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Leaving Legacies and Liabilities: The Distribution of Wealth at Death

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Leaving legacies and liabilities: The distribution of wealth at death

Franziska Disslbacher* Severin Rapp†

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Abstract

This paper leverages novel administrative data on terminal wealth in Vienna to show that Gini indices of wealth inequality at death exceed unity, with 20-30% of decedents leaving behind debt. We analyze the drivers of this distribution, finding that life-cycle effects have limited explanatory power. In contrast, bequest motives are associated with higher wealth, and a marginal increase in the share of decedents with bequest motives reduces inequality. Homeownership also correlates with higher wealth (the reverse is true for care-home residency), though housing wealth does not benefit the bottom of the distribution across districts. Finally, means-tested long-term care transfers significantly amplify terminal wealth inequality.

Keywords— Bequests, Wealth Distribution, Probate Records, Administrative Data, Life-cycle, Housing

JEL Codes: D12, D31, D64, E21, J62, N34

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1 Introduction

"Death buried here a rich possession, but yet fairer hopes" it reads on the gravestone of 19th-century Austrian music composer Franz Schubert in Vienna. Taken literally, half of the sentence may be somewhat hyperbolic. In fact, Schubert's estate was officially valued at around £6.00, and consisted of not more than his clothing. Much like another Austrian composer, Wolfgang Amadeus Mozart, Schubert passed away at a young age. Having incurred significant medical expenses, his family could not afford a funeral, such that a (very successful) concert featuring music from his œvre was held to defray the terminal expenses.[1] Fast-forward two centuries, we show that it is still by no means uncommon to pass away with an estate that is below the cost of a funeral, and study the role of age, care needs, preferences for post-mortem allocation of the estate, among others, in determining wealth at death.

In this paper, we address two related questions: What is the shape of today's distribution of wealth at death, and which individual-level and institutional factors shape this distribution? We capitalize on our novel hand-collected dataset covering a sample of Viennese estates and bequests. Our analysis yields several key novel insights. First, inequality in wealth at death is substantial. In contrast to previous studies that report distributional statistics of the terminal wealth distribution, the standard Gini index that we observe is either above or slightly below unity due to a substantial share of negative net estates that we are able to observe in our dataset. Up to a third of decedents passes away with negative net wealth. Second, our results are in line with previous studies finding low levels of wealth among the young and wealth accumulation well into retirement. However, the age structure cannot account for the level of inequality in probate wealth that we observe. Next, we show that individuals that reveal preferences over post-mortem allocation of the estate accumulate more wealth than others. This behavior has an equalizing effect on the distribution of wealth at death. Homeownership is associated with higher levels of wealth and has a mitigates inequality, though this holds not in all districts of the city. Finally, we find that means tested long-term care benefits have substantial mechanical effects on the probate wealth distribution, though we find no discernible individual efforts to hide wealth from means-testing.

The setting that we study is interesting for several reasons beyond the extreme levels of probate wealth dispersion that we observe. Our novel administrative data has no missing population and therefore makes for an ideal tool to illustrate the significance of indebted decedents and the determinants of their prevalence. We have comprehensive coverage of assets that are more important at the bottom of the distribution, including valuables and vehicles that are often missing from administrative sources such as inheritance or estate tax data. [2] Combined with the finding that means-tested long-term care transfers doe not

[1] A detailed description of the funeral and the circumstances of Franz Schubert's death can be found in Wilberforce (1866). Franz Grillparzer wrote the passage quoted in the beginning of this paragraph. It can be found on the cemetery of Wien-Währing, where the original grave is located.

[2] In Austria, no inheritance tax is operative since 2008, while net wealth taxation was abolished

result in serious concealment of assets at death, our data is particularly well suited to study distributional questions in the context of wealth.

Our findings have implications for several ongoing debates in economics around the distribution of wealth, its intergenerational transmission and the effect of public policy on the distribution of estates.

It is well understood that the probate wealth distribution is a crucial statistic that determines the extent to which wealth inequality is transmitted over generations through inheritances. Not least, Elinder et al. (2018) show that a key driver of the static negative impact of inheritances on wealth inequality is the, by definition, non-negativity of inheritances. Our findings on the large share of non-positive estates suggest that this mechanism can be non-trivial.[3] Given that the terminal wealth distribution is relatively robust to changes in the age composition of decedents, our findings suggest that this mechanical effect is unlikely to change in the future despite significant demographic change.

Our results also inform the controversy around the mortality multiplier method. The method allows inference on wealth (inequality) among the living through studying the wealth distribution of decedents (Acciari et al. 2024; Berman and Morelli 2021; Alvaredo et al. 2018; Kopczuk and Saez 2004). The significant share of negative wealth in the bottom half of the distribution warrants caution when recovering aggregate wealth from mortality multipliers with an unidentified population. Moreover, our finding on the limited age dependence of terminal wealth suggests that the simplified multiplier method that relies on the same multiplier across wealth groups may not differ substantially in terms of results from more complex approaches (Berman and Morelli 2021).

To study the factors that shape the terminal wealth distribution, this paper explores several hypotheses. We draw from the literature on wealth trajectories over the life-cycle to structure our argument.[4] In this sense, the findings relate to the discussion on the "retirement savings puzzle", that seeks to explain absent wealth decumulation in old age.[5] It is also tangential to recent evidence showing that some Americans carry debt well into retirement (Mitchell and Lusardi 2020). Note the distribution of wealth at death is a repeated cross-section. Therefore, our findings should be considered as an explanation of wealth inequality in a (repeated) cross-section rather than a contribution to the literature on life-cycle savings. To account for the large group of indebted decedents, we focus on

in 1993. In addition, capital income is only partly reflected in individual tax returns. For example, the capital gains tax on domestic and foreign investment income drawn in Austria is implemented as a withholding tax, such that it is not visible in individual tax records.

[3]Compared to previous research, the impact of negative values on inequality is much more pronounced in this study: The effect of setting all negative estates to zero decreases the Gini index of estates by up to 52 points - as opposed to 3 points in Elinder et al. (2018).

[4]Notable contributions include Jappelli (1999), Attanasio and Hoynes (2000), and Browning and Crossley (2001). Shorrocks 1975 relies on estate data to recover life-cycle accumulation patterns. Bauluz and Meyer (2024) document changes in life-cycle accumulation across cohorts. The patterns of life-cycle accumulation that we uncover in the repeated cross-section resemble those of Martinez (2022), where accumulation continues on average well into retirement. Waldenström (2024) also offers an overview of the discussion of wealth and the life-cycle.

[5]For reviews of this vast literature, refer to De Nardi and Yang (2016), French et al. (2023), and SuariAndreu et al. (2019).

four types of explanations.

Age. Compared to other estimates of wealth inequality, our sample of decedents consists of mostly elderly individuals. A simplistic model of life-cycle consumption and saving (without uncertainty, bequest motives, etc.) predicts that individuals should pass away having depleted their savings (Modigliani and Brumberg 1954; Atkinson 1971). As life-cylce savings are hump-shaped, unexpected early deaths can cause inequality in terminal wealth that can be fully explained by age. Many treatments of cross-sectional wealth inequality seek to tease out age effects (Almås and Mogstad 2012; Huggett 1996; Pudney 1993; Wolff 1981; Paglin 1975). The results are mixed. In his seminal contribution, Paglin (1975) shows that the Gini of wealth wihtout age adjustments corresponds to an overestimation of more than 50%. Others cast doubt on this finding. While a life-cycle pattern of wealth is present in different contexts, several studies find that this does not mean that a large proportion of wealth inequality can be explained by age (Huggett 1996; Pudney 1993). Moreover, when accounting for correlates of age that also affect wealth, Almås and Mogstad (2012) find that wealth inequality is almost the same before and after adjusting for age in countries such as Germany, Sweden, the US, and Italy. We test whether this conclusion extends from the distribution of wealth among the living to the distribution of terminal wealth. Our findings suggest that age is a strong predictor of average levels of wealth. However, we show that variation within age groups is substantial such that age has little explanatory power regarding the distribution of wealth at death.

Bequest motives. Bequest motives have been singled out to be one of the most important drivers of positive terminal wealth (Kvaerner 2023; Lockwood 2018; Kopczuk 2007) and inequality (De Nardi and Yang 2014). For example, demand for life insurances can serve as an hint to the relevance of bequest motives (Bernheim 1991; Inkmann and Michaelides 2012; Koijen et al. 2016).[6] Bequest motives are notoriously hard to measure, such that we simply distinguish between individuals with and without observable preferences for intergenerational resource allocation. The paper capitalizes on testaments, life insurances and, to some extent, inter-vivos gifts, to measure intergenerational resource allocation preferences.[7] Then, we test whether this indicator translates into terminal wealth. We find that individuals with preferences for post-mortem resource allocations have on average higher levels of terminal wealth. The Gini index in probate wealth falls upon a marginal increase in the population share of individuals that score higher on our indicator, though top and bottom wealth shares are not affected.

Housing tenure choice. Wealth accumulation patterns are closely associated with tenure choices. Housing may be a commitment device and lead to more wealth accumula-

[6]This is particularly the case if individuals annuitize a large fraction of their wealth through mandatory old-age insurances, for instance.

[7]As our discussion in Section 3 details, we consider those as sufficient but not necessary conditions for a bequest motive.

tion (Sodini et al. 2023; Attanasio et al. 2021). Favorable home price developments lead to wealth effects and have distributional implications (Kuhn et al. 2020), in particular in the context of variation across geography. Recent evidence from the literature on the "retirement savings puzzle" also suggest that homeowners have preferences to sustain their housing arrangements, in particular homeownership, such that they do not decumulate their wealth in old age (Nakajima and Telyukova 2020). Many studies find that a counterfactual increase in homeownership rates is associated with higher levels of mean wealth and more equal distributional outcomes (Kaas et al. 2019; Causa et al. 2019). Our findings offer a more nuanced take on this question. We document a homeownership wealth premium. However, we show that this does not uniformly reduce wealth inequality. For example, in most districts, the bottom 30% share does not respond to a marginal increase in the homeownership rate.

