of the same faith provides a sense of purpose, meaning, and connection to others, which contributes positively to overall well-being. Surely there were people who acquired the bull not so much because of their deep religious beliefs, but because of social pressure. But either because they believed in the spiritual benefits the bull had for them, or simply because they were part of the same community, acquiring the bull would represent an increase in general subjective well-being.

Different conditioning factors of the demand for bulls can be thought of. Bulls could be seen as an insurance, with the consumers of bulls increasing their demand when they felt worse off because their perception of future risk increased. Likewise, if we assume an even distribution of sin over a lifetime, individuals may have decided to buy more bulls when they were better off. However, it is not the demand of bulls but the interaction between demand and supply -the latter conditioned by state capacity, namely, the ability of the Monarchy to distribute the bulls throughout Spain-, that is, the actual amount of bulls sold, what is the object of our research. And whatever the individual motives behind the purchasing of the bull, it provided spiritual satisfaction to the person who acquired it and, hence, subjective well-being.

Moreover, two different bulls were available, the regular 2 Reales bull and the 8 Reales bull, the latter intended for those wealthy and of high social status. Albeit the social pressure to procure the appropriate kind of bull, acquiring one type of bull or another was an individual choice. Thus, the proportion of those buying the 8 Reales bulls provides information on the proportion of the population that included itself in

the top of the income distribution. In other words, it presents us with a subjective measure of inequality.

Our results suggest that subjective well-being deteriorated during the late sixteenth and early seventeenth century and improved during its last third. Interestingly, the association between subjective well-being and GDP per capita appears weak, turning negative at higher income levels. Moreover, subjective inequality increased in the first four decades of the seventeenth century to fall in the third quarter of the century. Thus, except in the 1640s, when both contracted, the gains (losses) in subjective well-being were accompanied by a fall (rise) in subjective inequality over the almost 130 years considered.

The paper is organized as follows. A description of the source opens the paper, and a discussion of the main features of the Crusade bull as a resource for economic history research follows. Then, the construction of homogeneous provincial series of bulls is presented. The next sections are dedicated to assessing subjective well-being and inequality. Some concluding remarks close the paper.

## **2. The Bull of Crusade in Spain**

The origin of the Crusade Bull in Spain can be traced back to the indulgences and spiritual graces that the Church granted in the Middle Ages to those who risked their lives and wealth to go and fight in the Holy Land. In time, these indulgences were extended to those who fought the infidels in the Mediterranean, including the Iberian Peninsula.<sup>1</sup> Those who did not go to fight could also enjoy the same spiritual graces by paying alms to help finance the war (Fernández Llamazares, 1859; Goñi Gaztambide, 1958).<sup>2</sup> Although these were spiritual benefits, the management of their sale and distribution remained in the hands of the monarchy.

This type of concession from the Church to monarchs was widespread in Europe from the 11th century onwards, but its real boom came with the printing press in the 15th century. Printing the bulls on paper and hand delivering a copy to each

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<sup>1</sup> The first bulls received by the Spanish kings were mere extensions of the indulgences granted to the Crusaders.

<sup>2</sup> Initially, war against the infidels was the only purpose for which the money could be used, but over time, it was also used to finance the construction or repair of parish churches, cathedrals, and the support of charitable or benevolent works and institutions.

faithful allowed them to be distributed and collected individually. The bull was personal and non-transferable because only those whose name was written on the back would enjoy these spiritual graces. The printing press facilitated the sale of bulls and made it possible to increase the collection.

The Church had been selling indulgences in Spain since the 13th century, ceding part of what they collected to the Crown. However, the excellent reception the population gave to the indulgences preached between 1479 and 1492 to promote the conquest of Granada aroused the monarchy's interest in controlling this income in full. (Serrano and Gómez Vozmediano, 2013). The Catholic Monarchs asked the Church for a monopoly on the sale of indulgences and extended their preaching to Crown of Aragon, Navarre and the American territories (Benito Rodríguez, 2002; Grossman Querol, 2017; Martínez López-Cano, 2013). After the conquest of the Nasrid kingdom of Granada, the Spanish monarchy continued to demand the financial help of the Church: first, to keep the Turks away from their possessions in the Mediterranean, then, to stop the Berbers in North Africa and, later, to eradicate the Protestant heresy in Europe (Ulloa, 1977). The Pope yielded to pressure and, in the course of the 16th century, ceded to the Crown part of the revenues they collected in Spain. In 1523, the kings became Masters of the Military Orders in perpetuity, acceding to all their patrimony and tithes. In 1534 this aid was consolidated into a fixed contribution destined to maintain a certain number of galleys in the Mediterranean. Pope Pius IV transformed this sporadic concession into a stable and regular transfer, the *Subsidio*, in 1562, which was usually renewed every five years (Navarro Miralles, 1981; Catalán Martínez, 1997; Ulloa, 1977).<sup>3</sup> Five years later, in the midst of the dispute over the continuity of the Crusade bull, the Pope added a new contribution: the *Excusado*. In this case, the funds would come from the tithes collected in the richest parishes of each diocese. To prevent the Monarchy from controlling ecclesiastical taxation, the object of taxation was replaced by a fixed amount for a five-year period, renewed in the same way as the *Subsidio* (Carpintero Aguado, 1989).<sup>4</sup> These two contributions, *Excusado* and *Subsidio*, plus the Crusade contribution, constituted the revenue known as the *Tres Gracias* (Three Graces) in the Monarchy's annual budget.

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<sup>3</sup> It was of approximately 420,000 ducats per year.

<sup>4</sup> 250,000 ducats per year in this case.

Unlike in England and the rest of Europe, where the sale of indulgences was suppressed by Pope Pius V (1567), it was consolidated in Spain. Despite widespread criticism of the Crusade Bull from the beginning of the 16th century, sparked by Martin Luther's Ninety-five Theses (1517), all attempts to put an end to it came up against the strength and diplomatic influence exercised by Philip II in defending it. The Turkish threat, the need to form the Holy League and pay for the subsequent Battle of Lepanto were arguments skilfully used by the King of Spain to persuade the Pope to grant the bull again.



Figure 1. imagen of a Bull of the Crusade.

From 1574 onwards, the bull became valid annually, which increased its collection and attracted the interest of many financiers to take over its management.<sup>5</sup> In addition, the Crown managed to extend the number of years of each papal

<sup>5</sup> Previously, the bull and its indulgences were valid for three years.



concession from three to six years, and competition from other types of bulls was definitively eliminated Ulloa (1977: 575) (Figure 1).<sup>6</sup>

For the Monarchy, the Crusade bull was always an extraordinary revenue because it never ceased to be a temporary ecclesiastical concession (Álvarez-Nogal and Chamley, 2014: 198). For this reason, its highest official was always a cleric, the General Commissioner of the Crusade, although its organisation was subordinate to secular royal officials and bankers linked to the Crusade and Treasury Councils.

### **3. The Sale of Bulls**

As it was an alms whose collection was ceded by the Church to the Monarchy, it was always managed separately and independently from the rest of the royal revenues. The Monarchy sought the most efficient way of doing so, trying to minimise administration costs. The formula chosen, which was common in some taxes, was to place their distribution in the hands of agents, who had to bear the initial costs of printing and distributing the bulls and transfer the proceeds to the royal coffers after deducting their commission, approximately 10% of the total collected. If all the other management costs are added up, the preaching of the bull accounted for 20 to 25 per cent of the proceeds.

These intermediaries, generally bankers, were named Treasurer General of the Crusade. Their relationship with the Monarchy took the form of a contract known as a 'Asiento de Cruzada', valid for the duration of the papal concession and renewable if complied satisfactorily. The Treasurer General resided in Madrid and depended on the Crusade Council, but had the power to appoint the treasurers for each diocese. At the end of his contract, he delivered a report with the number of bulls sold in each diocese.

The Royal Treasury outsourced the management, but reserved for itself the task of supervision. The *Contaduría Mayor de Cuentas*, the institution in charge of auditing all those who handled the Monarchy's money, meticulously checked the quality of the management and handling of the money collected. The royal officials compared the information provided by the Treasurer General, first against his contract

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<sup>6</sup> The so-called "buletas" and "jubilees" were indulgences granted by some dioceses and monasteries to raise funds

and then against the reports of the Crusade accountants. The result of this accounting review was then transmitted to the Crusade and Treasury councils.

The Monarchy established the sale procedure, but the Treasurer General was in charge of implementing it. Every year he was given instructions which he had to apply rigorously.<sup>7</sup> The organisation of the Crusade Bull is a reflection of the administrative functioning of the Royal Treasury, which demonstrates the high degree of institutionalisation achieved. An efficient procedure was sought to eliminate fraud in the sale of indulgences. The preparation of reports in triplicate, together with registers, made it possible to control the sale and collection of alms. The continuous intervention of notaries to monitor and attest to the acts carried out reveals the Crown's interest in taking care of every detail of the process. The organisation of the sale and control of the bulls was improved during the first two thirds of the 16th century, taking definite shape from 1571 onwards, to remain practically unchanged until 1850.

Four types of Crusade Bulls were sold every year: *vivos* (the living), *difuntos* (the deceased), *composición* (damage compensation) and, since 1625, *lacticinios* (lacticinium, for clerics only).<sup>8</sup> The most important and most widely sold bull was the one for *vivos* (the living), intended for the entire population, with the exception of children and the extremely poor (*pobres de solemnidad*), as well as the Moorish (*moriscos*).<sup>9</sup>

The bull of *vivos*, the most important one and on which we focus our research, granted to those who acquired it a series of indulgences and privileges that were highly appreciated by the population. The indulgences forgave guilt and exempted from the punishment due for all sins committed, thus reducing the number of days of Purgatory. As Elliot (1977: 47) put it, 'seventeenth-century Spaniards, like their contemporaries in other parts of Europe, operated within a narrow theological framework bounded by sin and grace, punishment and reward'. Among the main material privileges was the possibility of eating meat, eggs and dairy products every

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<sup>7</sup> For one of the many examples, see Archivo General de Simancas (AGS), CMC 2E, 909. Instruction, 1578.

<sup>8</sup> It allowed clergymen to consume eggs and dairy products.

<sup>9</sup> Sometimes the poorest also received them because others bought the bull for them (Mejía, 2002: 77).

fasting day of the year, even in Lent, as well as choosing a confessor to be forgiven for any sin (Fernández Llamazares, 1859).

