Wealth Concentration at Death and Wealth inequality in Spain, 1901-2010

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First draft. Very preliminary. 15 June 2015
Do not cite. Only for discussion
Subsequent version expected to be considerably revised

Abstract

This paper presents estimates of the concentration of personal wealth at death in Spain between 1901 and 1958 by making use of inheritance tax statistics –which have never been exploited before to study distributional issues. Results point to the persistence of an overall high level of inequality right until the outbreak of the Spanish Civil War, which bared similar patterns to the situation in other European countries until 1914. Since 1939 and over the following two decades, inheritance data point to a slight decrease in inequality that contradicts much of the existing literature. As potential explanations, we refer to institutional factors (rent control, promotion of homeownership) imposed during Franco's regime, and market outcomes (the evolution of the stock market). We also provide a comparison with the evolution of wealth concentration among the living since 1980 based on wealth tax statistics.

(JEL D31, H20, N34)

1. Introduction

Long-term trends in inequality are attracting an increasing attention from both the public opinion and the academic community. Piketty (2001, 2014) and colleagues have turned the spotlight on the empirical evidence concerning the upper tail of the income and wealth distributions and shown the importance of studying its historical evolution. These same authors (Alvaredo *et al.* 2013; Piketty 2015) are advocating a new approach to long-term trends in inequality, by replacing Kuznets (1955) paradigm with a multi-factorial model that considers taxation incidence, changes in private wealth accumulation due to external shocks (wars, nationalizations and inflation), the joint distribution of earned income and capital income, and the bargaining power of social actors and institutions through social norms.

Spain constitutes an interesting case study given that, due to its relative economic backwardness, it stood as a peripheral country within the European economy in the 19th and 20th centuries. During the first decades of the 20th century, Spanish GDP per capita was equivalent to circa 60-70% the prevailing levels of the major European powers (Germany, France and the UK) and it was not until the mid-1950s that agriculture was displaced as the country's main economic activity. Patterns of wealth inequality may have also differed, given that Spain did not participate in the two World Wars, but did suffer a bitter Civil War (1936-1939). In addition, the authoritarian dictatorship of General Franco (1939-1975) could have influenced in different ways the general pattern of wealth inequality.

Scholars interested with Spanish economic history have already started to inquire into the historical patterns of income and wealth inequality. Alvaredo and Saez (2009, 2010) have estimated top income shares from 1933 to the present day and top wealth shares since 1981. Prados de la Escosura (2008) has constructed a Gini index for wage income and extrapolated its results for capital income in order to measure overall inequality. Finally, Rosés, Martínez-Galarraga and Tirado (2010) have estimated regional income inequality as a result of differences in the economic structure and labour productivity. Overall, most scholars agree that Spain experienced greater inequality until the 1930s than nowadays, although there are disagreements on the timing and factors that contributed to this levelling process.

As a contribution to this debate, in this paper we analyse the concentration of wealth at death for the period of 1901 to 1958 using data from the inheritance tax. The study of both, the distribution of wealth among the living and the distribution of estates at death, have a long tradition in economics since the late nineteenth century (Atkinson & Harrison 1978; Alvaredo *et al.* forthcoming)). The paper runs as follows. First, we discuss the different ways of measuring personal wealth and describe our data. Secondly, we present the main results concerning wealth distribution and top shares and then we relate these trends with the international context (Piketty 2001; Guilera 2010;

Alvaredo *et al.* forthcoming). Finally, we suggest some hypothesis on the factors that have influenced wealth concentration.

2. Data and methods

Economists measure the distribution of personal wealth using five potential sources of evidence:

1. Household surveys of personal wealth, such as that conducted by the Bank of Spain since 2002;
2. Administrative data on the wealth of the living derived from annual wealth taxes;
3. Administrative data on investment income, multiplied up to yield estimates of the underlying wealth;
4. Lists of large wealth-holders, such as the Forbes lists.
5. Administrative data on estates at death, multiplied-up to yield estimates of the wealth of the living;

In Spain, the wealth tax and the household survey of the Bank of Spain have already been used by scholars to provide estimates on contemporary wealth inequality (Alvaredo and Saez 2009; Bover 2010; Durán-Cabré and Esteller-Moré 2010). Administrative data on investment income is currently being exploited in a parallel project (Martínez-Toledano, forthcoming) to apply the income capitalization method. The number of Spanish residents in the Forbes lists is limited, as it is the case with all existing rich lists, besides the problems regarding the unit of analysis, the geographical coverage and the valuation principles. Moreover, these four sources cover only a short time span and do not allow for a historical analysis before the 1980s or even the 1990s.

Data from the taxation of the estates of those dying in a particular year have long been used for economic research on wealth inequality by means of the 'estate multiplier' method (Atkinson and Harrison 1978; Kopczuk and Saez 2004; Piketty *et al.* 2006). Applying this method requires estate tabulations broken down by estate size and age at death (and gender). Unfortunately again, such data structure is not available for Spain.

In this paper we restrict our analysis to the distribution of estates (the concentration of wealth at death) between 1901 and 1958. The distribution of estates (or wealth) of the decedents is not the same as the distribution of wealth among the living, as the evolution of the distribution of wealth among the living and among the decedents may follow a different patterns, but it is of interest in its own right. Data on estates have barely been explored in Spain, probably because the historical statistics lacks the age/gender dimension, and because the present-day inheritance tax is administered by

regional authorities and no useful statistical information is published beyond the amount of tax collected[1].