Long-term care. In a final step, we examine the implications of means-tested long-term care transfers (LTC-AR) for probate wealth.[8] The evidence on asset-tests and savings behavior is mixed (French et al. 2023): some studies showing no effect of asset testing (Hurst and Ziliak 2006; Sullivan 2006), while others find that asset-testing can in reduce savings (Powers 1998; Neumark and Powers 1998; Greenhalgh-Stanley 2012; Wellschmied 2021). In contrast to most studies that focus on savings responses among the living, we are able to study the mechanical effects of LTC-AR ex-post along the distribution of probate wealth. Our paper documents that asset recovery depresses probate wealth among the less affluent households mechanically, as wealthier households cover medical expenses out of their current income while alive. Inequality is higher before the abolition of LTC-AR. Moreover, we document limited evasion responses in the short term.

The remainder of the paper is organized as follows. In the following Section 2, we describe the probate system that is the backbone of the data in this paper. In addition, we discuss our sampling approach and the concept of net probate wealth featuring in this study. Next, Section 3 discusses our methodological approach to establish the relationship between characteristics of decedents and the level and distribution of probate wealth. Our results (Section 4) include an overview of terminal wealth across the entire distribution, and the analysis of the factors that shape the probate wealth distribution. Section 5 concludes.

[8]Until 2017, federal states in Austria support individuals in care homes through income-tested transfers to cover the costs of long-term care (Pflegeregress). Once transfer recipient passes away, federal states recover their outlays from the estate. Since the sudden abolition in 2017, the federal government refunds the cost of long-term care subsidies to federal states. The estates of long-term care benefit recipients is distributed instead across other creditors or heirs.

2 Data source

For this analysis, we compile a novel administrative dataset from Austrian probate records. We first describe the probate process in Subsection 2.1. Subsection 2.2 discusses the sampling approach. Subsequently, Subsection 2.3 introduces this study's probate-based measure of terminal wealth.

2.1 The Austrian probate process

Even though there is no taxation of bequests in Austria, rich administrative data on bequests exists. The availability of this data is due to the legal procedure that is necessary to administer the transfer of a deceased person's estate to the heirs. This procedure is called probate proceeding. In contrast to other countries, by Austrian law a probate proceeding is initiated for every death, irrespective of the level or composition of assets held by the deceased. Since district courts and notaries create a record for every probate proceeding, a rich data source on estates and heirs is created as a side product of the probate proceedings.[9]

The process of estate settlement in Austria entails that upon the death of a person, a death certificate is issued by a registry office. The registry office then forwards this death certificate to the district court in charge. The assignment of the district court is based on the jurisdiction of the deceased person's last place of residence.[10] In a next step, the district court assigns the case to a notary office in the district. After the notary has contacted the relatives, a death record is created (*Todesfallaufnahme*). This step entails checking for any testamentary dispositions in the Central Testament Register or the Testament Register of Austrian Lawyers. The creation of the death record implies the collection of personal and financial information of the deceased person. Any further procedural steps require a decision on the applicable jurisdiction. At this point, the Austrian courts may decide that they are not responsible, or that domestic (movable) assets have to be surrendered to heirs in a foreign jurisdiction.

If the Austrian jurisdiction is responsible, the subsequent stage of the process depends on the information gathered through the death record's preliminary screening of the deceased individual's wealth. If liabilities exceed assets or if assets are relatively low according to the preliminary screening, there is no full probate proceeding (end of the probate proceedings without a hearing). If there are assets to be distributed, potential heirs

[9]The administration of estates in Austria is largely regulated by the Non-contentious Proceedings Act (*Außerstreitgesetz AußStrG*) and the General Civil Code (*Allgemeines bürgerliches Gesetzbuch - ABGB*). Schilchegger and Kieber (2015), Oswald (2016), and Verweijen (2021), among others, provide in-depth discussions of the probate process.

[10]More specifically, each death case is allocated to a district court based on the deceased individual's general legal venue (*allgemeiner Gerichtsstand in Streitsachen*), which corresponds to their place of residence or habitual residence. The general legal venue is defined in the *Jurisdiktsnorm*, the law that governs the responsibility of civil courts in Austria. In principle, the legal venue is defined by an individual's durable relationship to a specific place, the amount of time an individual spends there, and the individual's other personal circumstances. In many cases, the deceased individual's main residence is in the jurisdiction of the relevant district court.

must then either accept or decline the inheritance. The former means that the heirs choose between a conditional or unconditional declaration of inheritance acceptance. Declining results in exclusion from inheritance. Against this backdrop, most court files document a process that falls into one of four main categories (1 as well as 2.a -2.c), that affect the the type of data that is available:

1. Termination of the probate proceeding without a hearing: If the estate is over-indebted or valued at less than €5,000 (€4,000 before 2015), the procedure can be terminated early. This happens in certain cases where no further provisions ought to be made, such as an entry in the property register. If there is an early termination of the probate process, the parties can submit claims to any assets that may be left. Creditors can receive a transfer in lieu of payments to cover (part of) their claims. In particular, the costs of the probate administration as well as the funeral are senior claims, such that they are satisfied first. More complex cases may involve a bankruptcy proceeding.

2. Full probate proceeding: If positive net wealth remains after the deduction of all costs, including the funeral, then the heirs can choose between three options:

   2.1 Negative declaration of acceptance of the inheritance: A heir may choose to decline the inheritance. The shares of other heirs are altered by the renunciation of any given heir.

   2.2 Unconditional declaration of acceptance of the inheritance: Together with the notary, the heirs prepare a statement of assets and liabilities. This is a declaration on oath about the assets and liabilities of the deceased person. False statements by the heirs are subject to legal consequences. If the liabilities turn out to exceed the assets of the estate after an unconditional acceptance,[11] unconditional heirs are liable with all their personal assets. While the decision to accept an inheritance unconditionally can be risky due to the unlimited liability, the advantages of an unconditional acceptance are the simplicity and the lower cost of the process. In practice, unconditional declarations of inheritance are often requested by heirs who had a close relationship with the deceased person and who consider the risk of unknown liabilities to be relatively low.

   2.3 Conditional declaration of inheritance acceptance: In contrast to the unconditional declaration of inheritance acceptance, heirs do not make a statement of assets and liabilities if they accept an inheritance conditionally. Instead, the notary compiles an inventory, which may also involve the valuation of certain assets (such as real estate and valuables) by a certified expert. This option relieves the heirs of the risk of personal liability with their entire personal wealth.

[11] This situation can materialize if certain liabilities were unknown at the time of the probate proceeding, for example.

The liability is limited to the assets that a heir receives as their inheritance. The creation of the inventory is usually more expensive and time-consuming. Unlike the unconditional declaration of inheritance acceptance, heirs require less knowledge about the financial situation of the deceased person.

While it is possible that some heirs decline their inheritance and others accept, heirs usually decide jointly on the unconditional vis-à-vis conditional acceptance. In some cases, it is possible that all entitled heirs do not accept their inheritance or that heirs are unknown. In this case, the notary must search for entitled heirs. This can be a long process. It may involve the use of professional services specialized in finding heirs. If there are no accepting heirs, the Federal Republic of Austria becomes the beneficiary of the inheritance (*heimfällig*). At the end of a procedure, when assets are transferred to heirs, the notary issues a decree of inheritance, which stipulates the shares of each heir. The determination of inheritance shares is based on Austrian inheritance law, taking into account existing wills. At the end of the procedure, changes can be made to the land register, commercial register, or other registers.

Depending on the procedure, different types of documents feature in the archived files. Data is most limited in cases where the Austrian jurisdiction is not responsible. Moreover, information on cases where assets are surrendered to heirs in a foreign country without a domestic probate procedure is relatively sparse. In all other cases, there is at least a death record form, that provides basic demographic data and a preliminary assessment of a deceased individual's wealth. In cases with early termination, we supplement data from the death recording form with information from the final decision, as well as bills and other documentation on assets and liabilities that feature in the file. In the other cases, we draw on the decree of inheritance, as well as inventories and the assets declarations that unconditionally accepting heirs provide.

Figure A1 in the Appendix illustrates the probate process graphically.

2.2 Sample

Due to the great number of probate proceeding files in the district courts (corresponding to the number of deceased individuals) and the complex nature of each file, it is necessary to draw a sample from the universe of Austrian probate records archived in the districts that are of interest to this paper.[12]

The sample period focuses on probate records from the years 2014 to 2019 (inclusive). Therefore, we exploit the possibility to generate data for a time period after the abolition of inheritance taxation in Austria. While it would be interesting to study more recently

[12]Each probate case file is physically archived in a district court. We screen each file for the relevant documents in a first step and enter the data manually into a database using a database tool. In some cases, a third step is necessary to supplement information from the key documents with contextual data that may be documented anywhere in the file. We set out the detailed procedure in the Appendix SectionA.1.

deceased individuals, it is worth noting that proceedings are more likely to be still ongoing the shorter the time interval between data collection and timing of death. The files of ongoing probate proceedings are kept at the notary offices, rather than in the archives of the district courts. As our study cannot draw strong conclusions regarding such cases, we focus on completed probate proceedings in a time window that trades off the number of completed cases and the timeliness of the data.

The study is based on two samples of probate records. Subsample 1 builds on the sampling of cases by the Federal Computing Centre (BRZ) from different court locations. It includes the district courts of Innere Stadt, Döbling, and Donaustadt. For this subsample, file IDs were drawn from the list of all probate proceedings using a stratified random sampling method. Subsample 2 includes the district court of Meidling. This sample was drawn purely at random.

The selection of district courts is designed to cover as much of the city area as possible with the fewest number of involved district courts. The district court pInnere Stadt is not only responsible for the first district (1) but also for the districts of Landstraße (3), Wieden (4), Margarethen (5), Mariahilf (6), and Simmering (11). The Döbling district court archives cases from Währing (18) and Döbling (19). The district courts of Donaustadt (22) and Meidling (12) are each responsible for only one district. Thus, the sample covers 10 out of 23 Viennese districts.