As it was an alms, in principle the price of the bull could not be assessed and the amount was to be left to the discretion of the person acquiring the bull. However, the Crown needed to be able to estimate its return and decided to establish a price that was affordable for all and that could also be paid in a flexible manner, so that no one would be excluded. In the *asiento* signed in 1518, the price of the bull for the living and the dead was set at two silver Reales.<sup>10</sup> This price remained unchanged ever since.<sup>11</sup> When in the seventeenth century the *vellón* (copper coin) came into circulation, the General Commissioner forbade its use to purchase bulls, always requiring payment to be made in silver. However, when it was realised in 1624 that a significant part of the population did not have access to silver coins, the Crown, at the request of the Treasurer General, allowed the most popular bulls, those of *vivos* (the living) and *difuntos* (the diseased) to be paid in *vellón*, with a premium to cover the cost of the exchange to silver. The premium fluctuated over the years, depending on the devaluation of the *vellón* coin on the market, in most cases between 18 and 30 per cent of its value in silver, but on specific occasions, such as in 1627 and 1628, the premium reached 50 per cent.<sup>12</sup>

Furthermore, at the express wish of Pope Pius V, from 1571, the bull of *vivos* (the living) had two different prices, depending on the income of the person acquiring it, 2 and 8 silver Reales.<sup>13</sup> The 8 Reales bull (bull of the illustrious') was intended for those with greater wealth and social status. So that there could be no doubt, preachers had to explain in their sermons which the main recipients were, although they could be purchased by anyone who wished to do so:

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<sup>10</sup> AGS, CMC 1E, 535. Seat, 27/12/1518.

<sup>11</sup> There were critics who argued that so many good spiritual graces could not be granted for so little money (Goñi Gaztambide, 1958).

<sup>12</sup> AGS, CRU, 464, 465, 466, 478.

<sup>13</sup> In the first half of the 16th century there were some precedents for this differentiation, but they were not consolidated. In 1538, *bulas* of *vivos* were sold for 2 reales, 4 reales, and 1 florín. AGS, CRU, 448. Relación de Valladolid. Between 1548-1551 a distinction was made between 4 ducats, 1 ducat and 4 reales. This diversity of prices had no clear or homogeneous criterion, and their sale was very limited until 1571.

"cardinal primates, patriarchs, archbishops, bishops and abbots who have episcopal jurisdiction and dukes, marquises, counts, major commanders, priors of the order of San Juan, Viceroy, captains general, and ambassadors and presidents and those of the councils and mayors of the house and court of his Majesty and judges of the Chancellery and royal audiences and mayors and prosecutors of the same, and accountants and lieutenants and auditors, and prosecutors of the Treasury and accounts, and his Majesty's secretaries, and inquisitors and commanders, commissioned of all military orders and lords of vassals, and the wives of the seculars of all the aforementioned states, even if they are widows".<sup>14</sup>

Although the Crusade Bull was not a tax but an alms that was paid voluntarily, this did not prevent the Royal Treasury from organising the sale of bulls so that they could reach the entire population and thus maximise its revenue. To this was added the social pressure exerted by the residents themselves and the local authorities to ensure that no one was left without purchasing their annual bull (Ojeda Nieto, 2000; Fernández Chaves, 2009). The fact that the price was not so high as to require the use of coercive methods, nor was there ever strong resistance to acquiring it, explains the success of the bulls from the point of view of the collection. Aside from specific conflicts, the fact is that the Crusade Bull always enjoyed a wide and solid demand among the population, reflected in a wide extension of sales among the local population (Mejía Asensio, 2002).

A feature of the Bull of Crusade was its transversal nature. Unlike many other mercies granted by the Crown, ecclesiastical indulgences were available to anyone, regardless of their social and economic status. The bull offered spiritual graces and some material benefits to all in a society used to privilege as an expression of social status. Moreover, the bull represented a paradox. While the payment of taxes was considered vexatious, befitting those who could not contribute to society by prayer or

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<sup>14</sup> "Cardenales primados, patriarcas, arzobispos, obispos y abades que tienen jurisdicción episcopal y duques, marqueses, condes, comendadores mayores, priores de la orden de San Juan, Visoreyes, capitanes generales, y embajadores y presidentes y los de los consejos y alcaldes de la casa y Corte de su Majestad y oidores de las Chancillerías y audiencias reales y alcaldes y fiscales dellas, y contadores mayores y tenientes y oidores, y fiscales de las contadurías mayores de Hacienda y cuentas, y secretarios de su Majestad, e inquisidores y comendadores, encomendados de todas las ordenes militares y señores de vasallos, y las mujeres de los seglares de todos los estados ya dichos aunque estén viudas". AGS, CRU, 454. Instrucción 1572, n. 10.

the sword, acquiring the bull allowed everyone to enjoy the same graces and privileges. Thus, the acquisition of the bull provided a double satisfaction to the purchaser, both material - being able to consume certain products that without the bull would have been a sin- and subjective, by obtaining indulgences that suppressed the penance for guilt in life or, if dead, in the Purgatory.

#### **4. The Bull of the Crusade as a Research Source**

Despite the importance of this revenue for the Monarchy and the abundant documentation that has been preserved in different archives, the Crusade Bull has scarcely been studied. Most of the works published between the sixteenth and nineteenth centuries focus on justifying its existence with the intention of promoting its sale. Some publications explain its administrative organisation, the legal and canonical aspects or the pontifical concessions themselves, but they barely deal with its economic dimension (Argomanas, 1548; Rodríguez Lusitano, 1618; Pérez de Lara, 1610; Forcelledo, 1833; Fernández Llamazares, 1859; Goñi Gaztambide, 1958). Recently, after compiling the number of bulls sold annually in the seventeenth century, Ojeda Nieto has used these figures to obtain population estimates (Ojeda Nieto, 2000, 2004, 2006).

In our research we use information on the number of bulls sold yearly between 1574 and 1704 from the accounting documentation on the Crusade kept in the *Archivo General de Simancas* (AGS). Gathering data on the bulls sold at the regional level has been a challenge, involving reading and checking more than 24,000 pages of accounting books and ancillary documents. The most important material used to construct the series of this research comes primarily from the AGS sections of *Consejo de Cruzada*, *Contaduría Mayor de Cuentas*, and *Tribunal Mayor de Cuentas*.<sup>15</sup>

Every year, the accountants of the Royal Treasury checked the number of bulls that had been sold during the previous year in each territory, cross-checking the information provided by the general treasurer with that offered by the printers and

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<sup>15</sup> AGS, Consejo de Cruzada (CRU), 436, 437, 438, 446, 448, 454, 456, 458, 459, 461, 462, 463, 464, 465, 466, 478, 486, 489 and 521. Contaduría Mayor de Cuentas 1ª época (CMC 1E), 535. Contaduría Mayor de Cuentas 2ª época (CMC 2E), 903, 909, 911, Contaduría Mayor de Cuentas 3ª época (CMC 3E), 14, 899, 1045. Tribunal Mayor de Cuentas (TMC), 157, 166, 175.

the receipts of the private treasurers who were in charge of collecting and distributing them. Each printed copy was tracked, ensuring that, if it had not been sold, the bull had been destroyed. In compiling the data provided by the documentation, we have checked that they coincide with reports that were handled by all the bodies involved in the management.<sup>16</sup>

A distinctive feature of this source is its broad temporal and geographical coverage. The bull was sold for nearly three centuries, practically uninterruptedly, following the same rules, something exceptional in the Early Modern Age. This is certainly not the case with taxes. The second advantage is its geographical scope. Unlike other Monarchy revenues, those of ecclesiastical origin were collected throughout the Spanish territory, regardless of the borders of its different kingdoms or their particular institutions and privileges. This makes the bull of the Crusade one of the few revenues of the Royal Treasury for which homogeneous data are available for the whole of Spain during the Ancien Régime, including not only the Crown of Castile but also the territories of the Crown of Aragon and the kingdom of Navarre.<sup>17</sup>

However, the Bull of the Crusade also has some shortcomings. It is an ecclesiastical source that reflects the territorial demarcations of the bishoprics and therefore does not always coincide exactly with the civil, administrative division. Moreover, as it was an alms, not a compulsory tax, its sale depended on demand, the size of the population and its purchasing power, but also on the state's ability to facilitate its purchase. Wars, political and social conflicts, epidemics and any event that disrupted the market or impeded the work of the preachers hindered their distribution. This meant that, at certain times, part of the population could not buy the bull, even if they wanted to do so. Another possible obstacle is fraud, although while in the case of taxes, it was mainly the taxpayers who committed it, in the case of the bull, fraud was committed by its managers. However, throughout the first half of the

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<sup>16</sup> For example, in an accountants' report, dated 21 February 1653, on the amount that could be collected for the *Tres Gracias* in Catalonia, it was pointed out that, in 1638, the amount of bulls actually sold, after deducting those unsold and destroyed, was 356,923 bulls. This is the same figure that appears in the sworn account with which the final account for that year was drawn up. AGS, CRU, 521. Report by Francesco de Urrutia, 21/2/1653. AGS, CRU, 465. Relación jurada, Juan de Alegría Peñalosa and Francisco Bandrés de Abarca.

<sup>17</sup> The Crown of Aragon included Aragon, Catalonia, Valencia and the Balearic Islands. The Crown of Castile included all of peninsular Spain, except Navarre and the territories of the Crown of Aragon, plus the Canary Islands.

sixteenth century, the Monarchy improved the system of sale and its administrative control. The centralisation of the sale process was more efficient than that applied in the collection of many taxes.

## **5. Constructing Homogenous Bulls Series**

In order to derive the actual number of bulls sold in each territory each year we have relied on the general treasurer's reports to the accountants of the Royal Treasury. We faced two options: collecting the totals presented in the yearly summary reports, or compiling individual bulls printed for each bishopric and subtracting the unsold bulls. We chose the latter. The sum of the bulls sold in each territory provides the total for each region and, then, for Spain.

The yearly evidence on bulls from 1574 corresponds to religious provinces and does not always match the definition of civil administrative provinces. Our first step has been producing homogeneous series for administrative regions in order to make them comparable to the available population estimates. We checked whether the yearly series were complete and, occasionally, found gaps in the records. The number of missing observations was small and we filled them by extrapolating the results from neighbouring provinces whose series presented similar behaviour.

We observed that, occasionally, data for a religious province appear under another's name since they shared the same administrator (local treasurer). For example, in Andalusia, bulls for Cadiz (1596-1657) and Jaen (1574-77) are included within Seville and Cordoba's series, respectively. In Cartagena (Murcia), the number of bulls included those sold in Orihuela (Valencia) from 1619-1682, so we detracted those bulls from Murcia and added them up to Valencia.

For some regions, bulls records began later. For example, for the Balearic Islands and Navarre they are only available from 1590 and 1603, respectively. In the case of the Balearics, however, the bulls for 1574-77 and 1579-1589 were included within those for Valencia. In order to obtain yearly series for Balearics from 1574-89, we firstly calculated the ratio of Balearics bulls to the total bulls for Valencia plus Balearics for 1578 and 1590. Then, we applied this ratio for 1578 to the number of Valencia bulls from 1543-77 to derive the number of bulls sold in Balearics during these years. Next, we interpolated log-linearly the ratios for 1578 and 1590 and

multiplied the resulting yearly ratios by the number of Valencia bulls to derive Balearics bulls from 1579-1589. Next, we adjusted Valencia bulls by detracting the number of Balearics bulls from its total.