Tax records should be treated with great caution when used as historical sources, given changes in legal exemptions and fraud. Broadly speaking, the Spanish inheritance tax was applied to all mortis causa and inter-vivos transfers, although there were two significant exemptions and one important loophole through its history. First, since the 19th century and until 1939, the Basque Country and Navarre held important fiscal privileges which meant that the tax was never applied in these regions. After the Civil War, the Francoist dictatorship (1939-1975) limited this particular fiscal regime to Álava and Navarre, but did bring under common rule the other Basque provinces of Guipúzcoa and Vizcaya. Therefore our study omits these territories (and adjusts all data for population and GDP accordingly). Secondly, during the period 1900-1911 and from 1941 onwards, inheritors' shares transmitted in direct line (from parents and children) below a specific amount (usually 1,000 pesetas) were exempted. Thirdly, most contemporary observers agreed that until 1907-1910 a large part of the smallest estates escaped from fiscal control. To solve both issues we provide an ad-hoc estimate of wealth for the missing population as explained in the appendix.

Valuation of estates was provided by the interested parties, although the fiscal administration could use a different estimate based upon a set of rules. The available micro-data (i.e. probate inventories) used by other historians (Bahamonde and Cayuela 1992; Cruz 2000; Sánchez Marroyo 2014) confirm the general reliability of these figures, although it should be noted that valuation techniques for real assets were mostly obtained by capitalizing incomes or tax bases, and therefore were outdated in times of high inflation. This may be an important drawback when measuring overall wealth levels, yet if this discrepancy is similar across the distribution –and historically this was arguably the case– the biasing effect of valuation on wealth shares should be small.

Finally, it is worth pointing that, although during this period the Spanish fiscal system was plagued by different forms of evasion and fraud, there are reasons to believe that the inheritance tax data are more reliable than other tax data. In short, the inheritance tax was different from other taxes existing at the time (such as schedular taxes on land income, wages or corporate profits) in the way by which authorities controlled taxpayers and wealth transmissions. First, the law prohibited property registers and banks from changing asset ownership if inheritors did not provide proof of having paid the inheritance tax. As a result, most contemporaries agreed that almost all estates of certain amount were known by the public administration. The only important mean for evasion occurred if financial securities were held in a bank account under the name of both spouses, thereby enabling the surviving person to withdraw funds and escape from fiscal controls. This practice was severely curtailed in 1922[2]. The other inquiry procedure was based on the obligation of all civil registries to periodically provide lists of all deceased adults, therefore enabling the tax administration with a way

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[1] Barberán Lahuerta (2006) is an exception.
[2] Real Decreto, 21/09/1922

to check their estates. This procedure, which was adopted in 1907, ended with the systematic evasion of small estates.

Overall, with these datasets we construct estimates on the average estate, number of deceased adults with positive wealth and top wealth-at-death shares between 1901 and 1958. We also provide a comparison with the evolution of wealth concentration among the living since 1980 based on wealth tax statistics.

3. Results

Figure 1 displays the evolution of the average estate per decedent and GDP per adult in Spain from 1901 to 1958. Both series are expressed in decennial averages to simplify short-term movements. Three elements should be noted. First, as it has already been studied by various scholars, income grew steadily during the first three decades of the 20th century, fell markedly as a result of the Civil War, and did not recover the pre-war levels until the mid-1950s. In contrast, estates seem to have moved in an inverse direction. They started at the beginning of the 20th century at their highest levels, suffered a significant decline during the 1910s and early 1920s, only to grow back during the following years. After the Civil War, the average estate also collapsed in value, but did not recover the prewar levels during the following years. If both magnitudes are related, at the beginning of this period the average estate was equal to 5.5 times the GDP per adult, while by the end it had more than halved to approximately 2 times. This is a very imperfect measure on how inheritance and private wealth tended to have a smaller weight as the country's growth rate increased during this period, but also points to changes in public wealth, which went from being deeply in negative into positive in the 1940s[3]. However, in order to have a more complete perspective, it would be necessary to have additional data on the wealth profile by age-group and the balance sheets for the public, private and foreign sectors.

Figure 2 shows the percentage of deceased adults that left any positive wealth covered by the statistics.. The tax exemptions before 1911 (inheritor's shares in direct line of less than 1,000 pesetas) imply that the smaller estates were not recorded in the statistics. Therefore, it is not unreasonable to assume that before 1911, 30% of the decedents left some wealth to their inheritors, a percentage similar to that observed in the period 1911-1935, when no such exemptions existed. During the first decades of the 20th century, virtually 70 percent of the adult deceased basically had no wealth at all. Of course, behind this national average there were significant regional differences. For example, rural property was more widespread in northern Spain that in the southern provinces (Andalusia, Extremadura and La Mancha), dominated by large landholdings (Malefakis 1976). Furthermore, it should also be noted that although during the period

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[3] The net balance sheet of the public sector can be understood as the result of the stock of public capital (Cucarella Tormo and Mas Ivars 2009) and debt (Comín 2012).

of 1901 to 1935 there was a substantial increase in income and living standards, there was little change in the distribution of wealth.

Figure 3 show the top 1% share of the distribution of estates (1901-1958) and the top 1% share of the distribution of wealth among the living (1981-2007). The latter series come from Alvaredo and Saez (2009, 2010) and are based on the wealth tax. Three important findings emerge from this figure. First, it seems evident that throughout the first half of the 20th century, Spain was a country with very high levels of inequality and only experienced minor changes in its distributional patterns. This supports, in principle, Prados de la Escosura's (2008) thesis that the great levelling process must have occurred during the 1960s and 1970s, a period for which unfortunately there are no estate or wealth statistics. Secondly, although the share corresponding to the top one percent ranged from 65 percent to around 50 percent, some of the short-term changes are worth pointing. Starting at the beginning of the century at already high levels, the First World War caused a temporary rise in inequality, with top shares probably peaking at some point in 1918-1920, only to reverse in the following years[4]. As it is well-known, the Great War constituted an external shock in relative prices in both neutral and belligerent countries, favouring the rise in corporate profits in relation to labour wages. In this sense, although data is missing for estate composition, anecdotal evidences point that the richest sectors were more heavily invested in business and equities and therefore could immediately enjoy the fruits of Spanish neutrality. In contrast, fixed income assets (bonds and bank accounts) and real assets (especially, agricultural land) were more widely dispersed and experienced a temporary depreciation as a result of high inflation.