Subsample 1 covers approximately 13% of the total volume of completed probate records within a year in each district. There is an oversampling of cases with high probate wealth.[13] To that end, the stratification of the selection within the court districts aims to draw particularly complex proceedings with a higher probability. This approach is based on the assumption that complex proceedings with more procedural steps are also associated with higher estate values.[14] Crucially, the number of procedural steps is a correlate of the duration of a probate case. However, a probate case with a long time interval between death and the date of the final decision does not necessarily have many procedural steps. Against this backdrop, $\rho = 0.05 = 5\%$ of the cases in Subsample 1 represent in each district the probate cases with the most procedural steps. The other cases are drawn randomly from the total population in each year. In the Appendix (Table A1), we show that this sampling approach does lead to a higher proportion of high net-worth decedents in our sample. The average probate wealth among the complex cases is more than €1 million higher than the average wealth of the other cases.

Subsample 2 is based on a less complex sampling procedure. It consists of approxi-

[13]The oversampling is designed to ensure that the extremes of the wealth distribution are well represented. In a purely random sample, extreme cases are often not represented because only a few individuals possess particularly high wealth and therefore are rarely randomly selected. From the perspective of wealth research, this approach is analogous to oversampling attempts in survey settings, where wealthy households are more likely to be represented in the sample. To obtain a representative sample in the results, the over-sampled cases must be included in the calculations with appropriate weights, thus adjusting their proportion to the actual proportion in the population.

[14]Many procedural steps are common if there are legal disputes over certain assets, for example.

mately 50 records from each year within the observation period at the Meidling district court. The draws are random.[15] In contrast to Subsample 1, this may result in slightly less comprehensive coverage of sizable estates. The sample collection period is June 2021. The administration of the sampling process is the reason for a different sampling design in Subsample 2. The share of the Meidling population that is covered by Subsample 2 is somewhat smaller than the share of the population in the other nine districts that Subsample 1 covers. Therefore, both subsamples together result in a total sample of 11% of completed probate cases.

In the Appendix Section A.2, we discuss in detail the weighting procedure and provide an overview of the total sample and population estimate of complete cases in each district by year. Table 1 provides a set of summary statistics on the target population in the ten districts that this paper considers. Among the probate cases across all years, there is a slight majority of women. Approximately 53% of the population are women, and around 47% are men. Most deceased individuals fall into the age bracket between 80 and 90 years. 72% of all individuals are between 70 and 100 years of age when they pass away. The most common marital status is "widowed", followed by married individuals. More than two thirds of all cases fall into one of those categories. There are approximately 35,000 Austrian citizens, accounting for 92% of the total.

2.3 Probate wealth definition

This study aims to comprehensively document the wealth of deceased individuals. At the center of interest is a concept of probate wealth, where positive assets are aggregated and netted out with liabilities. The probate records focus on wealth at the disposition of a deceased individual as of the moment of death, such that claims to future defined benefit pensions and human capital do not feature in the concept of probate wealth. It is worth noting that our measure refers to individual wealth holdings. If the deceased individual co-owned assets with other people, the share owned by the deceased is included in the probate wealth. In many cases, spouses share bank accounts or own properties jointly. Overall, the concept of probate wealth in this study is broadly consistent with the concept of the net estate in probate proceedings (*Reiner Nachlass*), which includes all assets minus debt. However, there are some notable differences between the legal concept of the net estate in probate proceedings and the notion of probate wealth that underlies the results in this paper. We deviate from the net estate in the probate proceedings regarding the inclusion of specific asset classes that we discuss below.

Assets In the probate proceedings, probate wealth generally includes most assets of deceased individuals. We collect data on the number and value of real estate properties and vehicles. In addition, the data features information about other real assets. This category

[15] Instead of stratifying the sample and drawing cases with many procedural steps by design, we take every tenth completed file in each year from different units of the district court. This does not unduly affect the coverage of deaths in later calendar months.

Table 1 Socio-demographics of the deceased

Variable	Level	N	Share
Gender	male	18043	0.47
	female	20340	0.53
Age	0 to 30	803	0.02
	30 to 60	4346	0.11
	60 to 70	4982	0.13
	70 to 80	9164	0.24
	80 to 90	9756	0.25
	90 to 100	8766	0.23
	100 to 120	543	0.01
	NA	23	0.00
Marital status	married	12684	0.33
	widowed	13839	0.36
	single	4594	0.12
	divorced	6285	0.16
	other	159	0.00
	NA	821	0.02
Austrian citizen	yes	35260	0.92
	no	3123	0.08

[a] Note: The table displays various weighted characteristics based on both absolute and relative numbers. The data covers probate records between 2014 and 2019.
[b] Source: Own calculations and data with district weights.

comprises of valuables, such as paintings, furniture or coin collections, for example. While some assets of this type have a well-defined value, the value of others is less obvious. If the notary offices compile an inventory, experts commissioned by the notary offices provide an estimate of the market price of valuables. In cases where heirs declare the value of the estate, they would estimate the market value themselves.[16] Even though individuals in our data tend to be retired, there is a small minority who hold wealth in non-traded self-employed businesses. The value of this asset class is usually equal to the deceased individual's business share. Businesses are commonly valued at some notion of the market value, though there is a broad range of valuation approaches (including different valuations for voting and non-voting shares, for example). Regarding financial wealth, our database tool aggregates investments held in bonds, publicly traded shares, investment funds and managed accounts into one category (other financial investments). Furthermore, we collect data on life insurances but exclude them from our concept of probate wealth. This type of insurance is not always fully recorded in the probate process, since life insurances that have a specific named beneficiary are excluded from the probate proceedings.[17] Furthermore, we exclude funeral insurance policies. As funeral expenses are not considered on the liabilities side along with other death-related costs, we fully discard burial insurance policies on the asset side. This constitutes an important deviation from the legal concept of the net estate in probate proceedings. We record other insurances, building society contracts, bank passbooks and bank accounts (the sum of sight accounts and savings accounts) in separate categories respectively. In addition, our approach records cash holdings. Lastly, there is a category of other assets that do not fall into any of the previous categories. This predominantly includes claims against other individuals or organizations.

Valuation of Real Estate By default, under inheritance law, real estate (including land and buildings) is assessed using a cadastral valuation method (*Dreifacher Einheitswert*). However, in instances involving at least one conditional succession declaration, market values are provided by court-appointed reviewers. This availability of both, the cadastral value and the market value, typically also occurs in cases involving disputes between the heirs concerning the estate's division. For other cases, only the cadastral values are used and part of the probate files. The cadastral value for real estate, derived through a complex and opaque algorithm by the Austrian Ministry of Finance, is based on data generated in 1973, and last updated in 1983. Since 2001, due to the growing discrepancy between market and unit values, the legal standard has been to apply the three-fold cadastral value for assessments. In general, no recent (post 1988) data on the relationship between unit and market values is available. To standardize real estate valuation across our dataset, we

[16]The inclusion of valuables and vehicles makes our data particularly comprehensive. In many of the most comprehensive administrative data sources, such as those available in Scandinavian countries, these types of assets are not recorded. Not at least when it comes to wealth at the bottom of the distribution, these asset classes matter (Waldenström 2024).

[17]The sample features 240 estates with life insurance policies that are not part of the estate. These can only be partially quantified. On average, they amount to around €30,000.

estimate the correlation between market and cadastral values.[18] Figure A2 in the Appendix illustrates this relationship. We then adjust cadastral values to market values using these estimates. Overall, we adjust prices of property valued initially at the administrative value (i.e. cadastral value) with a factor of around 1:18.5.

Treatment of Inter-Vivos Gifts Gifts can be deducted from the share of the net estate allocated to the heir who received the gift, upon any other heir requesting the consideration of the gift. The deceased individual can deny heirs the right to consider gifts in the probate proceedings,[19] as long as forced shares remain unaffected. Gifts made to individuals who do not have a claim to any forced shares are to be considered in the probate proceedings only if they are made at most two years before death. Moreover, regular transfers out of the income of the deceased person (for example ordinary birthday gifts), do not count as gifts in the probate proceedings. Therefore, we do not consider gifts in our measure of probate wealth. However, we discuss the role of gifts in Section A.6 against the background of our estimates of bequest flows, supplementing our data with aggregates from the Austrian Ministry of Finance Gifts Registry. We also record evidence suggesting that a decedent made a gift earlier in life, to identify decedents who have wealth transfer motives.

Liabilities Debt in the probate proceedings refers to the outstanding claims against the deceased person. We consider negative bank accounts and bank loans, debt generated by the LTC-AR and other liabilities (owed to natural and legal persons). However, we do not account for all liabilities in the subsequent calculations. We discard funeral expenses from the sum of liabilities. Court and notary fees, as well as any costs incurred for estate trustees do not factor into the probate wealth concept in this study either. We also exclude the cost of valuation reports, following from property value appraisals, for example. While liabilities are well documented in the probate files overall, especially in inventories and asset statements, they are sometimes challenging to ascertain. This is the case in estates with minimal assets and clear insolvency, where a complete listing of claims may not necessarily be available. In such cases, only information from invoices attached to the case file and documented claims could be utilized. Generally, liabilities are only included in the estate settlement process if their determination does not significantly delay the proceedings. This occurs, for example, when a claim is contested through legal means.

Overall, the Austrian probate data set differs from probate records in other countries not only due to its broad coverage due to the absence of asset thresholds, but also its coverage of some components of individual balance sheets. For example, the inclusion

[18] In the Appendix Table A3, we report the regression results for several models. The table compares naive specifications without control variables and models where we estimate the relationship between cadastral value and market values conditional on observable property characteristics. Control variables include property size, location, and construction year using the sample of real estate cases (a probate case can include multiple real estate units). The naive model performs well in predicting market values based on the cadastral value and rests on the largest number of observations to estimate the model coefficients. Therefore, we use the coefficients from the naive model in all further computations.