We observed that, in the religious provincial distribution, Calahorra was included within Aragon but, from an administrative perspective, it belonged partly to Navarre and partly to Old Castile (specifically, to present-day Rioja). We proceeded, hence, to distribute Calahorra's bulls between Navarre and Old Castile. In the case of Navarre, we noticed that once its series started in 1603, Calahorra's bulls declined by a similar figure to that for Navarre. We, then, estimated the average ratio of Navarre bulls to the total bulls for Navarre and Calahorra over 1603-1622, and multiplied it by the number of Calahorra bulls to derive Navarre bulls from 1574-1602.<sup>18</sup> The difference between total Calahorra bulls and those estimated for Navarre was assigned to Old Castile.

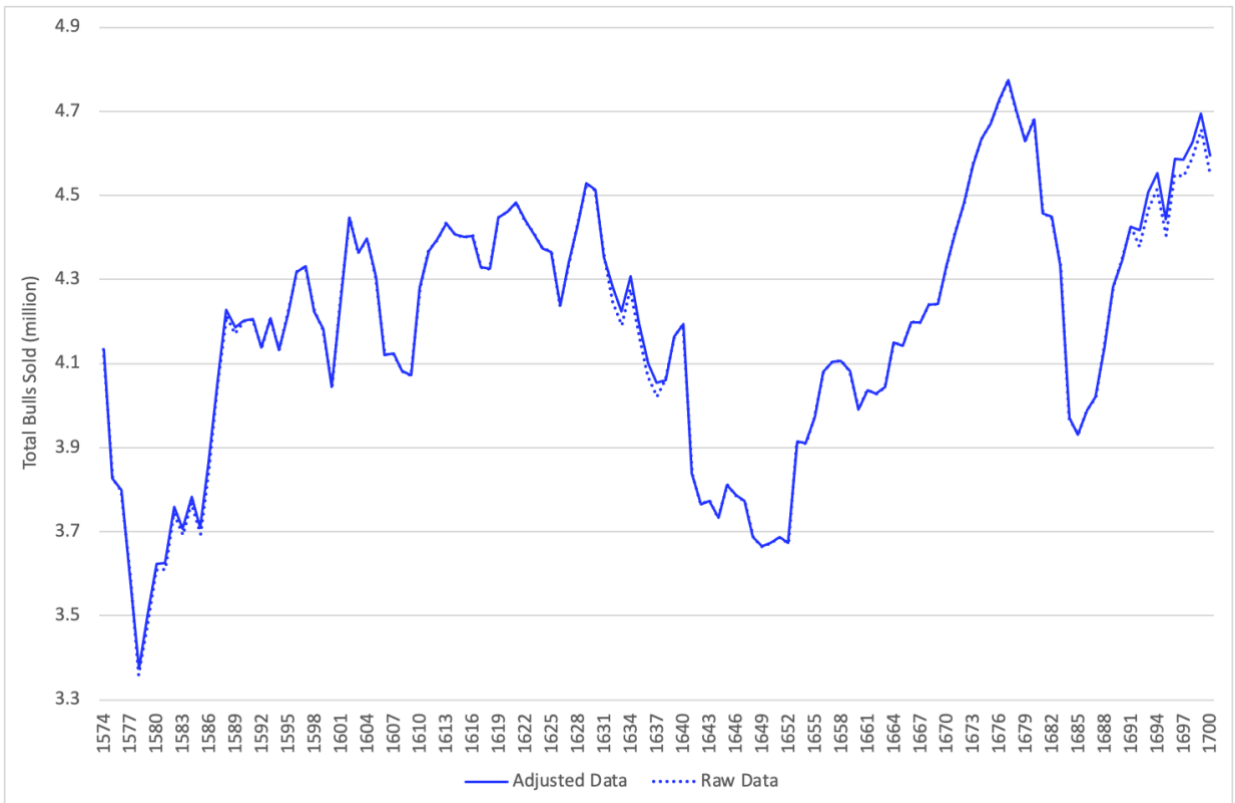
In the case of the Canary Islands, the series started in 1574, stopped after five years, resumed in 1590, and was discontinued again from 1632-1637, so we needed to fill the missing years, a task that required us to make some assumptions. We found that the number of bulls sold in 1577 and 1590 were identical, as they were in 1631 and 1638, so we accepted the figures for 1577 and 1631 for 1578-89 and 1632-37, respectively. Also, given that the number of bulls for 1691 and 1710 was very close, we accepted its arithmetic average for the years 1692-1700.

The result was a set of bulls series for the Crown of Aragon -encompassing Aragon, Balearic Is., Catalonia, and Valencia-, the Crown of Castile -that is, Andalusia, Asturias, Canary Is., Extremadura, Galicia, Murcia, New Castile (present-day Castilla-La Mancha and Madrid), and Old Castile (present-day Castilla-Leon, Cantabria, Rioja, and the Basque Country)-, plus the Kingdom of Navarre. Their addition provided the number of total bulls for Spain.

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<sup>18</sup> The average ratio for 1603-22 was 0.3154 (std. dev. 0.0023), for 2 Reales bulls, and 0.6289 (std. dev. 0.0457) for 8 Reales bulls.



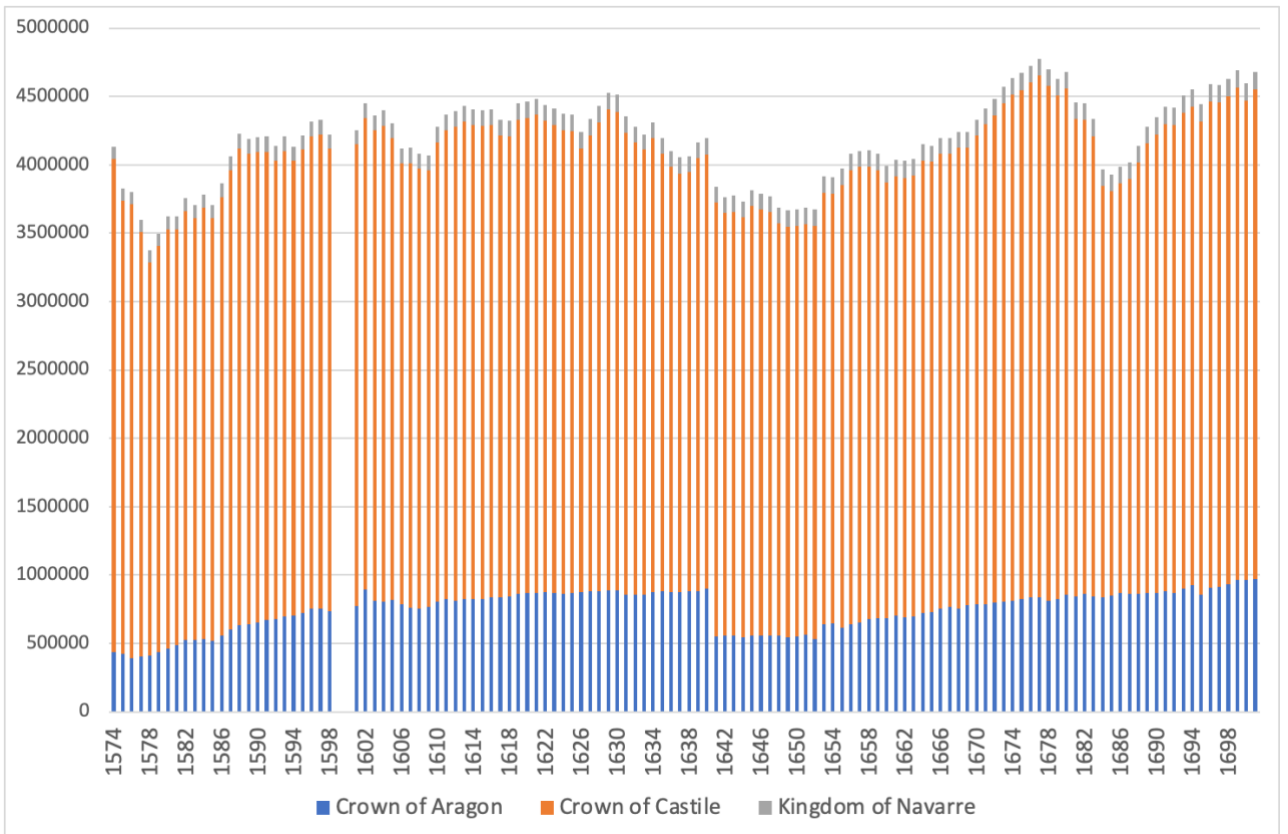


**Figure 2. Total Bulls Sold: Adjusted and Raw Data, 1574-1700**

Source: See the text.

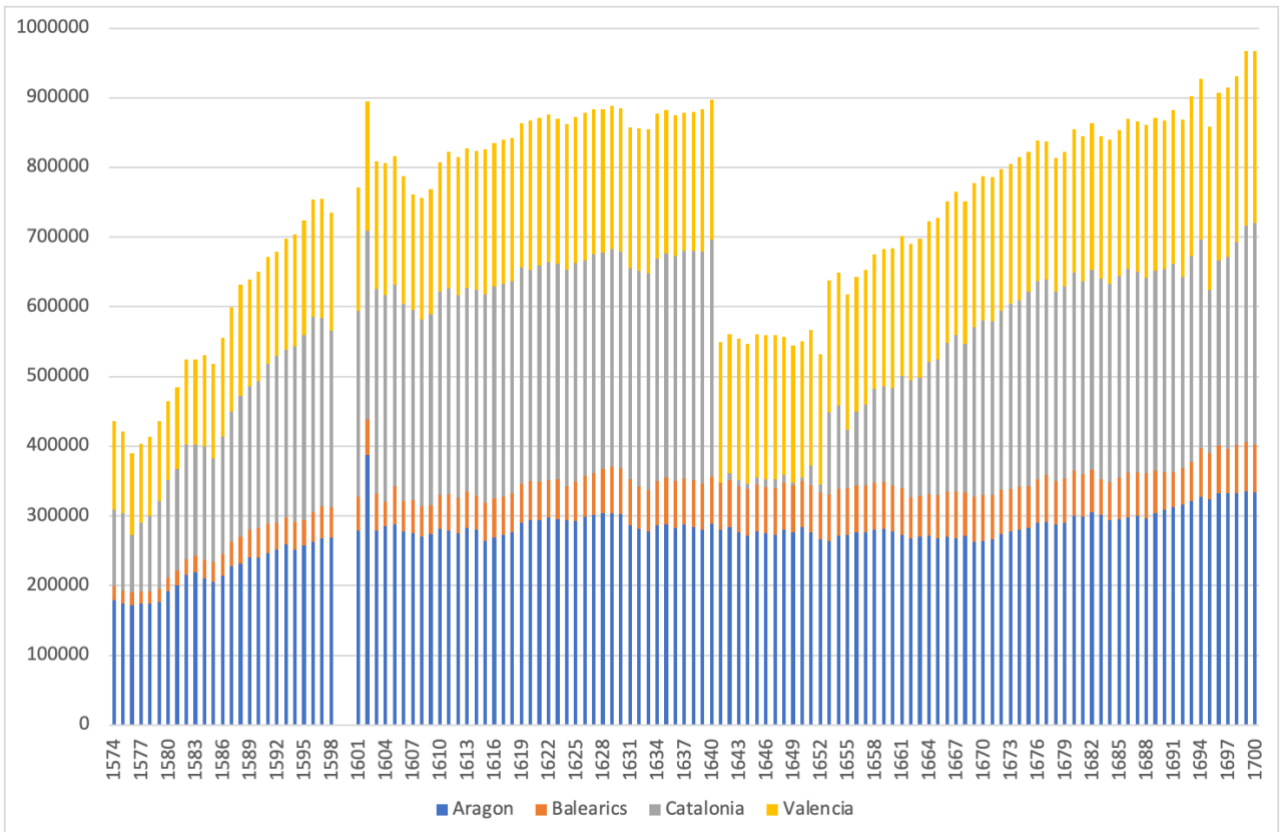
Figure 2 presents the total number of bulls sold for Spain, with and without adjustments for missing observations and their difference, resulting from our estimates for the Canaries, are negligible. A breakdown of total bulls by the Crowns of Aragon and Castile and the Kingdom of Navarre (Figure 3) shows that the main contribution over time came from Castile and that Aragon's share fell from 1641-52.<sup>19</sup> A look at the regional composition of bulls in the Crown of Aragon reveals the sharp contraction in Catalonia from 1641, especially deep up to the early 1650s (Figure 4). In the Crown of Castile, Old and New Castile and Andalusia appear as the main contributors. (Figure 5).