Finally, after the Civil War, Spain did not suffer an increase in inequality, but stayed at similar levels as those that existed during the Second Republic. Moreover, during the following decade, wealth inequality at death decreased and by the mid-1950s the top one percent wealth share was at the lowest point of the entire series (c. 50%). This evolution contradicts much of the existing literature, which has insisted on an overall rise in inequality as a result of the repressive character of Franco's dictatorship, the lack of fiscal progressivity, the sharp fall in wages and the strengthening of employers' bargaining position both in rural and urban areas (Molinero and Ysàs 1985; Barciela 1986; Babiano 1995). Without denying the importance of all these factors, we seriously doubt they had any relevant impact on distributional patterns among wealth owners. Besides, estate data is in line with the findings of Alvaredo and Saez (2009, 2010) regarding the evolution of top income shares.

Going beyond the measurement of inequality, we believe that during the post-war period there were two new set of conditions that negatively affected top-wealth holders which have largely gone unnoticed. First of all, during the 1940s and 50s there was a sharp disruption in the normal functioning of the housing market. Until the Civil

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[4] The maximum attained in 1918 in the top one percent wealth share (69.52 percent) should be treated with great caution, as adult mortality grew in that year by more than 50 percent due to the influenza pandemic.

War, real estate ownership in urban areas had been heavily concentrated, given that Spanish law provided that all floors of any building and its land were required to have only one owner (Carmona *et al.* 2014; Artola Blanco 2015). After the war, public authorities imposed a rent-control regime which curtailed rents increases and the eviction of sitting tenants (Artola Blanco 2012). Landlords faced the dilemma of either experiencing a sharp fall in incomes in a context of high inflation or selling their apartments to tenants, making use of the new legal framework, but at generally undervalued prices. Figure 4 shows the evolution of urban rental prices in Spain, which dropped by 70% between the beginning of the Civil War and 1960. At the same time, authorities started a new housing policy that promoted homeownership of middle and working class families by providing fairly favourable conditions -subsidized prices, reduced-interest mortgages, etc.- (Llordén 2003; Naredo and Montiel Márquez 2011). As a result of both processes, urban property began to be more widely distributed and has remained so until the present day. Table 1 depicts this phenomenon. In 1950, 5-6% of households owned their main residence in Madrid and Barcelona; this percentage went up to 50% in Madrid and 31% in Barcelona by 1970, and it is today around 65-70%.

The other shock in wealth accumulation patterns is related to the evolution of the stock market. As expected, the Civil War caused a significant drop in stock market prices given that companies suffered significant losses in their balance sheets. What is most surprising is that, as Figure 5 shows, stock prices barely grew in real terms during the 1940s and 1950, enjoyed a considerable upswing in the 60s only to suffer their biggest drop in history in the 1970s. Assuming that top-wealth holders depended more on the evolution of equities while medium and lower groups invested more in real estate, a levelling process could had happened in the medium and long term due to the sharp divergence in the prices of both assets.

As an example, Figure 6 compares the evolution of the average estate of the top one percent with the personal wealth of one of Spanish most important bankers at that time: the marquis de Aledo (Artola Blanco 2015). This latest series are totally independent from tax sources, since they come from Aledo's private accountancy books, and reflect a diversified portfolio of stock holdings. Both sources show a similar pattern: top wealth holders suffered an important shock as a result of the Civil War and, thereafter, asset and wealth levels started to recover, but at a slow pace and without regaining the 1930s levels.

4. International comparisons

Spanish wealth inequality patterns must be placed in an international context to avoid giving a biased picture. Figure 7 compares the number of estates as percentage of decedents in France, Paris, Spain and the United Kingdom. Figure 8 compares the evolution of the top one percent wealth share in this three countries plus Portugal. According to this comparison, at the beginning of the century, France and Spain held similar patterns of inequality, while Britain was more unequal. After the First World

War, as we already pointed out, inequalities temporarily grew in Spain, but declined in war countries. Later on, in the 1940s and 1950s, countries that participated in the Second World War experienced a rapid levelling process due to the reduction in private wealth and the development of a strong progressive tax system. In contrast, neutral countries like Portugal experienced an increase in inequality. Spain's path is different due the impact of the Civil War and the changes considered previously, although overall it remained as a very unequal country until the mid-1950s. From the 1960s onwards, all sources point to a reduction in inequalities and nowadays it can be argued that this four countries show similar trends in wealth inequality. It should be noted that in spite of the effect of local factors in Spain (as discussed in the previous section) as well as in the other countries, there is much commonality in the long-term developments. This implies that global forces must also be analysed in order to understand the evolution of inequality, even before the so called aged of globalization.

Spain was distinct in the fact that inequalities remained at very high levels, they did not started to decline until the mid-1950s and probably fell even more rapidly during the following decades. This persistence of inequality can be explained by the interrelation of two factors. First of all, the Spanish Civil War did not represent such an important shock in private wealth accumulation as the two World Wars did in other European countries. Spain suffered less war destructions than Germany (Prados de la Escosura and Rosés 2010) and the nationalization of corporations did not went as far as in France. Secondly, during most of the 20th century, Spain did not make a transition to a progressive tax system as other Western countries. Figure 9 compares the evolution of the top inheritance tax rate in Spain, United Kingdom and France. Until the 1960s Spanish rates were substantially lower. If all taxes were included (income, corporate, consumption, etc.), the Spanish fiscal system was clear regressive up until the 1970s and less regressive (albeit still not progressive) from the 1980s onwards (Torregrosa Hetland 2015).

Thus, the second most important conclusion is that the convergence with inequality levels prevailing in the rest of Europe happened despite the fact that Spain lacked progressive taxation. Wealth levelling thus came as a side effect of public policies that promoted homeownership, but also due to the divergent trend in real estate prices and the stock market. This influence, which was particularly acute in the 1970s, also explains why nowadays wealth inequality remains at relative low levels in a context of economic crisis, public austerity and high unemployment.