[19] This could be achieved by writing a will, for example.

of jointly held property in the probate wealth concept is an important difference to the English PPR. Moreover, in contrast to the data from the PPR, it is possible to extract data on portfolios and specific wealth components from our dataset, such as housing wealth. The omission of inter-vivos gifts that we discuss in Subsection A.6 is common though not universal in probate data. It is also a characteristic of the PPR. In the US, some probate data sources also omit inter-vivos gifts (Tomes 1981), whereas others include them if they "appeared in the probate records" (Menchik and David 1983, p. 679). Finally, the focus on wealth that is at the disposition of the deceased at death is also common in other probate records, such as the PPR.

3 Method

We start out by using standard descriptive methods to show the distribution of wealth at death, paying particular attention to the share of individuals with zero or negative net probate wealth in Section 4. To appraise different hypotheses that may explain the high level of inequality in terminal wealth that we obsereve, we use a regression framework supplemented by further descriptive statistics. The different explanations are operationalized as follows:

To study the age dependence of probate wealth, we grouped decedents in different age brackets and use a dummy variable for each age group. We use age categories, but we show that the age-wealth relationship can be approximated by a cubic polynomial. We proxy for wealth transfer motives with three indicator variables that identify individuals with post-mortem resource allocation preferences. To begin with, the analysis considers whether a person has made gifts in the past. This is not a sufficient identifier of post-mortem resource allocation preferences for two main reasons. On the other hand, we are unlikely to capture all gifts (see Section 2.3). On the other hand, individuals may have a desire to hold wealth until they pass away, even though they have a bequest motive. In addition to gifts, we identify individuals who wrote a will. Again, on its own, this is not a perfect indicator of bequest motives. People may agree with the default distribution of the estate, and only write a will if they want to deviate from it. Finally, we consider owners of life-insurances to have bequest motives. Regarding housing tenure, we code several indicator variables for the following groups: care home residents, owner-occupiers, renters and individuals living in other arrangements (including those without residence). In some cases, individuals have multiple residences. Therefore, these categories are not mutually exclusive. Finally, we include a dummy variable for individuals affected by LTC-AR. Cases where the LTC means tested benefit provider enters the probate process as a creditor and makes claims for supplementing income during lifetime fall into this category.

The regression models always feature a specification where we regress probate wealth on each of the variables that we use to operationalize different determinants of terminal wealth.[20] We control for socio-demographic variables (gender, marital status, nationality

[20]We transform net probate wealth with the inverse hyperbolic sine transformation: $\text{arsinh}(w_i) =$

and retirement income) and year and district fixed effects. In additional specifications, we substitute the dependent variable for the recentered influence functions (RIFs) (Fortin et al. 2011) of three distributional statistics of probate wealth using the same set of controls: the bottom 30% share, the top 10% share and the Gini index.[21] Each RIF is computed on the distribution of terminal wealth within a year and across districts.

To obtain the RIF of the top share, we subtract the RIF of the Lorenz ordinate from unity. For the bottom share, we take the RIF of the Lorenz ordinate. The RIF for the Lorenz ordinate is given by (Essama-Nssah and Lambert 2012):

$$RIF(w_i, L(p)) = \left(1 - \frac{w_i}{\bar{w}}\right) L(p) + \frac{p \cdot q_p}{\bar{w}} + \mathbb{1}\{w_i < q_p\} \cdot \frac{w_i - q_p}{\bar{w}} \tag{1}$$

In Equation 1, a given level of probate wealth is denoted by $w_i \in W$, the mean level is $\bar{w}$. $L(p)$ is the p^{th} quantile of the Lorenz curve (the share of probate wealth held by the bottom p percent of decedents). q_p refers to the p^{th} quantile of W. The RIF of the Gini index reads as follows (Firpo et al. 2018):

$$\text{RIF}(w_i; \nu^G, F_W) = 2 \cdot \frac{w_i}{\bar{w}} \cdot \nu^G + \frac{1 - w_i}{\bar{w}} + \frac{2}{\bar{w}} \int z F_W(z)\, dz \tag{2}$$

In Equation 2, ν^G refers to the Gini index, and F_W is the CDF of probate wealth.

4 Results

We first present our main results on the volume and distribution of probate wealth and debt in Subsection 4.1. Subsequently, the analysis focuses on explaining the high level of inequality in probate wealth that we find (Subsection 4.2).

4.1 The full distribution of wealth and debt among the deceased

Based on our probate data, it is possible to arrive at a measure for the total volume of probate wealth across districts for each year. The volume is significantly lower in the 2014-2016 period than in later years. However, strong variation across the individual years prevails. The aggregate probate wealth volume ranges from a minimum of €0.4 billion in 2016 to a maximum of €1.2 billion in 2017. The mean value across years is €0.8 billion.

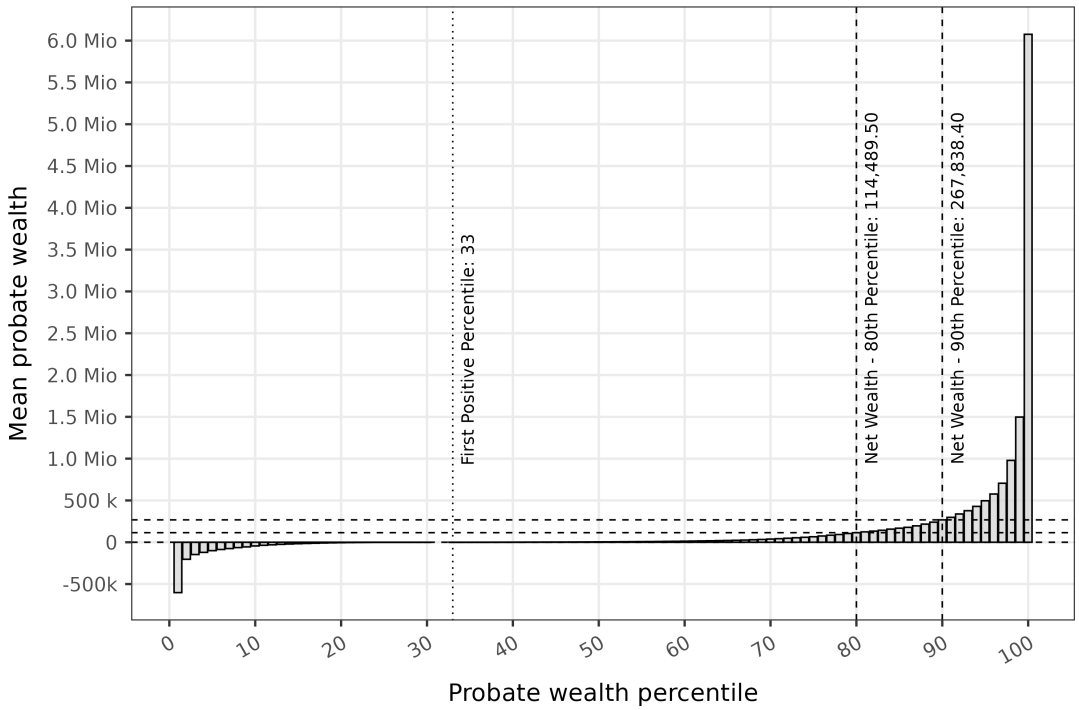
The Pen's Parade in Figure 1 illustrates the distribution of probate wealth. The x-axis shows the estate wealth percentiles, and the y-axis shows the mean per percentile of estate wealth. The graph illustrates that probate wealth between the 20^{th} and 70^{th} percentiles is close to zero. This means that approximately 50% of all completed probate cases contain very little wealth or even debt of a few thousand euros. The distribution looks markedly

$\ln\left(w_i + \sqrt{w_i^2 + 1}\right)$.

[21] RIF regressions are a commonly used tool to study the factors that contribute to distributional outcomes. For applications to wealth inequality specifically, see Davies et al. (2017) and Lindner (2015)

different at the tails. At the bottom end of the distribution, individuals die with substantial amounts of debt. The difference between assets and liabilities ranges from approximately €600,000 in debt on average in the first percentile to precisely €4,778 at the median of the probate wealth distribution. Starting from the 7^{th} decile, the weighted mean probate wealth increases. The Pen's Parade becomes much steeper from the 85^{th} percentile onward. Mean probate wealth rises from approximately €1,178,000 in the 10^{th} decile to a mean estate of around €6 million in the top percentile. Dispersion in estate wealth increases even further at the very top of the distribution. The top 0.5% leave an average estate of slightly more than €9.3 million, and the richest 0.1% around €22,600,000. Therefore, the dispersion of the probate wealth distribution is mainly driven by the relationship between the top deciles and the share of the lower half of the distribution.

Figure 1: Pen's parade of probate wealth



[a] Note: The Figure shows the Pen's Parade of estate values. The x-axis represents the percentiles of estate assets. The y-axis depicts the weighted average estate per percentile in €. Values refer to the distribution across years.

[b] Source: Own calculations based on probate records in the years 2014-2019.

Turning to inequality indicators, Table 2 reports the Gini index of probate wealth by year in the first column. The second column Gini coefficient is computed after setting all negative values to zero (Elinder et al. 2018).[22] The Gini indices for individual years range

[22]The scale of the coefficient typically ranges from 0 to 1. Under certain circumstances, however, the Gini coefficient can also take negative values or values greater than unity (Chakravarty 1988). This occurs particularly if the proportion of estates where liabilities exceed assets is high. The latter is the case in the distribution of probate wealth in Vienna, as the first column illustrates.