<sup>19</sup> It is worth noting that a geographical breakdown of the data for 1599-1600 is not available.



**Figure 3. Breakdown of Bulls: Crowns of Aragon and Castile and Navarre 1574-1700**

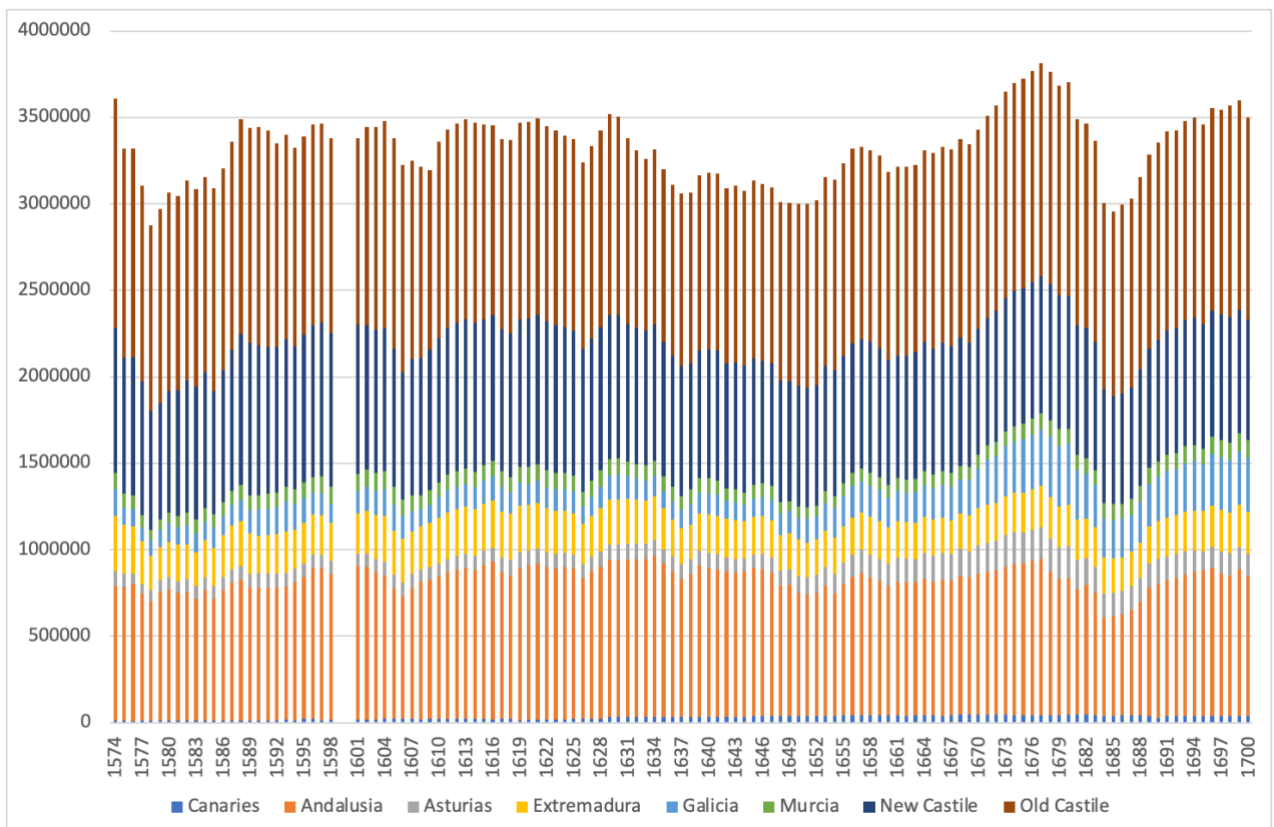
Source: See the text



**Figure 4. Breakdown of Bulls: Crown of Aragon, 1574-1700**

Source: See the text

The expansion of the sale of bulls in the Crown of Aragon was much more intense than in the Crown of Castile between 1574 and 1625, especially in Catalonia and Valencia. However, when the Catalan Revolt started in 1640, sales collapsed almost entirely in this region as most of the warfare took place in the Crown of Aragon (Figure 3). Sales in the Crown of Castile were not affected by the conflict, except on the border with Portugal because of warfare, but to a lesser extent, and in Andalusia as the result of a severe plague in the late 1640s (Figure 4).



**Figure 5. Breakdown of Bulls: Crown of Castile, 1574-1700**

Source: See the text

The debasement of the *vellón* currency in the Crown of Castile affected the sale of bulls at different junctures during the seventeenth century, and their effects on markets were especially intense in 1626-1628 and 1680-1686 when the silver premium reached its highest value affecting negatively bull sales. The Crown of Aragon had a different monetary system from the Crown of Castile and did not suffer the inflationary or deflationary effects caused by monetary alterations. This can be confirmed by comparing the bulls sold in both Crowns for the two periods (Figures 3 and 4).

More informative is the comparison between the regional distribution of bulls and population at different benchmarks. The distribution of bulls broadly matches that of the population (Table 1). However, the share of bulls for the Crown of Aragon is smaller than that of the population, especially by the mid-seventeenth century (see their differential in cols. VII-IX). The Catalan revolt (1640-1652) mainly accounts for the shrinkage of bulls sold in the Crown of Aragon, also negatively affecting the sale of bulls in the Balearics. In the Crown of Castile, it is worth noting the comparatively lower share of bulls in Asturias, the Canaries and, especially, Galicia, which evidences the obstacle that distance, scattered settlement and rugged terrain represented for their sale.

**Table 1. Regional Shares of Total Population and Bulls Sold, 1591, 1646, and 1700 (%)**

	[I]	[II]	[III]	[IV]	[V]	[VI]	[VII]	[VIII]	[IX]
	Population	Population	Population	Bulls	Bulls	Bulls	(ln[IV/I])	(ln[V/II])	(ln[VI/III])
	1591	1646	1700	1591/95	1646/50	1696/1700	1591	1646	1700
<b>Aragon</b>	4.7	3.8	7.3	6.1	7.5	7.2	0.26	0.69	-0.01
<b>Balearics</b>	1.8	4.4	2.0	0.9	1.8	1.5	-0.65	-0.88	-0.32
<b>Catalonia</b>	5.5	5.6	7.1	5.9	0.2	6.3	0.07	-3.20	-0.11
<b>Valencia</b>	5.4	4.5	6.0	3.8	5.4	5.3	-0.36	0.18	-0.14
<b>K. of Aragon</b>	<b>17.3</b>	<b>18.3</b>	<b>22.4</b>	<b>16.6</b>	<b>14.9</b>	<b>20.3</b>	<b>-0.04</b>	<b>-0.20</b>	<b>-0.10</b>
<b>Andalusia</b>	16.0	16.0	19.7	18.7	21.0	18.0	0.16	0.27	-0.09
<b>Asturias</b>	2.0	4.8	2.0	1.9	2.4	2.7	-0.03	-0.69	0.33
<b>Extremadura</b>	6.8	5.5	5.1	5.5	5.7	5.2	-0.21	0.03	0.02
<b>Galicia</b>	7.6	12.1	11.1	3.7	3.3	6.6	-0.71	-1.30	-0.52
<b>New Castile</b>	17.2	13.9	12.5	20.2	18.9	15.6	0.16	0.30	0.22
<b>Murcia</b>	2.1	1.8	3.2	2.1	1.9	2.2	-0.02	0.04	-0.38
<b>Old Castile</b>	28.3	24.4	19.3	28.3	27.8	25.8	0.00	0.13	0.29
<b>Canaries</b>	0.8	1.2	1.7	0.4	1.0	0.8	-0.68	-0.17	-0.67
<b>K. of Castile</b>	<b>80.8</b>	<b>79.7</b>	<b>74.5</b>	<b>80.8</b>	<b>82.0</b>	<b>76.9</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>
<b>K. of Navarre</b>	<b>1.9</b>	<b>2.0</b>	<b>3.0</b>	<b>2.5</b>	<b>3.1</b>	<b>2.8</b>	<b>0.30</b>	<b>0.44</b>	<b>-0.09</b>

Source: Bulls, see the text; Population, Prados de la Escosura et al. (2022)