5. Conclusions

The study of the dynamics of wealth concentration at death in Spain from the beginning of the 20th century until the late 1960s provides a new perspective to the country's economic history. The weight of private wealth and inheritances tended to decrease in the long term, as the country's growth rate increased and the public sector balance sheet turned from being deeply in negative into positive. Second, wealth ownership ratios among the Spanish adult population changed after the Civil War, due

to the increase in homeownership. Thirdly, the concentration of wealth at death remained at very high levels throughout this period and only began to decrease slightly in the 1940s and 1950s as a result of shocks in the prices of real estate and financial assets. Thus, in Spain political factors may have played a more relevant than previously recognized, even though these were not channelled through social expenditure or progressive taxation, but due to particular set of policies (housing policies) and market conditions.

Appendix

A.1 The inheritance tax in Spain

The Spanish inheritance tax

The *Impuesto de Derechos reales y transmisión de bienes* was a tax that existed in Spain from 1872 until 1964 that was levied on any sale, transfer or change in property rights, such as inheritances, gifts, purchases, mortgages, expropriations, etc. Each kind of transaction was levied at a specific rate. In this paper we refer to data related to the inheritance tax rate, which at the time encompassed both acquisitions *inter-vivos* (gifts) and *post-mortem* (inheritances). The tax was levied on the inheritors' share in a deceased estate. At the beginning of the 20th century, inheritors had to pay a flat rate depending on the kinship relationships with the donor. Later, from 1910 onwards, this system was complemented with a progressive tax rate that accounted for total wealth received (Figure 10).

The inheritance tax was applied by the Central government, which meant that since the 19th Century and until 1939, the Basque Country and Navarre were exempted. After the Civil War, the Francoist dictatorship (1939-1975) limited this particular fiscal regime to Álava and Navarre, but did bring under common rule the other Basque provinces of Guipúzcoa and Vizcaya. Therefore our study omits these territories and has adjusted all data (population and GDP) accordingly. Finally, it is worth pointing that from 1926 to 1964, the Spanish fiscal administration also levied an estate tax [*Impuesto sobre el Caudal relicto*] on all net assets left by the deceased person. However, in practice, there was an important exemption on inheritances shares transmitted in direct line (from parents and children) and so the "estate tax" was in fact a surcharge applied to distant inheritors.

Estates: Definition and valuation

The Spanish inheritance tax followed the Civil Code definitions regarding the estimation and distribution of a deceased estate. Although other historians have already made use of probate inventories, we consider necessary to highlight the most important points in order to properly interpret the data.

The procedure for calculating the estate of a single or widowed person was straightforward. Inheritors listed all assets and deducted all debts and the expenses related to the burial and funeral [*gastos de última enfermedad, entierro y funeral*]. For married couples under the community of acquisitions regime –which was the standard system in most Spanish regions– the inventory of assets and debts was carried in the same manner, but afterwards it deducted wealth attributed to both spouses [*bienes privativos*] to calculate the community property [*comunidad de bienes o gananciales*]. The estate [*herencia*] was therefore formed by all separate property corresponding to the deceased person and half of the community property, minus burial and funeral expenses.

The law provided heirs with six months to submit a provisional inventory of the deceased estate and its distribution. The evaluation of assets was left to the interested parties, although the administration had the right to revise them following various procedures. For example, financial assets (government bonds, stocks, etc.) should be valued according to the quoted price at the time of death. Business assets were estimated according to the paid-up value of capital or using estimates provided by other partners. Land and real estate wealth was obtained by capitalizing income or tax values [*valor catastral* or *amillaramiento*] at five percent. In case of no agreement, the state could call for the valuation of an independent expert. Consequently, estimates were outdated in times of high inflation.

Finally, as previously stated, most contemporaries agreed that tax inspection mechanism were broadly reliable. The only important form of tax evasion happened when financial securities were held in a bank account under the name of both spouses, thereby enabling the surviving person to withdraw funds and escape from fiscal controls. In this sense, in 1910 the Spanish Minister of Finance claimed that "the vast majority of financial securities are held by the upper classes and, what is even sadder to say, is that the vast majority of them are evaded from the inheritance tax"[5]. While certainly this kind of operation made tax evasion easier, we believe that the statement of the Minister of Finance concerning "the vast majority" of financial securities was an exaggeration that should be put in the context of a heated debate regarding progressive taxation. Most micro-data points that financial assets were declared and evasion must have been lower. For example, the 1913 probate inventory of the Marquise de Urquijo – the wife of the most important banker at the time– stated that total assets accruing to both spouses amounted to the extraordinary amount of 60.698 million pesetas, including a broad range of financial securities (bonds, shares, etc.)[6]. Besides, the government tried to limit this form of evasion by introducing in 1911 a new law that stated that, unless proven otherwise, all securities held in the name of a more than one person would be equally shared for the estate valuation process[7]. However, the law was immediately revoked following protests from employers' associations and was not made permanent until 1922[8].

A.2 Data sources

Inheritances

This study is based upon all on the official tax statistics [*Estadística administrativa del Impuesto de Derechos Reales y Transmisión de Bienes*]. This publication appeared in every year for the period of 1900-1935, from 1940 to 1948 and then, from 1954 to 1958. In aggregate, for a period of nearly six decades, we have

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[5] *Diario de Sesiones del Congreso*, 23/11/1910, núm. 71, pp. 2293
[6] Of the 60.697 million pesetas declared, 23.33 million corresponded to separate property of the Marquis and 37.37 to the community property of both spouses. Archivo de Protocolos Notariales de Madrid, Notario Zacarías Alonso Caballero, 12/12/1913, Libro 45525.
[7] Real Decreto 18/01/1910
[8] Real Decreto 21/02/1910, Real Decreto, 21/09/1922

observations for 48 years, which is a high degree of coverage given the traditional deficit in statistics that has characterized the Spanish tax system for much of its history. Most data published in the inheritance statistics relates to wealth flows transmitted to heirs –classified both by kinship relationships and amounts– and not to the estates of the deceased. However, since 1901 the administration decided to include some additional tables that stated the numbers of estates by tranches of net wealth. It appears that this decision expressed the clear will of tax inspectors [*abogados del Estado*] to promote a tax reform in a progressive manner[9].