Table 2 Distribution

Year	Gini (full sample)	Gini (no negatives)	Top 10% share	Bottom 50% share	Share negatives
2014	1.11	0.90	93.21	-11.16	0.34
2015	1.19	0.88	93.47	-17.47	0.33
2016	1.37	0.85	94.36	-29.90	0.35
2017	1.17	0.90	95.48	-14.25	0.33
2018	1.03	0.88	85.19	-7.93	0.23
2019	0.98	0.87	81.92	-5.58	0.21

[a] Note: The table illustrates distributional statistics. "No negatives" means that negative wealth is replaced with zeros. "Share negatives" refers to the share of probate cases with negative net probate wealth
[b] Source: Own calculations and data with district weights.

between 0.98 in 2019 and 1.37 in 2016 for all completed probate cases. The Gini coefficients for individual years vary significantly.

Once negative values for probate wealth are set to zero, the Gini indices range at more moderate levels between 0.85 and 0.90. Two observations stand out. Firstly, the years with minimum and maximum inequality do not coincide between the first and the second column. While inequality is the highest in the first column in the year 2016, it is lowest in that year in the second column (0.85). The years with the highest inequality in terms of non-negative probate wealth Gini indices are 2014 and 2017, where the index corresponds to 0.9. Secondly, the variability of the index over time is lower in the second column than it is in the first. The difference between the maximum and the minimum in the first column is 0.39, whereas it amounts to 0.05 in the second column.

In columns four and five, Table 2 reports indicators of probate wealth concentration. The share of the top 10% of the probate wealth distribution ranges at over 90% of total wealth between 2014 and 2017. In 2018, the share of the top decile drops to 85%, and eventually to 82% in 2019. The share of the bottom half of estates is shows a similar pattern. In the period between 2014 and 2017, estates below the median in sum are indebted. The bottom 50% share is below -10%, before it increases to -8% in 2018 and -6% in 2016.

Finally, Table 2 reports the share of estates with negative probate wealth. From 2014 to 2017, probate wealth is negative for at least a third of the population in every year. Only in 2018, negative estates become less prevalent. 23% (21%) of decedents have negative terminal wealth in 2018 (2019).

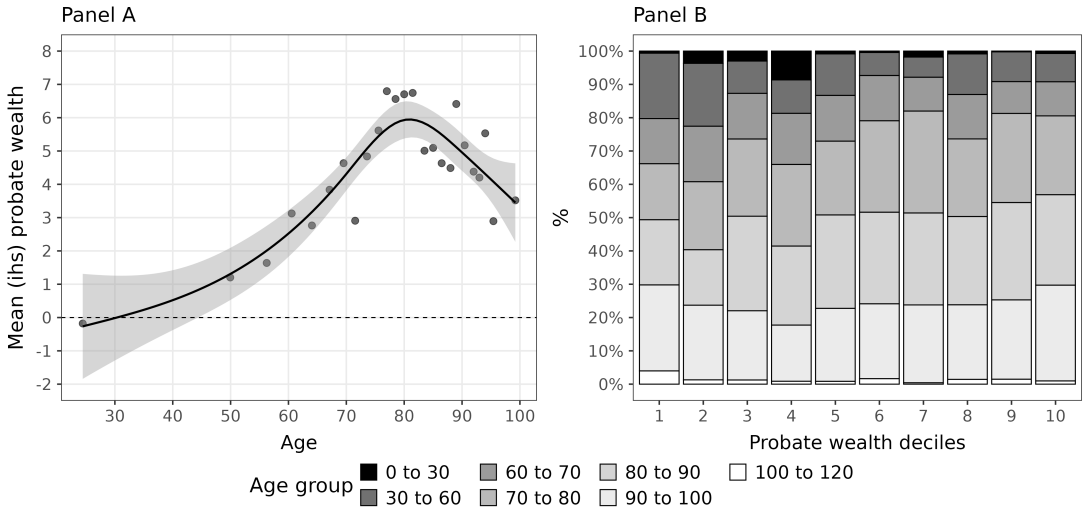
4.2 The drivers of probate wealth inequality

What factors can account for the dispersion in the distribution of terminal wealth? We discuss the age structure, bequest motives, housing choices and LTC-AR consecutively.

4.2.1 Age structure

Standard life-cylce savers would be indebted when young and hold zero terminal wealth. It follows that it should be predominantly young individuals who die with low levels of net wealth. Figure 2 provides graphical evidence on the bivariate relationship between age and wealth and the variation of wealth within age groups. Panel A in Figure 2 shows a smoothed estimate of mean ihs-transformed probate wealth in 25 age bins obtained from a generalized additive model with a penalized cubic regression spline. Overall, mean wealth is positive in all age groups positive. However, it is individuals that pass away below the age of approximately 60 years who tend to the lowest levels of wealth at death. Probate wealth peaks among decedents who die just before reaching an age of 80 years. In older age groups, ihs-transformed probate wealth drops again. Panel B in Figure 2 categorizes the deceased in ten deciles of the probate wealth distribution over across years. Across the distribution, decedents aged 70 to 100 are dominant. However, the share of decedents below the age of 70 is substantially higher in the first and second decile than it is in the most affluent two deciles. In accordance with Panel A, younger decedents are over-represented in lower wealth deciles in Panel B. There is also an elevated share of the oldest old in deciles one and two.

Figure 2: The joint distribution of age and wealth



[a] Note: The Figure shows a smoothed estimated of mean probate wealth along the age distribution in the first panel (based on a generalized additive model with a cubic spline). Probate wealth is ihs-transformed. The second panel shows for each decile of the probate wealth distribution the share of decedents in a given age group.

[b] Source: Own calculations based on probate records in the years 2014-2019.

The first column of Table 3 reappraises the bivariate findings in Figure 2. In contrast to Figure 2, we control for fixed effects and several demographic characteristics in Table 3. In younger age groups, net probate wealth is still low. In older age brackets, levels increase. The exception are the oldest old, where net probate wealth is negative (conditional on

Table 3: Age and terminal wealth

	Level	Top 10% share	Bottom 30% share	Gini
age 30 to 60	0.001	0.110	−0.277+	0.439+
	(1.024)	(0.129)	(0.161)	(0.255)
age 60 to 70	1.329	0.056	−0.082	0.128
	(1.020)	(0.128)	(0.161)	(0.254)
age 70 to 80	3.011**	−0.072	−0.030	0.000
	(0.994)	(0.125)	(0.156)	(0.247)
age 80 to 90	3.601***	−0.084	−0.011	−0.037
	(0.990)	(0.124)	(0.156)	(0.246)
age 90 to 100	3.136**	−0.069	−0.048	0.008
	(0.997)	(0.125)	(0.157)	(0.248)
age 100 to 120	−0.059	0.258	−0.310	0.506
	(1.487)	(0.187)	(0.234)	(0.370)
Num.Obs.	4,709	4,709	4,709	4,709
R2	0.096	0.023	0.013	0.017
Demographic controls	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001
Each specification features district fixed effects and year fixed effects. Observations without age data are dropped. Source: Own calculations and data with district weights.

the control variables). The maximum is in the age group with individuals between 80 and 90 years of age. The difference to the level of terminal wealth in the reference group (decedents below the age of 30) is statistically significant and positive for individuals above the age of 70, but not for the oldest old. Overall, Table 3 is more aligned with the conventional hump-shaped life-cycle pattern of wealth accumulation than Figure 2.

In contrast to wealth levels, the RIFs of several inequality measures only respond weakly to differences in age. Overall, a common pattern is that the share of younger and the very old individuals tends to increase inequality, whereas a larger number of intermediate-age individuals is associated with lower (higher) top 10% (bottom 30%) RIF-levels. However, most coefficients are not statistically significantly different from zero. In column 2 of Table 3, it becomes apparent that the top 10% share is not at all related to the age structure among decedents. All age coefficients are insignificant at conventional levels. Overall, a similar conclusion can be drawn regarding the wealth share held by the least affluent 30% of decedents. The share of individuals aged 30 to 60 has a negative effect on the bottom 30% share, implying a dispersing effect on the distribution of probate wealth. However, the estimate is only statistically significant at the 10% level. Only when looking at the influence function of the Gini index can we find a stronger effect of the age structure: increasing the share of decedents below the age of 60 and older than 30 is associated with significantly higher levels of inequality.

Table 4: Post-mortem resource allocation preferences and terminal wealth

	Level	Top 10% share	Bottom 30% share	Gini
testament:yes	4.996***	−0.418***	0.337***	−0.680***
	(0.301)	(0.039)	(0.049)	(0.077)
lifeinsurance:yes	1.533***	−0.098+	0.142*	−0.250*
	(0.404)	(0.052)	(0.065)	(0.103)
gift:yes	2.783***	−0.121	0.395***	−0.612***
	(0.622)	(0.080)	(0.100)	(0.158)
Num.Obs.	4,709	4,709	4,709	4,709
R2	0.157	0.050	0.029	0.041
Demographic controls (incl age)	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001
Each specification features district fixed effects and year fixed effects. Observations without age data are dropped. Source: Own calculations and data with district weights.

4.2.2 Wealth transfer motives

Preferences over the resource allocation beyond the end of people's lives have implications for the level and distribution of wealth at death. The estimates in Table 4 reveal that all indicators of bequest motives are positively related to the level of terminal wealth. The coefficient on the presence of wills is the greatest in magnitude. All estimates are highly significant in statistical terms. Holding life-insurances is negatively related to the share of wealth held by the most affluent decile of decedents. The coefficient estimate on life-insurances is statistically significant at the 5% level. The bottom 30% share moves in the opposite direction compared to the top 10% share. The coefficient estimates suggest that the increase in the bottom 30% share that is associated with a marginal increase in individuals with holding life-insurances is stronger than the corresponding fall in the top 10% share when considering life-insurances and gifts. Finally, the Gini index is also sensitive to changes in the distribution of bequest motives not only in terms of dying with a testament, but also in terms of holding life-insurances and having made gifts in the past. Inequality rises as bequest motives become less important.

4.2.3 Homeownership

The indicator variable distinguishing individuals in different housing tenure arrangements is strongly correlated with the level of terminal wealth. However, Table 5 reveals that the relationship between tenure status and homeownership and terminal wealth is complex: To reflect differences in local housing markets, we interact homeownership with district fixed-effects and find that interactions matter for inequality.