## 6. Assessing Subjective Well-being

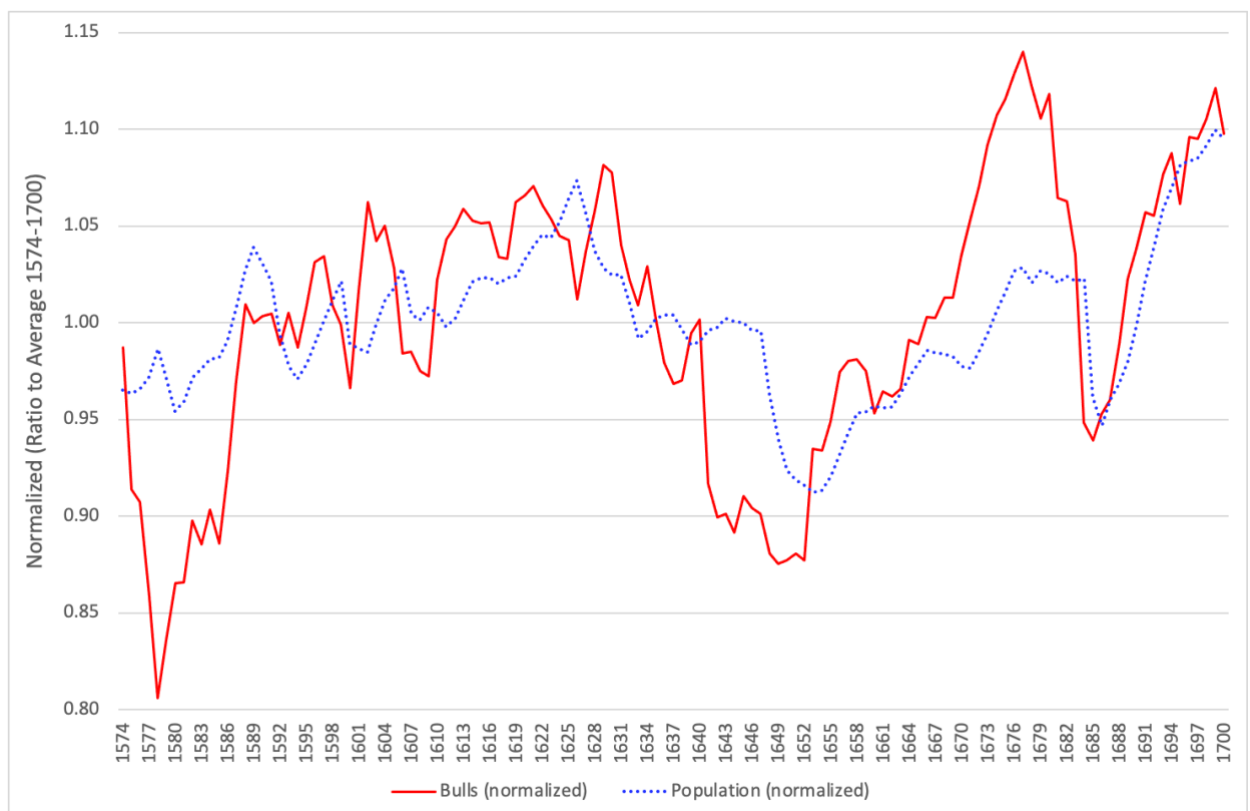
The purchase of the bull was compulsory for those aged 12 years and above who wanted to enjoy its benefits. Given its affordable price, we can presume that practically all of them bought the bull in 'normal' times, so the number of bulls sold moved in line with the population. However, this required an efficient distribution network and purchasing power on the part of the population. It is to be expected, hence, that the number of bulls sold would decrease during phases of economic hardship, social unrest and political turmoil, as well as during episodes of warfare on Spanish soil. Famines and pandemics had a significant impact on the sale of bulls, but also on mortality, so bulls and population may have moved in parallel during these outbreaks.

We argue that the contrast between the number of bulls sold and of potential buyers is informative on individuals' subjective welfare. Acquiring a bull allowed individuals to consume certain goods (meat, poultry, eggs, and dairy products) on days of the year which it was forbidden by the Roman Catholic Church, thereby increasing their material well-being. More crucially, the purchaser of the bull received indulgencies that provided spiritual comfort. In the Roman Catholic religion, unlike sin, which is forgiven in confession, guilt must be paid for by making a sacrifice in life or purified after death in Purgatory. The indulgence cleanses that guilt. That is, it subtracts time in purgatory if you have died or removes the need for penance if you are still alive. The Bull of the Crusade granted plenary indulgence that removed all guilt. However, since an individual could sin again afterwards, the need for indulgences always existed, so the best thing to do was to buy them every year. Acquiring the bull, therefore, provided subjective well-being.

In order to compare the number of bulls and potential buyers, we should previously estimate the latter, namely, the population aged 12 and above. Alas, population series by age cohorts are not available. The only yearly figures are those for the New Castile population aged 15 to 50, from 1586 onwards (Reher, 1991), although it is possible to compute the population 15 years and above from late eighteenth-century population censuses. According to the population censuses for 1768, 1787, and 1797, the share of the population 15 years and above varied within a narrow range, 0.6441 to 0.6724, with 0.6587 as the average; this figure is practically identical

to the average share of the population aged 15-50 in New Castile over 1586-1700, 0.6554 (with a standard deviation of 0.0264). These highly coincidental ratios reinforce the widely accepted view that, in pre-industrial societies, the age structure of the population was relatively stable.<sup>20</sup> We can, therefore, avoid estimating the relevant population and, instead, carry out a comparison between the normalized figures (that is, expressed relative to the average from 1574-1700) for the total of bulls sold and the total population.

Figure 6 compares the evolution of normalized bulls and population in the late sixteenth and seventeenth centuries showing that they match each other's trends but also exhibit substantial discrepancies in the short and medium run, with periods in which bulls fluctuations are more intense.



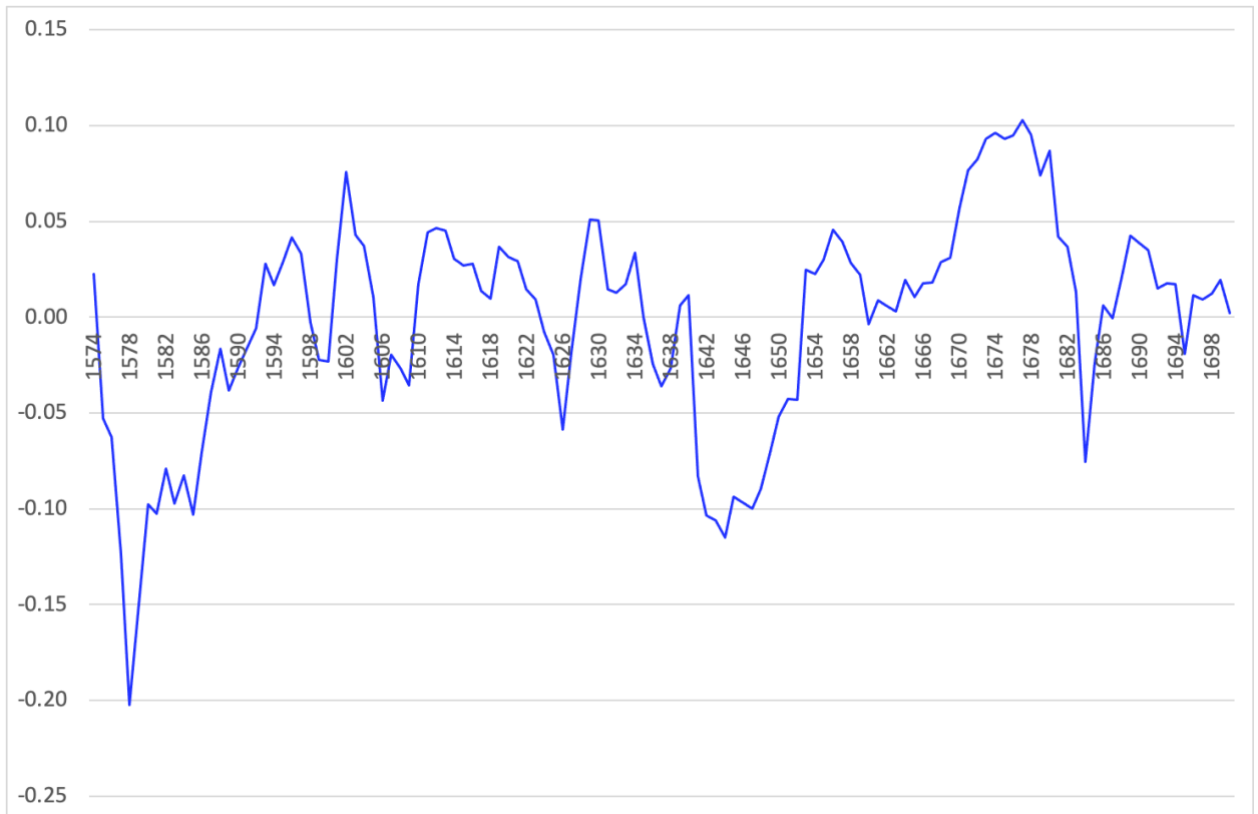
**Figure 6. Total Bulls and Population (normalized), 1574-1700**

Source: See the text.

More informative, Figure 7 presents the natural logarithm of the ratio of total bulls to population (both normalized). We argue that it provides a measure of (mostly)

<sup>20</sup> For seventeenth century Spain, Ojeda Nieto (2004: 95), estimated in 0.67 the share of population aged 12 and above.

subjective well-being from 1574-1700. We can identify 1575-86, 1606, 1626, 1641-50, and 1684 as years of declining subjective well-being (defined as those of more than 5 per cent negative change), while 1602 and 1670-82 emerge as years of rising well-being (more than 5 per cent positive variation).



**Figure 7. Subjective Well-being: Ratio Total Bulls to Population (normalized, logs)**

Source: See the text.

Disentangling why subjective well-being declined over these different periods is a daunting task as many elements conditioning the demand and supply of bulls are involved, but its chronology matches critical junctures.

Let us begin with the more evident ones. Famine mortality episodes, usually the result of pandemics and bad harvests, have been identified and dated (Pérez Moreda, 2017).<sup>21</sup> Our measure of subjective well-being shows that its decline in 1606, 1647-50, and 1684 coincided with mortality bouts. The fact that subjective well-being

<sup>21</sup> Pérez Moreda (2017: 54) provides a detailed chronology of famine mortality episodes, both for internal and the whole of Spain in which the years 1591-95, 1599-1600, 1605-07, 1615-16, 1630-31, 1647-52, 1659-62, and 1684 represent the main outbreaks.

only fell in a few famine mortality episodes confirms the intuition that the numbers of bulls sold and the population moved in line during these outbreaks.

Internal political turmoil and war on Spanish soil occurred during the seventeenth century's central decades. The Catalan Revolt, both a domestic conflict in Catalonia and a conflict between Catalonia, France, and the Spanish Monarchy, and the early phase of the Portuguese War of Restoration (1640-68) undoubtedly contributed to the contraction of subjective well-being.

However, neither famine mortality outbreaks nor the war on Spanish soil seems to underlie the well-being contraction of 1575-86 and 1626. The fall in subjective well-being during 1575-86 can be related to the credit crisis provoked by the Monarchy. The King maintained a parallel negotiation with the cities and international bankers. The goal was to obtain a higher fiscal contribution from the cities and much better conditions in the short-term loans from the bankers. Before starting a ruthless negotiation, the King decreed the stop of all payments to his bankers, freezing credit markets in the Crown of Castile (Álvarez-Nogal and Chamley, 2016). As a result, commercial networks were shattered for months, even years, with devastating economic and social consequences.