For most part of the time, data referred to a natural year, although in the period from 1919 to 1926 the administration made a temporary turn to a new model based on the fiscal year (April-March). Although official statistics continued to be published in the same manner, we did reclassify the original tax series to aggregate data that referred to a period of less than a year (i.e. second quarter of 1924). Furthermore, from 1922 to 1927, the administration changed in three times the way in which data was presented by brackets and so we were obliged to make a second change to reintroduce the smallest brackets into bigger ones when bringing together different years. Both changes should not impact inequality measures in this period, but does make our estimate more volatile.

Finally, it is worth pointing that although data is available for 1940, we do not present any estimate for this year. The problem arises from the fact that many of the inheritances related to the Civil War dead were not immediately liquidated, but had to be postponed until the end of the conflict. Furthermore, the Francoist dictatorship granted in 1939 an extraordinary exemption to small and medium inheritances shares to those who had died fighting or were victims of the "red terror". Therefore it is impossible to relate the number of estates liquidated in this year (140.481, the highest figure for the whole period) with the adult deceased population.

Missing wealth

Statistics recorded the number of estates that had been taxed, but omitted those that were legally exempted or had been evaded. Both issues are not especially problematic for most of the period, but are of particular importance in 1901-1910. In these years there was a legal exemption for all direct inheritance shares that amounted to less than 1,000 pesetas. Also, most contemporary observers agreed that until 1907 a large part of the smallest estates escaped from fiscal control. As a result, in the period of 1900 to 1910 the percent of filers in relation with the total adult deceased population shows an irregular pattern. After, from 1911 to 1935, these two problems were severely curtailed and the percentage of filers remained around 30 percent.

As a way to solve this issue, we suppose that population with positive wealth not included in tax statistics amounted to the difference between the number of filers and

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[9] In 1901, the *Estadística* justified the appearance of these tables in the following terms: "[This data] shall provide better knowledge on the circulation of wealth in its main manifestations and thus will enable to deduce significant conclusions in case there is any attempt to reform this tax".

percentile-70. Therefore, we are assuming that the bottom 70 percent of the population left no estate during these years. For example, in 1902, filers represent 20.1 percent of deceased adults, so we estimate that non-filers with positive wealth correspond to the remaining 9.9%. Then we impute to the non-reporting population an amount equal to the GDP per adult (c. 1000 pesetas) in the year with the highest percentage of non-filers (1905 with 15.48 percent) and draw a linear relationship between filers and GDP per adult for the following years.

From 1911 to 1936 there was no exemption on the inheritance tax, but in 1940 the dictatorships reintroduced the same rule that existed at the beginning of the century (a general exemption on direct inheritance shares that amounted to less than 1,000 pesetas). Fortunately, the enormous inflation occurred during the Civil War and in the 1940s made that the number of estates that could claim this exemption were far fewer and our correction on the missing wealth is substantially lower. We assume that in the first two years (1941-1942) the number of deceased adults holding wealth was equal to 40 percent, that is, a ratio that is slightly higher than the one reported on the official statistics. Then we assume that the missing population own on average one quarter of the GDP per adult. During the years from 1945 to 1947, the quality of statistics decreases substantially. We suspect that data reporting was of an inferior quality and so we follow a similar procedure. Finally, in the last two years of our series (1957-1958) the minimum exemption for inheritances shares transmitted in direct line was raised from 1,000 to 10,000 pesetas. We accordingly calculate the missing wealth considering that wealth-owning patterns were similar to the immediate two previous years (50 percent of adults owning wealth).

Total wealth

Total wealth is equal to the amount of estates declared plus missing wealth.

Total adult population

In this study, estates are related to the total number of adults deceased, defined as aged 20 and above, excluding the Basque Country and Navarre. Data refers to the annual figures published in the *Anuario Estadístico de España*. The age-profile of the deceased population is missing for the first two years (1901 and 1902), so we assume that adult and infant deaths moved in a similar manner as in the following years (52 percent versus 48 percent)

When referring to the total adult population, we follow the same criteria (aged 20 and above) using the decennial census data and making a linear interpolation for the years in between. Data is provided by *Censos de la población de España*.

GDP and price levels.

GDP series are taken from Prados de la Escosura (2003). Estates have been deflated using the price index developed by Maluquer de Motes (2006, 2013).

A.3 Interpolation

The raw data on which we are drawing are in the form of grouped tabulations that show, by intervals of estates, the number of decedents. The intervals do not in general coincide with the percentage groups with which we are concerned (e.g. the top 1%). We have to apply interpolation methods. In this paper we have applied the mean-split histogram, as described by Cowell and Mehta (1982) and Atkinson (2007).