In the first column of Table 5, we find that individuals who mainly live in care homes have significantly lower wealth levels than renters. This effect is statistically significant at the conventional levels. The estimate of the effect of homeownership on terminal wealth is large and positive. In terms of its magnitude, the estimate is almost as large as the estimate

Table 5: Housing and terminal wealth

	Level	Top 10% share	Bottom 30% share	Gini
carehome:yes	−5.350***	0.346***	−0.383***	0.689***
	(0.382)	(0.049)	(0.063)	(0.099)
homeowner:yes	5.297***	−0.600***	0.178	−0.511**
	(0.670)	(0.086)	(0.111)	(0.173)
otherhome:yes	0.351	0.058	−0.022	0.066
	(0.331)	(0.043)	(0.055)	(0.086)
ownerXDöbling	0.897	−0.211	0.742***	−1.183***
	(1.005)	(0.129)	(0.166)	(0.260)
ownerXInnereStadt	1.305	−0.169	0.275+	−0.469+
	(0.926)	(0.119)	(0.153)	(0.240)
ownerXMeidling	1.763	−0.249	0.162	−0.386
	(1.185)	(0.153)	(0.196)	(0.307)
Num.Obs.	4,709	4,709	4,709	4,709
R2	0.204	0.095	0.043	0.063
Demographic controls (incl age)	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001
Each specification features district fixed effects and year fixed effects. Observations without age data are dropped. Source: Own calculations and data with district weights.

of the effect of care-home residency on terminal wealth, but with the opposite sign.

The tenure structure does not only affect average wealth levels, but also distributional statistics. All inequality indicators in Table 5 suggest that inequality increases as the share of care-home residents rises. At the same time, an increase in the share of homeowners is associated with a substantial decline in the top 10% share (column 2 of Table 5). Despite the pronounced effects on the top share, the bottom 30% share does not mirror the decline in inequality upon a marginal increase in homeownership uniformly in column 3. Only in one district we find a strong increase in the bottom share upon a marginal increase in homeownership. The increase is much weaker and hardly statistically significant in the other districts. The association between the Gini index and the share of homeowners also differs across districts. However, generally the effect is statistically significant, contrasting with the estimates in column 3 of Table 5. In a similar vein, the Gini index is negatively associated with real estate ownership. Like the coefficient estimates of homeownership in column 3 of Table 5, the estimate is highly significant in statistical terms. As a result, a counterfactual distribution would be substantially more equal than the distribution of net probate wealth that we observe if the share of homeowners was higher.

4.2.4 Long-term care asset recovery

To what extent is low wealth and the drop in both inequality and the negative values driven by LTC-AR? For individuals that are affected by LTC-AR, the effects are similar

Table 6 Distribution

	Gini		Bottom 50% share		Share of negatives	
Year	Total	excl. LTC-AR	Total	excl. LTC-AR	Total	excl. LTC-AR
2014	1.11	1.01	−11.16	−5.51	0.34	0.24
2015	1.19	0.99	−17.47	−5.77	0.33	0.22
2016	1.37	1.04	−29.90	−10.32	0.35	0.22
2017	1.17	1.05	−14.25	−7.70	0.33	0.23
2018	1.03	1.02	−7.93	−7.18	0.23	0.23
2019	0.98	0.98	−5.58	−5.58	0.21	0.21

[a] Note: The table illustrates distributional statistics. "No negatives" means that negative observations are dropped. "Share negatives" refers to the share of probate cases with negative net probate wealth

[b] Source: Own calculations and data with district weights.

to those of an inheritance tax. In cases where care costs are particularly high relative to current income, or where an individual spends a prolonged episode in long-term case, LTC-AR is equivalent to an inheritance tax of up to 100%. Analytically, there are two effects (Slemrod and Kopczuk 2000). Firstly, the federal states' agencies that administer the LTC-AR are creditors in the probate process. Their claims enter the individual balance sheet as a liability (mechanical effect). The second effect consists of a behavioral response. Individuals who are affected by the LTC-AR may be inclined to hide some of their wealth,[23] spend it down, or accumulate less in the first place.[24]

The mechanical effect is pronounced. Dropping LTC-AR debt from decedents' balance sheets results in substantial distributional effects during years where LTC-AR is operative. For example, the Gini coefficient of probate wealth is 1.11 in 2014. When we discard debt from LTC-AR, the coefficient drops to 1.01. In later years until the abolition, this drop is even stronger. In 2019, there is no change in the Gini coefficient, since estate recovery claims are not issued any more. The share of wealth held by the bottom 50% of the population as well as the share of negative estates follow a similar pattern. The absolute value of large negative wealth-shares at the bottom falls dramatically in the years preceding the policy's abolition after removing LTC-AR debt from the net probate wealth. At the same time, the share of negative estates drops between 2017 and 2018, while it evolves smoothly over the years once we discard LTC-AR debt.

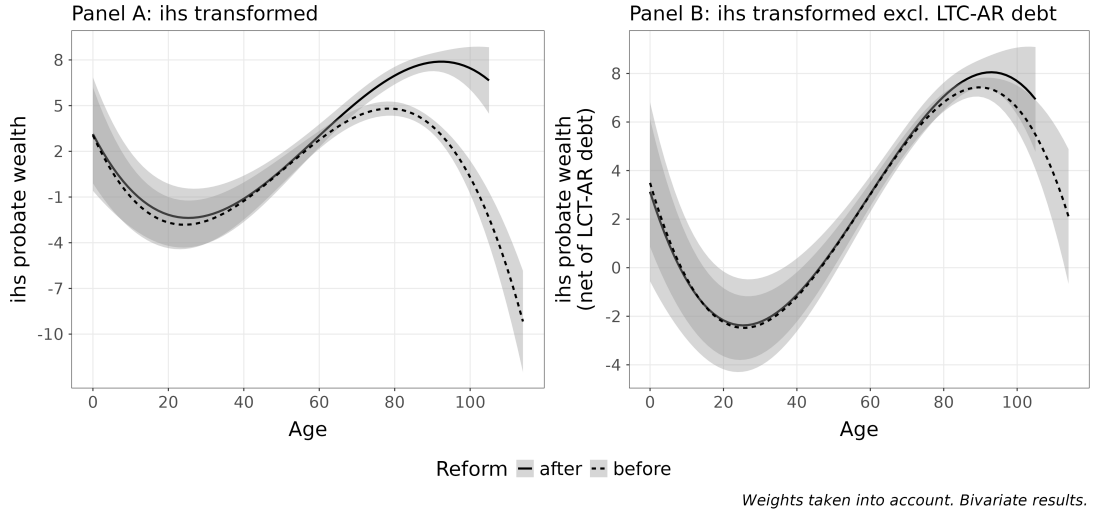
Do behavioral responses amplify the mechanical effect? In the short run, we find little

[23] The evidence on the importance of deathbed tax planning as a distortion of end-of-life wealth data is mixed. Evidence from the US, Germany and the Netherlands points towards behavioral changes just before death geared towards reducing the tax liability (Kopczuk 2007; Glogowsky 2021; Suari-Andreu et al. 2024), while Swedish evidence suggests otherwise (Erixson and Escobar 2020)

[24] Evidence from French Assurance-vie accounts on lifetime responses to inheritance tax incentives suggests that people do not adjust their savings behavior strongly to avoid inheritance taxation (Goupille-Lebret and Infante 2018). This is in line with German evidence on a low elasticity of taxable wealth (Glogowsky 2021). In contrast, the inheritance tax base in Sweden and the US is highly elastic and individuals leave gifts to avoid taxation (Joulfaian 2005; Escobar et al. 2023).

evidence of change in the magnitude of assets or liabilities other than LTC-AR debt in the probate records. Figure 3 plots an estimate of (ihs-transformed) probate wealth along the age distribution before and after the abolition of LTC-AR.[25] The dotted line refers to terminal wealth along the age distribution before the reform, whereas the dashed line is the estimate for the years after. Panel A refers to total net probate wealth. Panel B excludes LTC-AR debt from the net probate wealth definition. Overall, the plots show that especially older age groups have significantly lower wealth before the reform than after the reform (Panel A). However, this difference results from the mechanical effect. In Panel B, there is no significant difference in terminal wealth before and after the reform once LTC-AR debt is discarded from the measure of net probate wealth.

Figure 3: Wealth - age profiles before and after 2017



[a] Note: The figure illustrates a smoothed estimate of the probate wealth along the age distribution. The smooth is a spline regression (B-splines with three degrees of freedom). The dotted line refers to the years before the LTC-AR abolition (2014-2017). The dashed line referes to the years after the reform (2018-2019). Panel A is based on total net probate wealth. Panel B refers to net probate wealth when we discard LTC-AR debt.

[b] Source: Own calculations based on probate records in the years 2014-2019.

In addition to the evidence in Figure 3, we are confident that our covers wealth of the decedent population well. In the Appendix (Section A.6), we perform a back-of-the-envelope calculation that allows us to extrapolate the wealth levels we document in Vienna to the national level. In a next step, we compare the aggregate volume that this exercise yields to other estimates of the annual bequest volume. Our rough estimate of the total annual bequest flow is higher than previous estimates for our sample period that are mostly based on the HFCS and top-wealth adjusted variations thereof (Humer 2016; Derndorfer et al. 2024).

In the Appendix, Table A6 provides the regression table where we estimate the effect

[25] The smoothed estimate in the figure refers to a spline-regression (B-splines) with three degrees of freedom.

of LTC-AR on average wealth supplemented by the RIF regression results. These findings confirm that there is a singificant wealth penalty for individuals affected by LTC-AR. At the same time, inequality measures point unanimously towards higher inequality in probate wealth upon a marginal increase in the share of the population affected by LTC-AR.