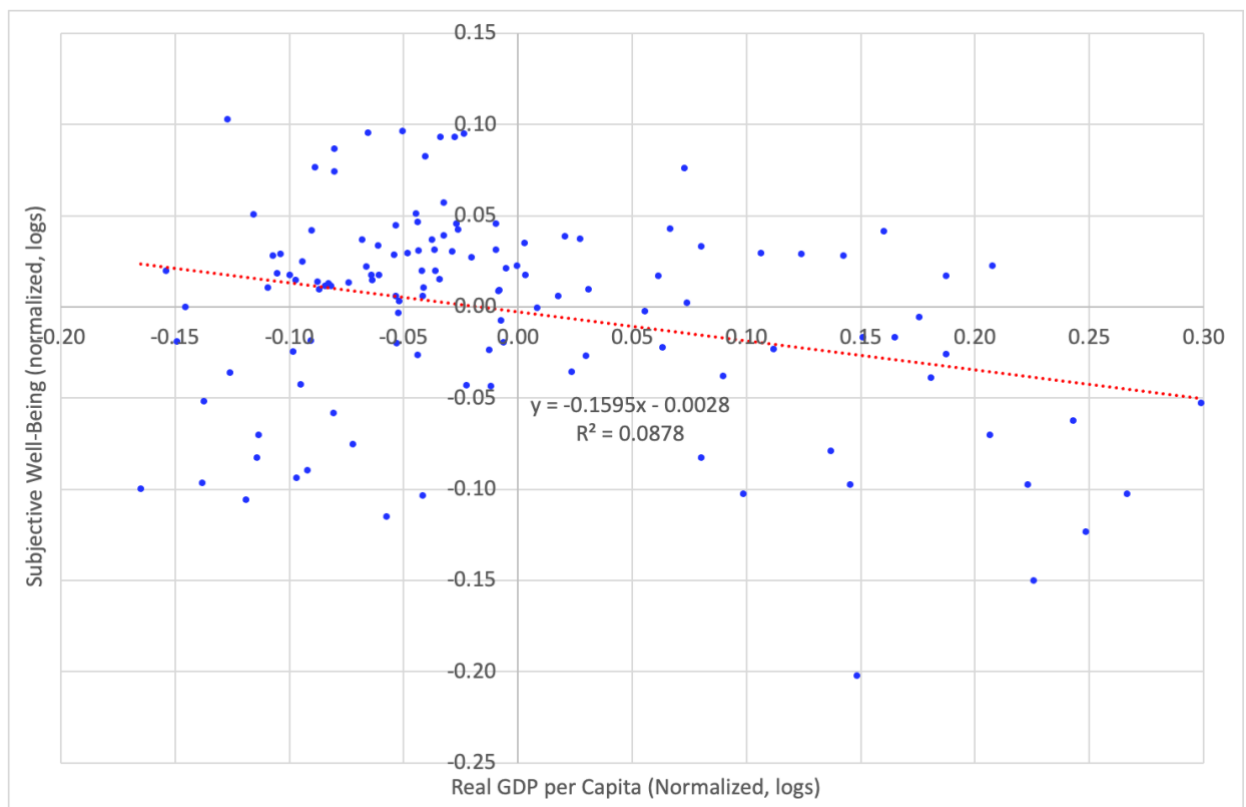
The contraction of 1626 is linked to the disturbances suffered by the markets, including the distribution of bulls, due to the monetary policy alterations. The Monarchy's decision to substitute copper (*vellón*) for silver coinage had the most harmful effects on trade and public confidence. The public rejected the fiat currency when they realized that by minting these new coins, the Monarchy aimed to obtain extraordinary short-term revenues rather than facilitate market transactions. This provoked a surge in the silver premium and drove up copper prices. The Monarchy provoked strong market disturbances by resorting to tax inflation and drained much of the silver in circulation since 1600. The request of the Crusade's general treasurer to be allowed to accept payments for the bull in copper coins (1624) exemplifies the scarcity of silver. The price of silver skyrocketed, and, by 1628, the Monarchy was forced to reduce the face value of all silver coinage by 50 per cent, causing substantial losses to coin holders, mainly tax collectors and merchants (Hamilton, 1928).

What does account for the episodes of subjective well-being improvement in 1602, 1670-82, and 1689-91? Between 1599 and 1601, an intense plague affected Old



Castile with particular intensity, but also spread to the rest of Spain. Cities such as Santander, Pamplona, Logroño, Burgos, and Segovia registered record death numbers. Trade, including the distribution of bulls, came to a standstill. The year 1602 was one of recovery. The end of the war in Catalonia (1652) and along the border with Portugal (1668) resulted in stability unknown since 1640. From 1670-82 there was an expansion of the sale of bulls across the board, led by Galicia and Andalusia in the Crown of Castile and by Catalonia and Valencia in the Crown of Aragon.

Was there an association between GDP per capita and life satisfaction? At odds with Easterlin's (1974) claim of no relationship between GDP per capita and well-being for the recent past, Stevenson and Wolfers (2008) found a log-linear relationship between them that did not diminish as average income rose. A more nuanced view suggested a diminishing association between the two dimensions as per capita income increases (Layard et al., 2008 and Kahneman and Deaton, 2010). And Proto and Rustichini (2013) have observed a hump shape relationship, with a positive association at lower income levels (countries) that flattens and even becomes negative as average incomes (countries) reach higher levels.



**Figure 8. Subjective Well-being\* and GDP Per Capita (normalized, logs), 1574-1700**  
 Note: \*Ratio Bulls to Population (normalized); Source: See the text.

Given the relative low average income levels in Spain during the period considered, we should expect a positive and non-flattening association. However, our data reveal a weak association that becomes negative as average incomes get higher (Figure 8).

## 7. Subjective Inequality

Inequality was perceived as very high by contemporary political writers. In an influential book, González de Cellorigo (1600: 54) claimed,

"Our republic has come to be an extreme contrast of rich and poor, and there are no means of adjusting them one to another. Our condition is one in which there are rich who loll at ease or poor who beg. We lack people of the middle sort, whom neither wealth nor poverty prevents from pursuing the rightful kind of business enjoined by Natural Law" (cited in Elliot, 1961: 66, his translation).<sup>22</sup>

The distinction between bulls of two different prices: that of 2 Reales, intended for the ordinary people, and 8 Reales for those of higher social status and wealth, allows us to compute how many chose to buy one type of bull or another. As bulls were alms that granted individuals some material benefits and, more importantly, spiritual ones, willingly accepted by the population, computing the ratio of 8 Reales bulls to the 2 Reales bulls sold presents a unique opportunity to assess how unequal the society was in people's eyes. We claim that this ratio may be interpreted as a subjective measure of inequality, more specifically, a measure of the concentration of income at the top of the distribution.

Unfortunately, unlike the top income share literature for the modern era (see Atkinson et al., 2011), we lack information on the distribution of income by income bracket for late sixteenth and seventeenth-century Spain, so we cannot estimate the share of income accruing to the 1, 0.1, or 0.01 per cent. Only by the mid-eighteenth century, based on the Cadastre of Ensenada (c. 1752), it is possible to derive social tables ranking social groups from poorest to richest with their shares of population and

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<sup>22</sup> In the original Spanish text: "A este modo ha venido nuestra república al extremo de ricos y de pobres: sin auer medio que los compase: y a ser los nuestros: o ricos que huelguen, ò pobres que demanden: faltando los medianos, q ni por riqueza, ni por pobreza dexen de acudir a la justa ocupación que la ley natural nos obliga".

average incomes to compute inequality measures. Inequality levels were similar to those of England and France (Álvarez-Nogal and Prados de la Escosura, 2007; Hoffman et al., 2002) but higher in the mid-eighteenth century than in present-day Spain. Even for comparatively egalitarian Old Castile, the Gini ranged from 0.4-0.6, while Madrid, the capital city, was close to 0.8 (Álvarez-Nogal and Prados de la Escosura, 2007: 346; Nicolini and Ramos-Palencia, 2016: 760).

The ratio of 8 Reales bulls to 2 Reales bulls sold provides a lower bound estimate of the income concentration at the top of the distribution since the income of those purchasing the 'bull of the illustrious' was way higher than the average income.<sup>23</sup> For example, in the mid-eighteenth century, in some small towns in Old Castile, 8 per cent of the total income accrued to the top 1 per cent richest, and, in Madrid, the top 0.02 per cent received 9.2 per cent of total income.<sup>24</sup>

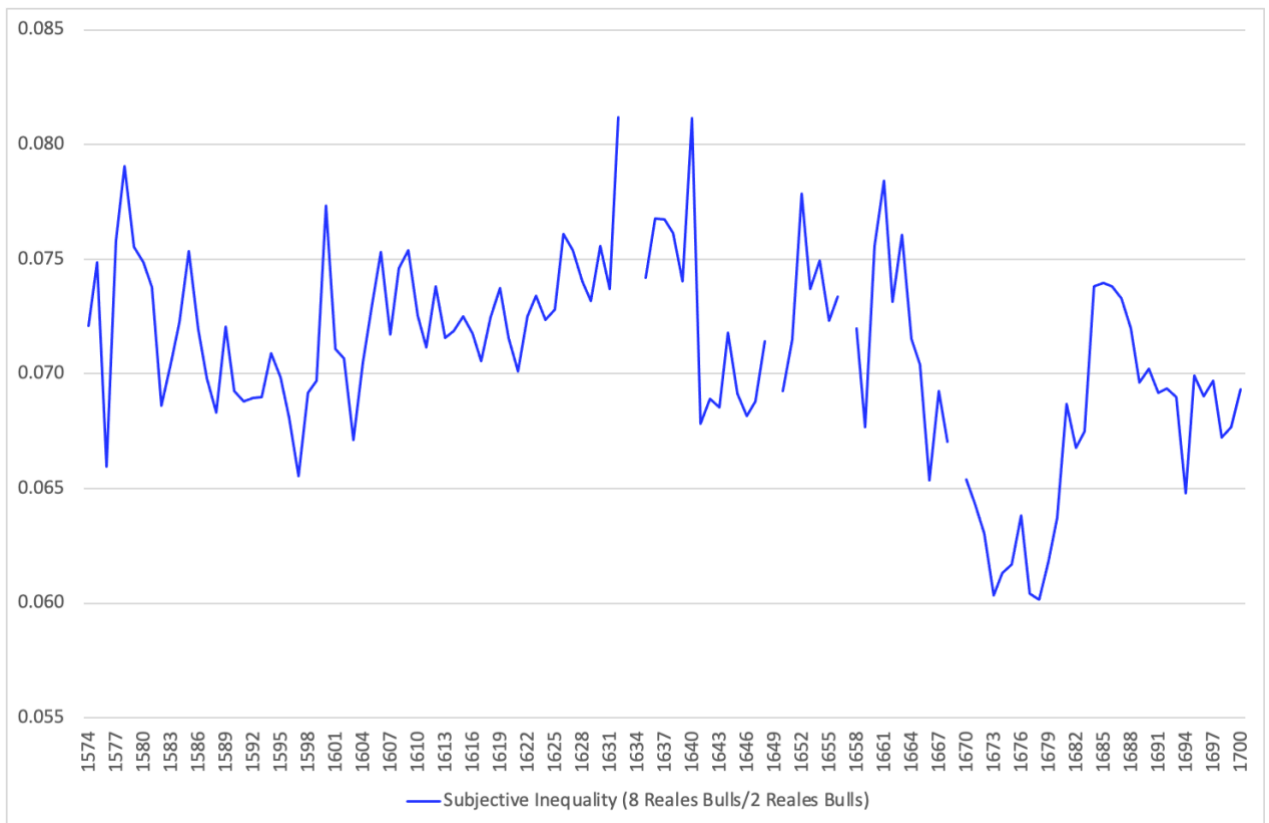
The evolution of the ratio between bulls sold of 8 and 2 Reales is offered in Figure 9.<sup>25</sup> Beyond the high volatility exhibited by the series, we observe a trendless last quarter of the sixteenth century, followed by a rising trend in inequality during the first four decades of the seventeenth century. A contraction in the 1640s led to a recovery of high levels of inequality in the 1650s. Inequality initiated sustained decline in the early 1660s that lasted until the late 1670s. A rise and fall of inequality in the 1680s led to a phase of relatively stability until the break of the War of Spanish Succession, with levels of inequality comparable to those of a century earlier.