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Figure 1. Average estate per decedent and GDP per adult. Spain, 1901-1958

Decennial averages expressed in 1913 pesetas
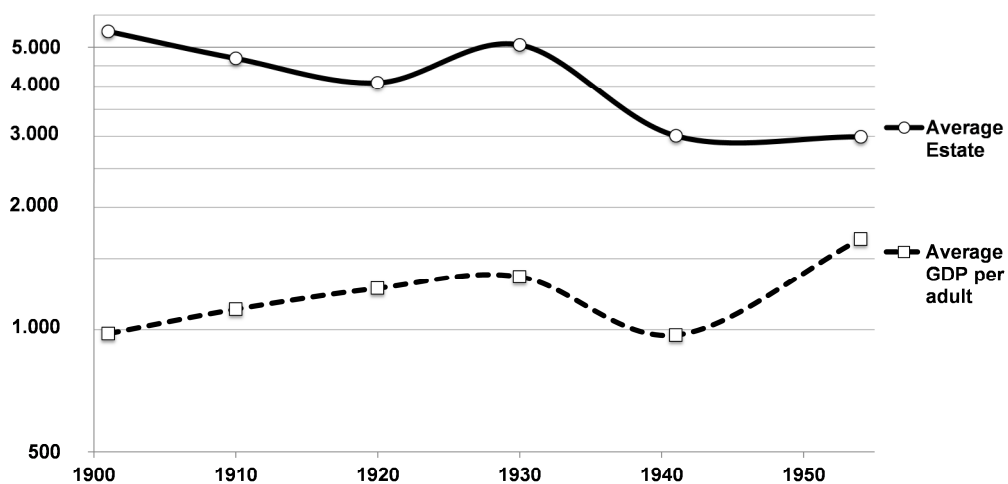
Source: Appendix 2
Note: 1901, 1910 and 1920 refers to the respective decades (1900s, 1910 and 1920s), 1930 to 1930-1935, 1940 to 1941-1948 and 1954 to 1954-1958

Figure 2. Number of estates as a percentage of decedents aged 20+ years old, 1901-1958
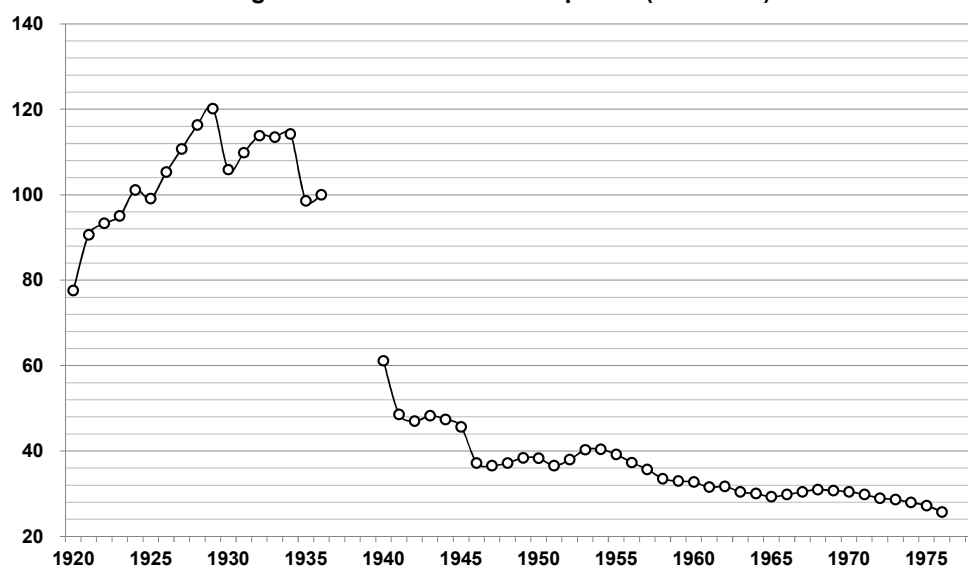

Source: Appendix 2

Figure 3. The top 1% share in Spain, 1901-2005
(Estate tax data for 1901-1958; wealth tax data for 1982-2007)
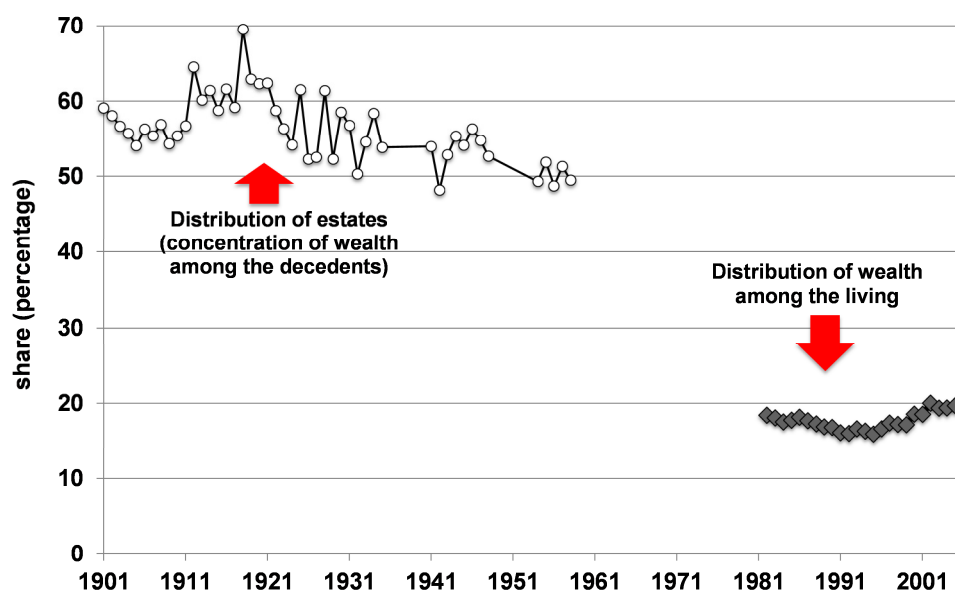
Source: Appendix 2, Alvaredo and Saez (2009)

Figure 4. Index of real rental prices (1936=100)

Source: Maluquer de Motes (2006), Ojeda Eiseley (1988)