5 Summary remarks

This paper draws on a novel administrative data set to study the distribution of wealth at death. We uncover substantial dispersion in terminal wealth, and that a large share of the population passes away with negative wealth (between one fifth and one third of the deceased population). Not at least the negative values increase inequality in probate wealth by a substantial margin. As this has important implications for the measurement of wealth inequality and affects the extent to which inheritances perpetuate wealth inequality, we closely analyze what factors could account for the dispersion of wealth at death. We show that particularly younger individuals and the very old have low terminal wealth. Yet, the link between the age distribution and the distribution of probate wealth is weak in statistical terms. At the same time, our indicators of bequest motives are all positively related to wealth at death. The presence of individuals who care about the post-mortem resource allocation leads to lower levels of inequality in terminal wealth. Housing tenure choice is a significant predictor of wealth at death. In contrast to cross-national research, we find that an increasing share of homeownership does not reduce inequality in all Viennese districts. Finally, we show that the long-term care asset recovery process (LCT-AR) has a strong inequality-increasing effect on the distribution of terminal wealth.

Our findings have several implications. For example, the large number of negative values that we find implies that external data sources for aggregates (and hence wealth shares at the top) are important. Moreover, it is interesting to see that age does not seem to be the most important driver of the distribution of terminal wealth. Looking forward, this suggests that even though demographic change may change the volume of bequests, we find little evidence that would lead us to expect demographic developments to fundamentally alter the distribution of probate wealth and hence the effect of inheritances on wealth inequality. Another important aspect of our findings concerns homeownership. While we generally find support of the hypothesis that homeownership acts as an equalizer of the wealth distribution (Waldenström 2024), our granular regional study provides a nuanced picture that points towards important local heterogeneity of this effect. From a policy perspective, this implies that the role of local housing market should not be ignored in the design of housing policies that aim at promoting a more equal wealth distribution. Lastly, the analysis also reveals that the LTC-AR depresses probate wealth for a large share of individuals. Crucially, this policy affects individuals who are already indebted or own low terminal wealth. Therefore, only a fraction of the LTC cost is recovered since debt cannot be inherited. Yet, in the short run, probate wealth is inelastic to changes in LCT-AR.

The probate records in this paper contain substantial and novel information on demo-

graphic characteristics, the assets and liabilities of the deceased, as well as their portfolio choices. We carry out property wealth adjustments and benchmark our aggregates with existing estimates of the volume of bequests. These exercises yield a high-quality data-source that is available even though there is administrative tax data on wealth in Austria. As such, the data could be an attractive starting point of revenue simulations for tax policy.

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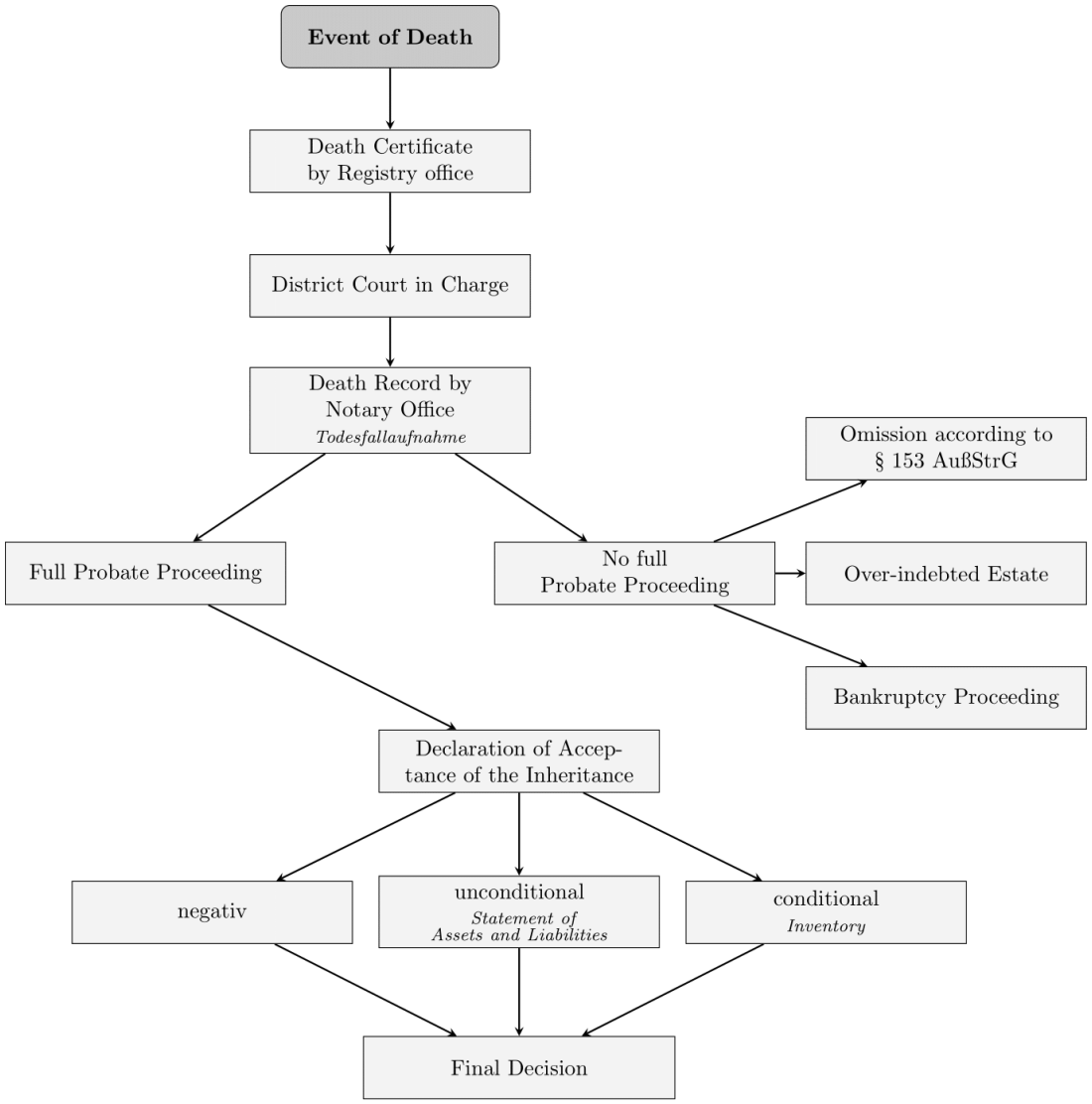
A Appendix

A.1 Austrian probate data and the digitization

Figure A1 illustrates the chronology of events that follow an individuals death in detail graphically. It starts with the registration at the registry office. Once the notary office takes charge of the case, the probate process described in Section 2.1 begins.

Figure A1: Probate process illustration



[a] Source: Own illustration.

The dataset that constitutes the empirical base of this paper is a hand-collected sample from the court records generated in the Austrian probate proceedings. Court records were kindly made available by several Viennese district courts for this project, following a basic permission to inspect the files for scientific purposes granted by the Federal Ministry of Justice.

In each court, a list of files was generated that lists all files in the sample. The court

Table A1: Oversampling and mean probate wealth

	Naive	With controls
(Intercept)	123,672.341***	454,860.913**
	(29,305.617)	(167,749.460)
Oversampled case	1,089,666.075***	1,062,037.239***
	(148,674.257)	(149,546.872)
Num.Obs.	4,712	4,712
R2	0.011	0.016
R2 Adj.	0.011	0.012

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

staff brought the files to a room where the project team worked. Each file was carefully reviewed. In a first step, this involved screening the file for the most important documents (*Todesfallaufnahme*, *Vermögensaufstellung*, *Vermögenserklärung*, *Inventar*, *Beschluss*, *Einantwortungsbeschluss*). In some cases, the information in these documents was insufficient to reconstruct a given probate case, such that the rest of that record would be screened for contextual data in a second step. Finally, we entered the information required for this study manually into our database tool.

Currently, the probate data is still not digitized (i.e. stored as text or scanned documents). In the future, probate proceedings might be changed to a harmonized digital systems. Using text recognition software and natural language processing tools, it could be possible to scale up the probate data coverage substantially, if digitized records are available.

A.2 Sampling and weights

In Section 2.2, we set out an oversampling strategy that is geared towards increasing the share of decedents with high levels of probate wealth in the sample. In retrospect, it is possible to test whether the oversampling of complex proceedings improves the representation of extreme wealth values. Table A1 shows that the stratification succeeds in improving the representation of estates with high probate wealth. It contains the coefficients of two regression models. In each model, the value of the estate is explained by an indicator variable, which assumes unity in cases that have entered the sample through oversampling. It is evident that the average probate wealth among the complex cases is more than €1 million higher than the average wealth of the other cases. The two models differ in that the second model includes the postal code of the last place of residence as a control variable. However, qualitatively, the results are the same in both models.

As the selection of probate records within the districts is a sample, each record $x_{n,i,o}$ that is the n-th observation in the i-th district that may be in the set of over-sampled observations O must be weighted by a weight $\omega_{i,o}$. Thus, the sample can reflect the total number N_i of proceedings in each of the ten districts that we consider. In a pure random

selection, it is sufficient to weight each observation by the inverse sampling probability, corresponding to the sample size N_i/S_i, where S_i is the sample size in each district. However, the weights of all files added to the sample through oversampling must equal unity. As a result, the higher sampling probability is balanced out. We obtain weights that vary slightly by district i, and between cases in the set O that were drawn by oversampling. We proxy the total number of cases in each district and year by the number of deceased individuals in each district (Statistics Austria 2024).[26] Sampling weights are given by:

$$\omega_{i,o} = \begin{cases} 1 & \text{if } x_{n,i,o} \in O \\ \frac{N_i - \rho \cdot S_i}{(1-\rho) \cdot S_i} & \text{if } x_{n,i,o} \notin O \end{cases} \tag{3}$$

The following Table A2 reports the number of sampled cases as well as the total number of deceased individuals by year and district.