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<sup>23</sup> If we denote  $Y$  and  $N$  as per capita income and population, respectively, with subindices 8 and 2 referring to the 8 and 2 Reales bulls, the ratio of the income of those purchasing the 8 Reales bulls to those buying 2 Reales bulls would be  $Y_8 * N_8 / Y_2 * N_2$ , but we are only able to compute  $N_8 / N_2$ . Given that  $N_2 > N_8$  and  $Y_2 < Y_8$ , our estimate provides a lower bound for the income concentration at the top of the distribution:  $(Y_8 * N_8 / Y_2 * N_2) > (N_8 / N_2)$ . Besides,  $Y_8 / Y_2$  would have changed over time adding a bias of unknown sign to our estimates.

<sup>24</sup> Computed from data in Yun-Casalilla (1987) and Ringrose (1983) for Villalpando and Frechilla (Old Castile) and Madrid, respectively.

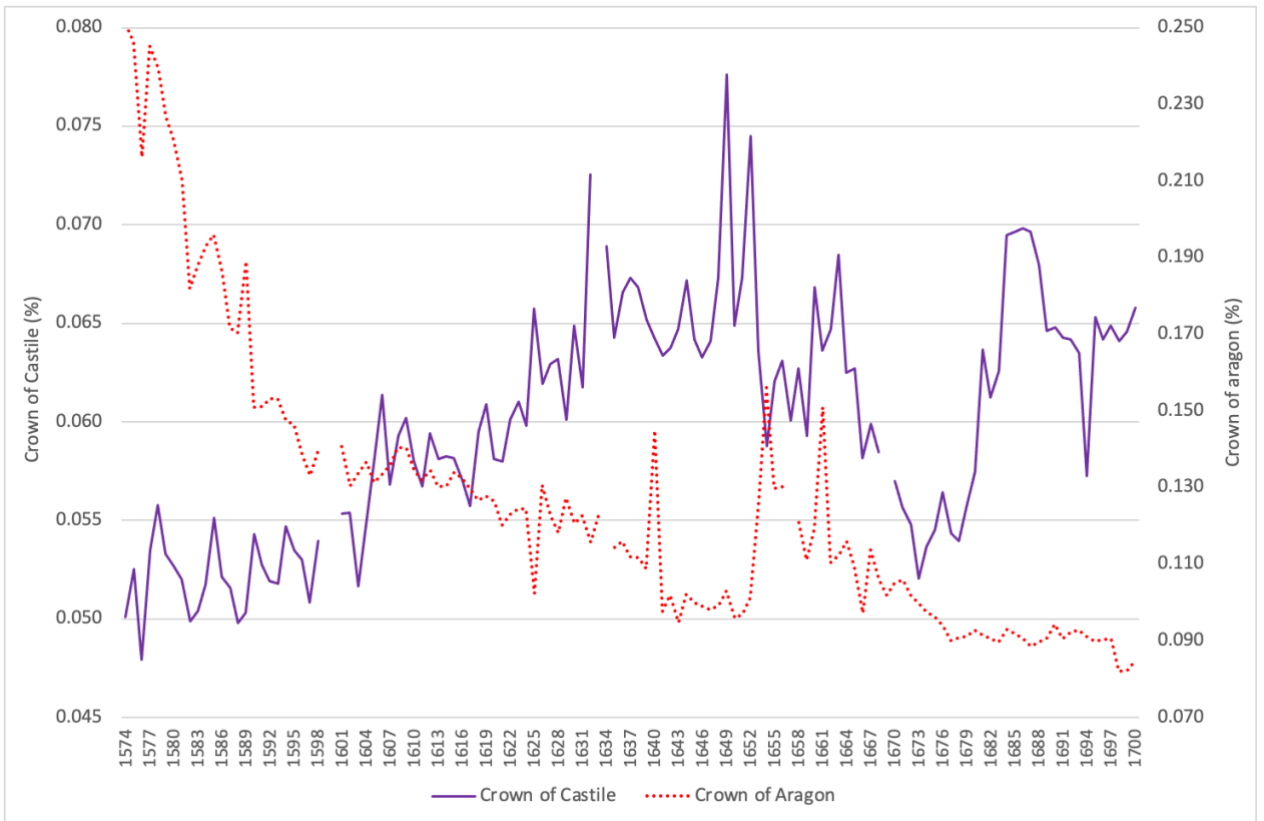
<sup>25</sup> It is worth noting that the share is exceptionally missing for a few years (1633-34, 1649, 1657, 1669). This is due to the fact that the number of 8 Reales bulls is either abnormally large or small and its inclusion in the figure would blur the trends and fluctuations of the series.



**Figure 9. Subjective Inequality: Ratio between bulls of 8 and 2 Reales, 1574-1700**

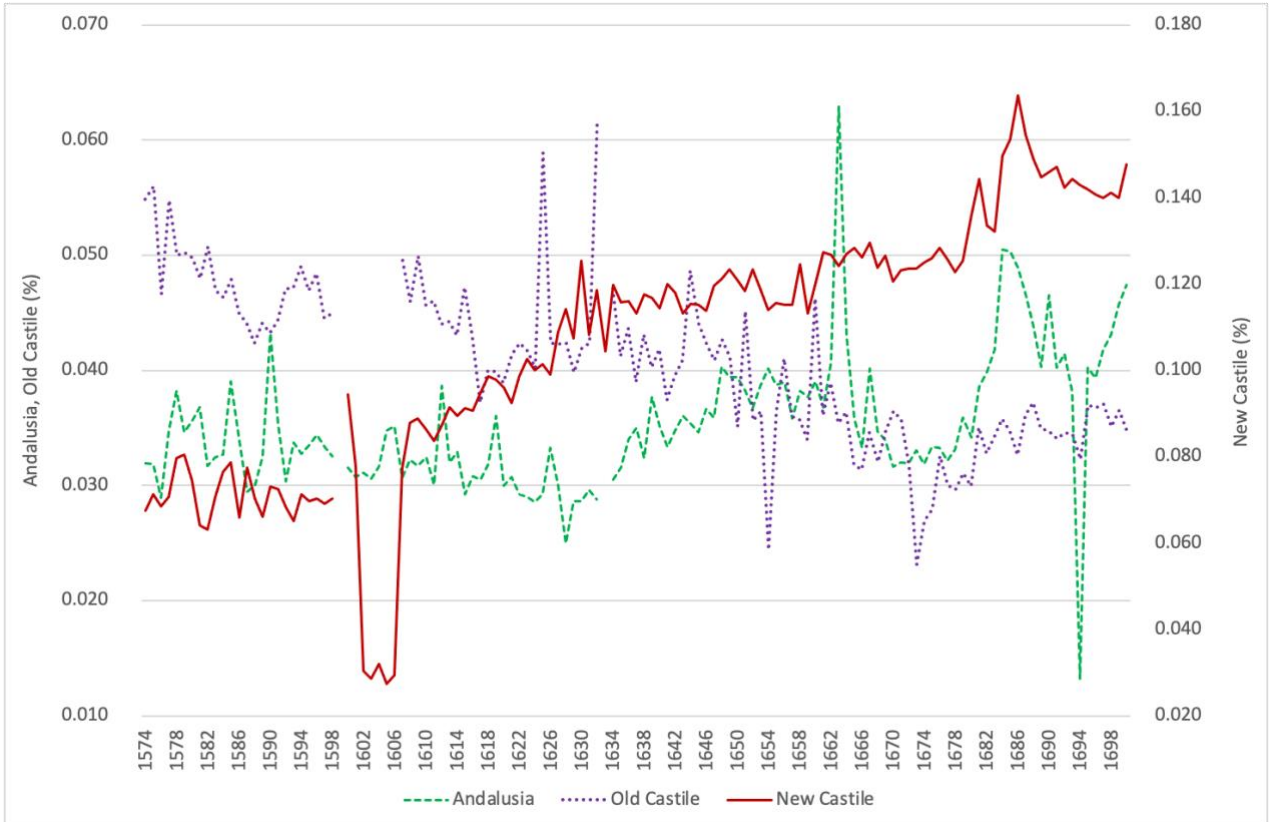
Source: See the text.

What triggered the rise of inequality from 1600-1640 and the fall during the 1660s and 1670s? A glance at the evidence for the Crowns of Aragon and Castile (Figure 10) reveals that Castile drove not only inequality levels (due to its larger share) but trends too. A closer look shows that the rise of inequality within the Crown of Castile was driven by New Castile and, to a lesser extent, Andalusia and Extremadura (Figure 11). In the case of New Castile, a sustained rise occurred during the seventeenth century, while inequality declined in the other two regions during the 1660s and 1670s. Meanwhile, inequality in Old Castile followed the inverse pattern of new Castile, gradually declining over the first three-fourths of the seventeenth century. Thus, the inequality reversal in the third quarter of the seventeenth century was the joint result of trends in Andalusia, Extremadura, and Old Castile that more than offset the rising trend in New Castile. A further inspection of the evidence links rising inequality in New Castile to its behaviour in the capital city, Madrid.