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**Figure 5. Madrid Stock Exchange General Index
Real price (1940=100)**
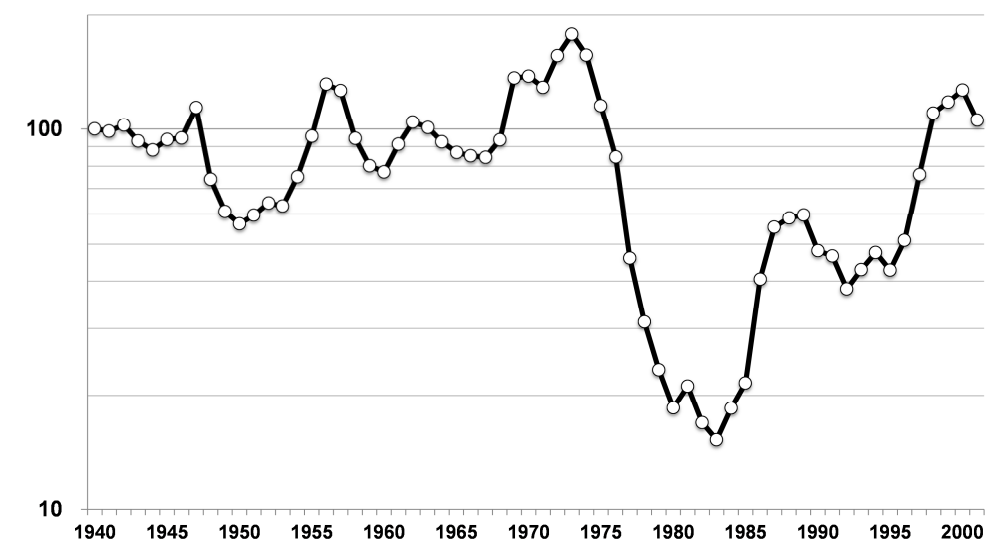
Source: Tafunell (2005)

**Figure 6. Wealth of the Marquis of Aledo and
average estate of top 1%**
(Million of 1930 pesetas)
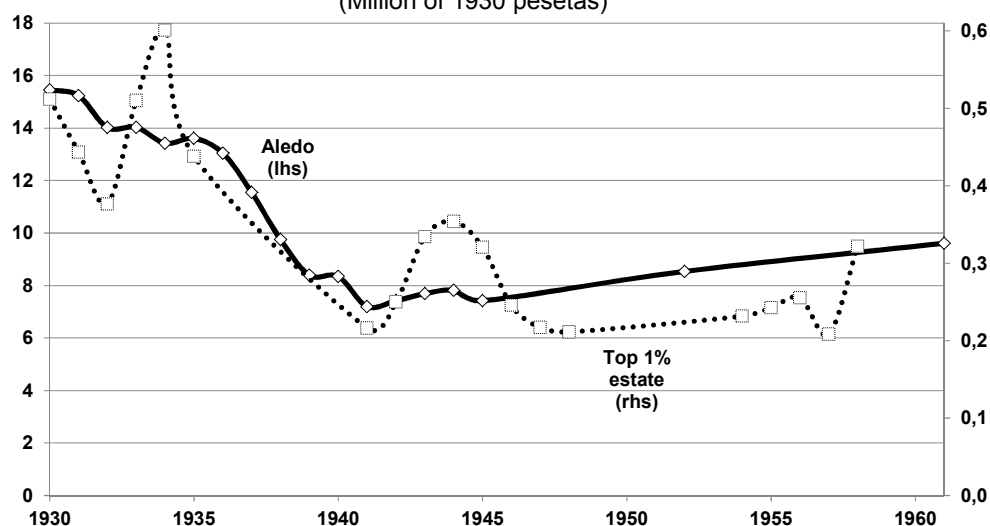
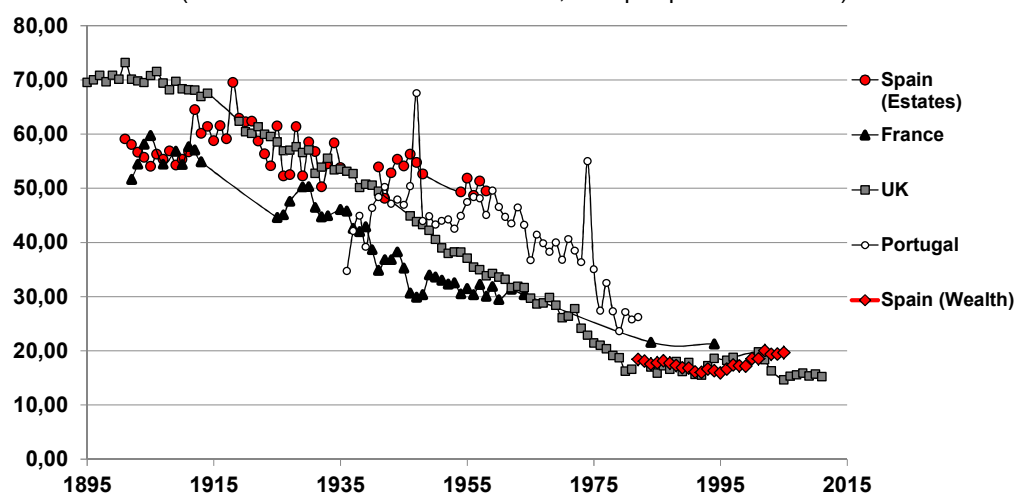**Source**: Appendix 2, Sección Nobleza del Archivo Histórico Nacional, *Aledo*, C. 1117, 1230

Figure 7. Number of estates as a percentage of deceased adults in Spain, France, Paris and United Kingdom, 1901-1960
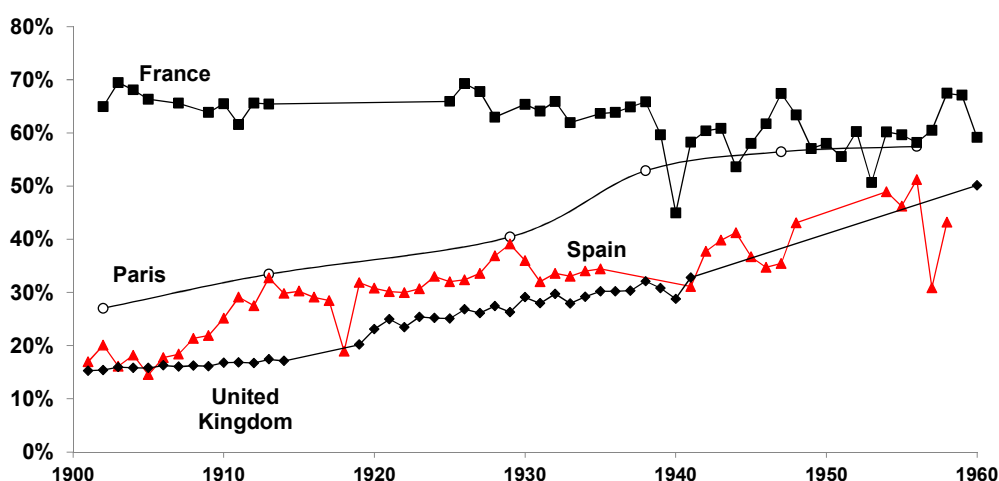
Note: In France, all estates were taxed in this period. In the United Kingdom, estates under £100, were exempted before 1945. In Spain, around 10% of estates were exempted or evaded before 1910.

Figure 8. The top 1% estate share in Spain, France, United Kingdom and Portugal, 1895-2011
(Estate distribution for all countries, except Spain 1982-2007)

Figure 9. Top inheritance tax rates in the United Kingdom, France and Spain, 1901-2013
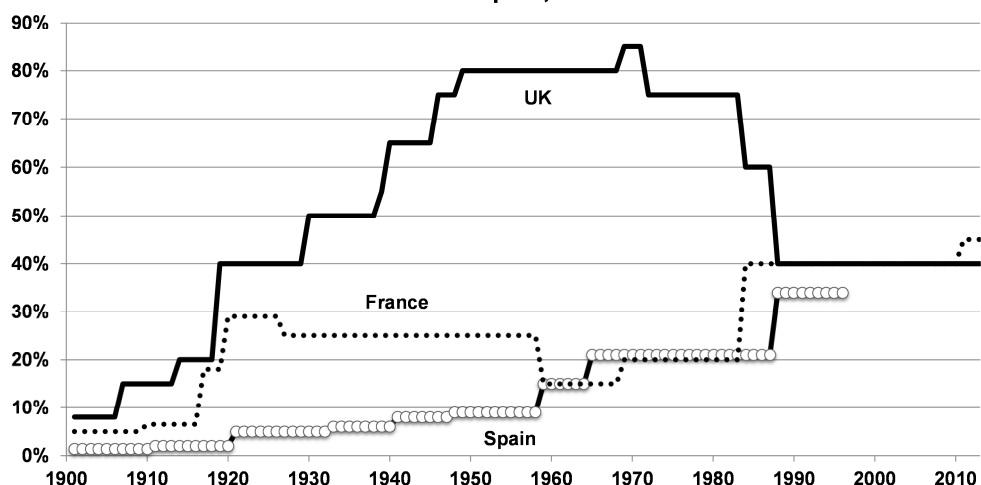
Source: Piketty (2014), *Gaceta de Madrid* and *Boletín Oficial del Estado*
Note: The Spanish series refers to inheritances in direct line. We do not provide tax rates for Spain from 1996 onwards, given enormous variations among regions.

Figure 10. Minimum and maximum inheritance tax rates in direct line. Spain, 1900-1958
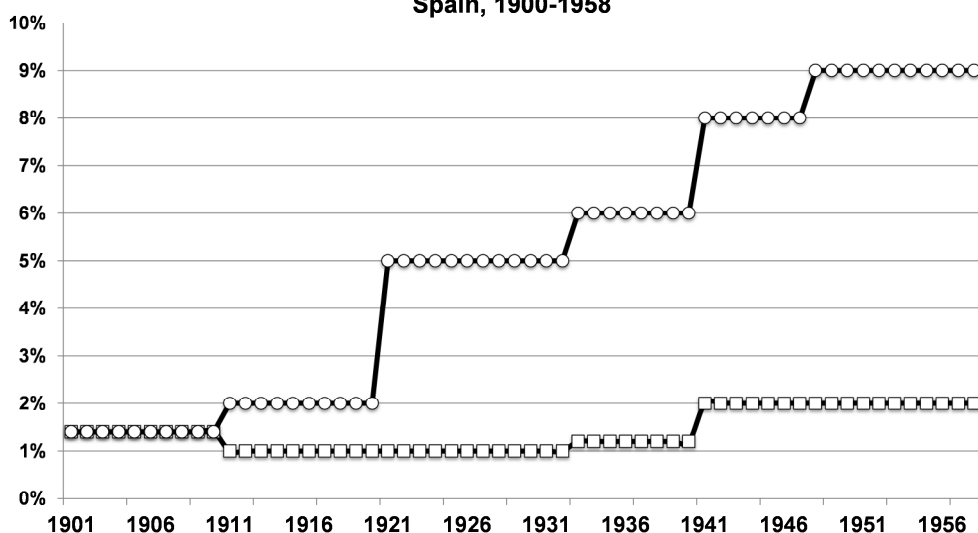
Source: *Gaceta de Madrid* and *Boletín Oficial del Estado*

Table 1. Home-ownership ratios in Spain, Madrid and Barcelona (1950-2011)

Year	Spain	Madrid	Barcelona
1950	45,9%	6,4%	5,1%
1960	51,9%	27,5%	11,2%
1970	57,1%	49,7%	31,1%
1981	74,9%	67,9%	49,8%
1991	78,4%	69,9%	59,8%
2001	82,2%	78,6%	68,2%
2011	78,9%	73,2%	64,0%

Source: (INE 1953, INE 1962, INE 1976, INE 1986, INE 1995, INE 2001, INE 2011)

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