**Figure 10. Subjective Inequality\*: Crowns of Aragon and Castile, 1574-1700 (%)**

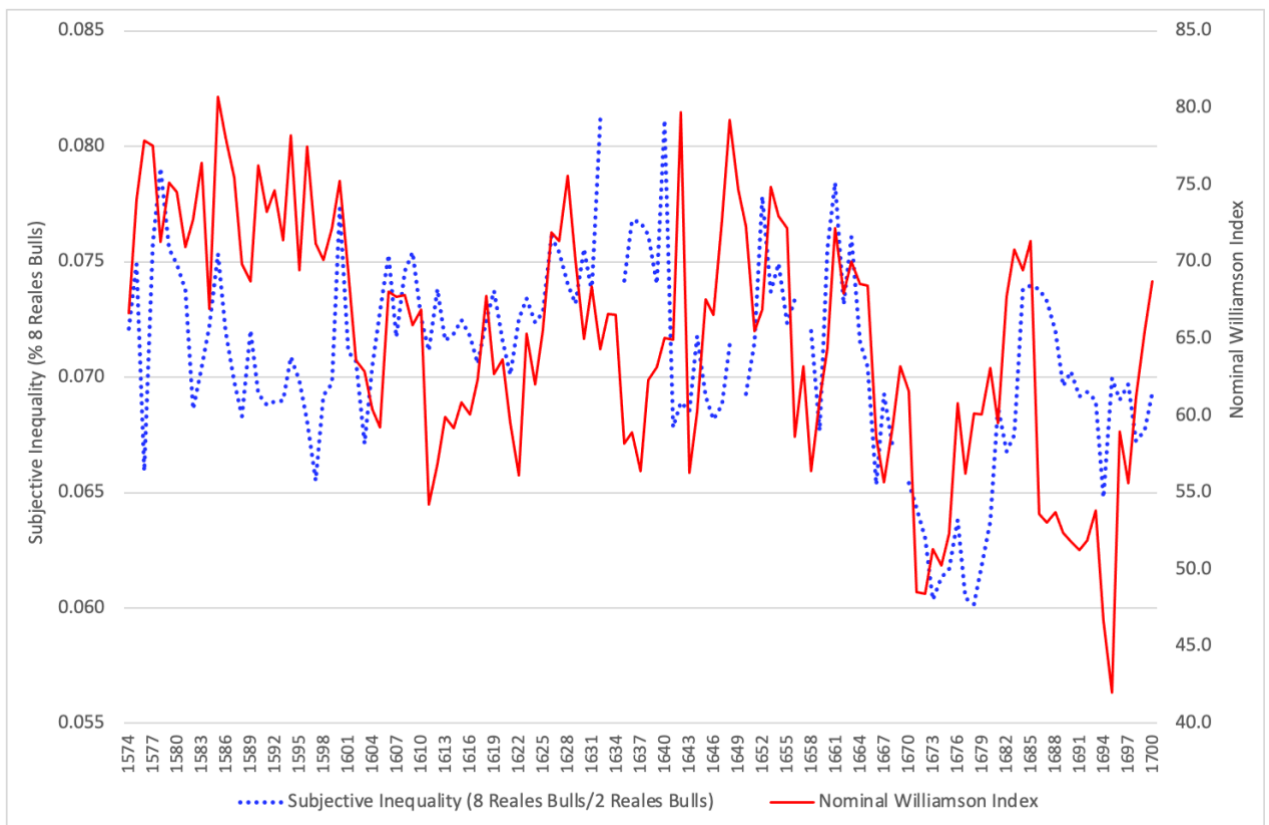
Note: \*Ratio between 8 and 2 Reales bulls; Source: See the text.



**Figure 11. Subjective Inequality\*: Andalusia and New and Old Castile, 1574-1700 (%)**

Note: Ratio between 8 and 2 Reales bulls; Source: See the text.

How does this measure of inequality compare to objective measures of inequality? The Williamson Index, the ratio of GDP per person to the average wage, provides a crude accurate measure of inequality. Its rationale is that it compares the middle of the distribution -as GDP results from the sum of returns to all factors of production (land, labour, and capital) and is divided by the total population-to the bottom since wage rates represent the return to raw labour, by day or week. Both variables are expressed in current prices relative to a given period (1790/99=100). In Figure 12, we compare objective and subjective measures of inequality. We observe some matching between them, with their major disparities located in the last quarter of the sixteenth century and in the 1640s, so we can conclude that the subjective perception of inequality was not at odds with its objective assessment.



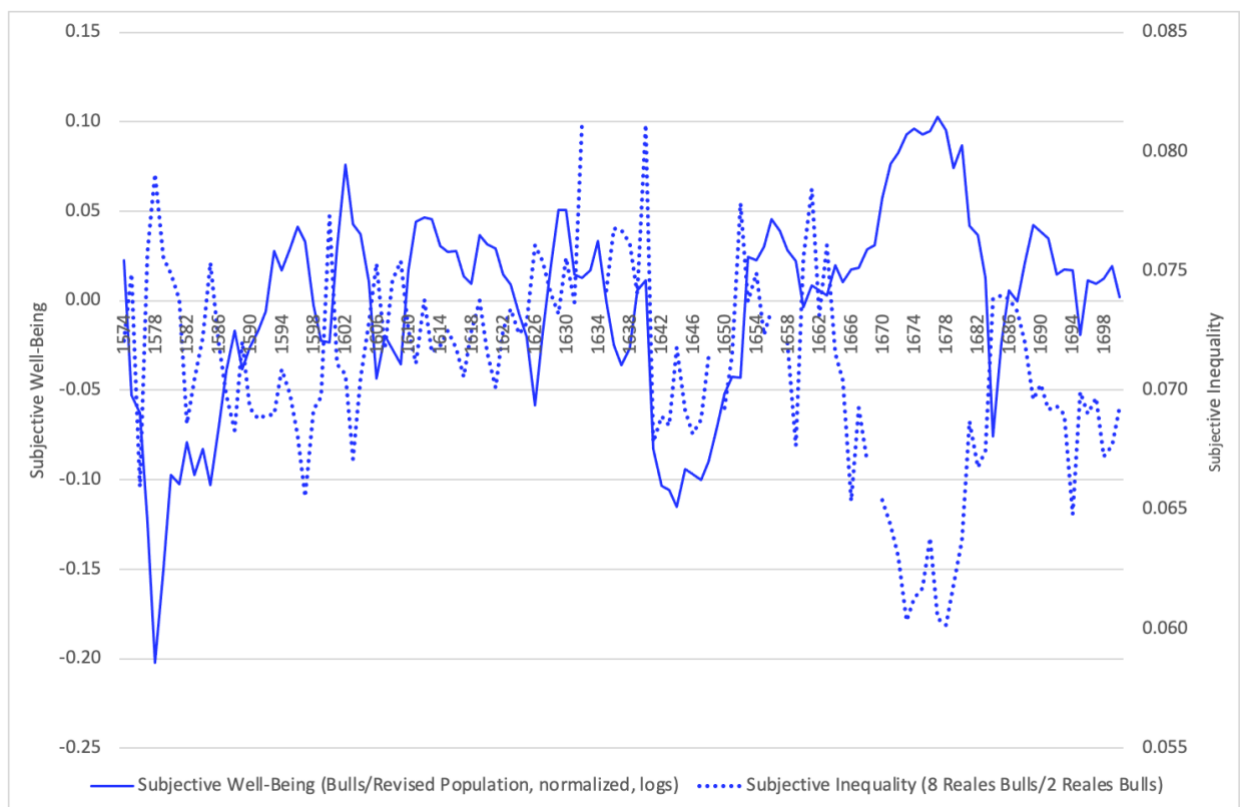
**Figure 12. Subjective Inequality\* and Nominal Williamson Index (1790/99=100)**

\*Ratio between 8 and 2 Reales bulls.

Source: text and Prados de la Escosura et al. (2022)

Lastly, we have contrasted our results for subjective well-being and inequality (Figure 13). A cursory glance reveals they provide a mirror image with phases of improving subjective well-being matching those of declining subjective inequality, but

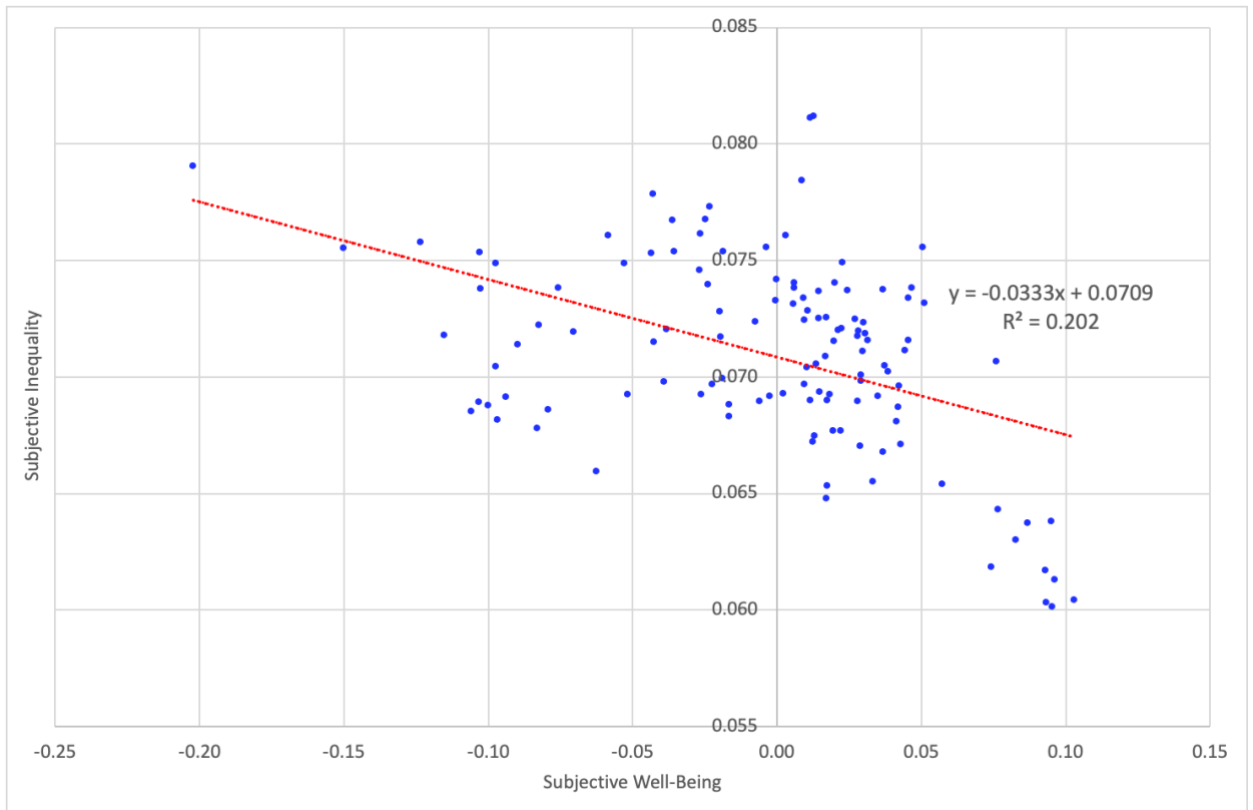
for the 1640s, when both contracted simultaneously. Such a coincidence reinforces the robustness of our results. In Figure 14, we extend the exercise and compare pairs of values of subjective inequality and subjective well-being. It can be observed that as well-being improves (values with a positive sign on the right-hand side of the diagram) inequality declines.



**Figure 13. Subjective Well-Being\* and Subjective Inequality<sup>+</sup>, 1574-1700**

Note: \*Ratio Bulls to Population (normalized, logs) <sup>+</sup>Ratio between 8 and 2 Reales Bulls

Source: See the text



**Figure 14. Subjective Inequality<sup>+</sup> vs Subjective Well-Being\***

<sup>+</sup> Ratio between 8 and 2 Reales bulls; \*Total Bulls to Population (normalized, logs)

Source: See the text

## 8. Concluding Remarks

In this paper, we have addressed the impact of Spain's economic decline on subjective well-being and inequality based on a religious alms, the bull of the Crusade, that provided spiritual comfort plus some material benefits to those who purchased it.

We found that subjective well-being deteriorated during the late sixteenth and early seventeenth century and improved during the last third of the century. Conversely, subjective inequality deepened during 1600-1640 and fell in the third quarter of the seventeenth century. Hence, improving (deteriorating) subjective well-being was usually accompanied by declining (improving) subjective inequality.

We also observed a weak association between subjective well-being and GDP per capita but a far from negligible association between subjective and objective inequality.



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