[26]The total sample includes probate probate cases of individuals who are not Austrian residents and do not have property in Austria, but pass away on Austrian territory. Usually, the Austrian jurisdiction is not responsible for such cases, and the probate records contain little information. In addition, such cases lead to a divergence between the number of deceased individuals in the probate proceedings and the death statistics compiled by Statistics Austria. Therefore, we drop cases where the Austrian jurisdiction is not responsible

Table A2 Sample size and total population by district and year

	Observations (N)				Population (N)			
Year	Doebling	Donaustadt	Innere Stadt	Meidling	Doebling	Donaustadt	Innere Stadt	Meidling
2014	181	161	559	49	1295	1306	2697	943
2015	170	180	449	38	1337	1383	2807	931
2016	173	185	413	51	1305	1361	2731	910
2017	168	154	295	51	1314	1446	2724	937
2018	178	174	355	49	1346	1446	2694	1011
2019	104	183	341	51	1372	1477	2673	937

[a] Note: The table reports the number of cases in the sample and the total number of deceased individuals by year and district.

[b] Source: Own calculations and data with district weights based on Demographic characterstics of deceased (Statistics Austria 2024).

Table A3 Estimating the relationship between market and catastral values

	Naive	Year fixed effects	Property ctrl.	Sample restriction
Intercept	2.958***	2.638***	2.787+	3.405***
	(0.748)	(0.766)	(1.394)	(0.928)
Catastral value	0.886***	0.903***	0.823***	0.825***
	(0.074)	(0.072)	(0.118)	(0.085)
Num.Obs.	179	179	77	77
R2	0.448	0.506	0.873	0.605
R2 Adj.	0.445	0.486	0.770	0.571

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

A.3 Regression models for real estate value adjustment

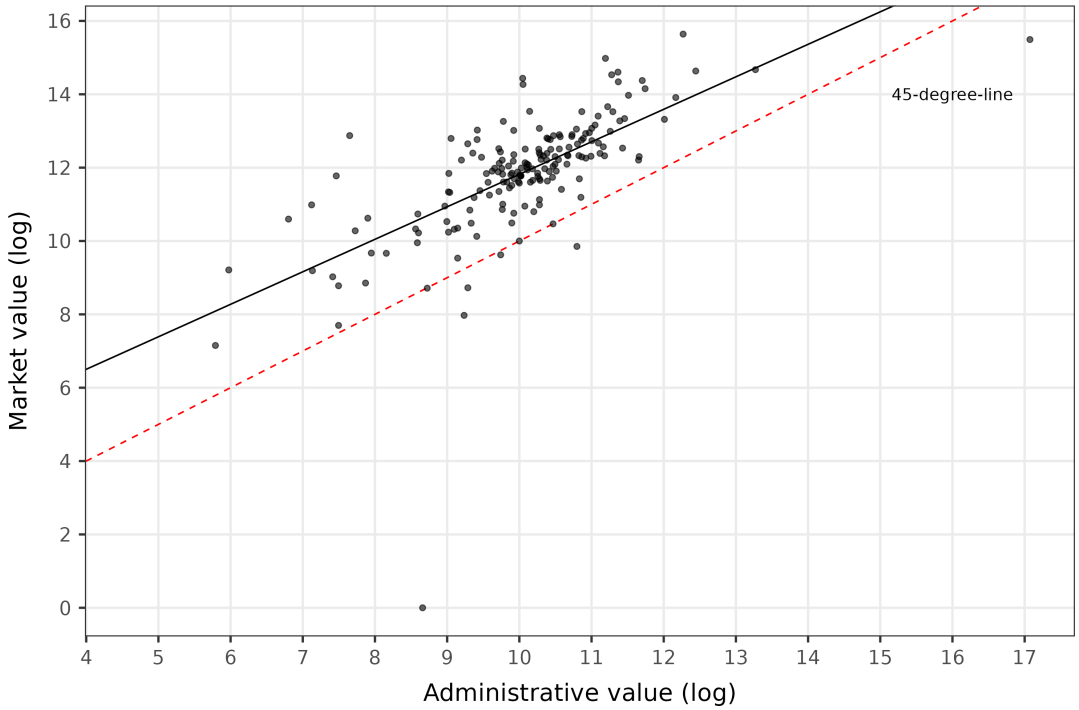
To analyze the relationship between the cadastral value (three-fold unit value, administrative value) and the market value, we estimate several models with different independent variables. Table A3 reports the key coefficients of these regressions, which is the intercept and the coefficient on the association between the cadastral value and the market value. The first model is the model that we use throughout this paper to adjust the valuation of real estate that would otherwise enter probate wealth valued at the cadastral value. It represents a simple OLS regression with the market value as the dependent variable and the cadastral value as the regressor. Both variables are log-transformed. The intercept is marginally below three, while the coefficient on the cadastral value is 0.89. The second model includes year fixed effects. The intercept falls marginally, while the coefficient on the cadastral value increases by a small margin (0.02 units). The third column reports the coefficients of a regression model with more granular regional controls, adding to the regression model district level indicator variables. In addition, a set of controls related to the property characteristics (size of the building area, total area, and - if available - agricultural land area for the property) enter the model. This depresses the coefficient on the cadastral value by approximately 0.08 units. Yet, the change in the coefficient is not driven by confounding variables. The drop from the second to the third column results almost exclusively from the sample restriction to observations where data on property characteristics was available. The last column in Table A3 reports the same model as in the second column of the table, while implementing the sample restriction. The simple exclusion of a large share of properties where granular property characteristics are not available gives almost identical coefficients to those that rely on more extensive controls.

We choose the first model because it relies on the largest sample. While the other results in Table A3 suggest that there may be some heterogeneity in the relationship between market values and administrative values, it also implies that the naive estimate is unlikely to be unduly affected by omitted variable biases.

Figure A2 illustrates the relationship between the cadastral value and the market value.

It plots the log of the market value on the y-axis against the log of the cadastral value x-axis.

Figure A2: Property values: correcting administrative values



[a] Note: The figure illustrates the relationship of real estate market values and the cadastral values. The log cadastral value is plotted on the x-axis, while the corresponding log market value of the property is on the y-axis. The dashed red line represents a 45-degree line. The solid line represents a simple OLS fit.

[b] Source: Own calculations based on real estate in probate cases in the years 2014-2019.

A.4 Detailed descriptive statistics

A.4.1 Distribution of net probate wealth

Table A4 provides a detailed breakdown of the distribution of probate wealth for different segments of the distribution. The second column report the average assets and number of individuals in each vingtile of the probate wealth distribution (pooled across the years 2014-2019). The least wealthy 5% of estates have an average debt level of €239,013.60. At the 11^{th} vingtile, probate wealth turns positive. The average probate wealth of the deceased population in the top vingtile is valued at €1,844,697.80. Column 4 in Table A4 report means for probate wealth at different deciles and then offer a more granular breakdown of the top decile and the top percentile. Again, we report the number of probate cases in each segment of the distribution. While the average probate wealth in

Table A4 Mean probate wealth for different groups

Quantile	Probate wealth	Quantile	Probate wealth
1. Vingtile	-234,245.4	1. Decile	-149,715.0
2. Vingtile	-65,137.4	2. Decile	-17,958.2
3. Vingtile	-26,244.6	3. Decile	-1,589.8
4. Vingtile	-9,664.1	4. Decile	401.4
5. Vingtile	-2,768.1	5. Decile	2,735.7
6. Vingtile	-368.0	6. Decile	8,372.6
7. Vingtile	76.4	7. Decile	23,959.6
8. Vingtile	736.0	8. Decile	73,940.1
9. Vingtile	1,911.5	9. Decile	182,436.3
10. Vingtile	3,555.8	10. Decile	1,177,647.7
11. Vingtile	6,278.5	90. Percentile	267,838.4
12. Vingtile	10,457.7	91. Percentile	297,929.2
13. Vingtile	17,808.0	92. Percentile	338,012.0
14. Vingtile	30,105.2	93. Percentile	377,246.8
15. Vingtile	53,761.8	94. Percentile	428,819.5
16. Vingtile	94,174.5	95. Percentile	496,010.2
17. Vingtile	145,044.4	96. Percentile	576,677.1
18. Vingtile	219,907.3	97. Percentile	705,688.4
19. Vingtile	387,358.9	98. Percentile	978,953.2
20. Vingtile	1,961,622.2	99. Percentile	1,497,398.4
		100. Percentile	6,075,567.0
		Top 0.5	9,355,480.1
		Top 0.1	22,598,438.4

[a] Note: The table displays mean probate wealth for vingtiles, deciles, percentiles, top 10%, the top 0.5%, and the top 0.1% of the probate wealth distribution. Negative values indicate estate debt. Data pooled over 2014-2019.
[b] Source: Own calculations and data with district weights.

the 90^{th} percentile amounts to €260,499.30, deceased individuals in the top percentile hold around €5.5 million. Within the wealthiest 0.5 percent of the distribution, average assets amount to €8,427,459.70, while the largest 0.1% of estates are worth €19,850,161.90 million on average.

A.4.2 Debt over the life-cycle

Individuals at different points of the life-cycle have different types of debt at death. Table A5 provides context to this observation. It summarizes the mean levels of debt that decedents hold with different types of creditors.[27] Clearly, bank debt is particularly

[27]The debt measure refers to net debt. If an individual has both debt and credit with a particular type of creditor, these amounts are offset against each other. For example, if an individual has claims against a care home (such as deposits), but also has unpaid bills for medication with a pharmacy that exceed the amount the care home owes to the decedent, only the difference between

prominent between the ages of 30 and 70. On average, bank debt of individuals between 60 and 70 is still more than €20,000. Among older decedents, the relevance of bank debt falls rapidly below an average of €1,000 among those older than 90 years. Another debt type in a significant order of magnitude that has a strong life-cycle pattern is health and care expenditure. The oldest decedents accumulate substantial levels of health and care debt, reaching levels of more than €30.000 on average in the oldest age group. Debt vis-à-vis landlords falls the older an individual is when they pass away. Debt with debt collection agencies peaks in the age group between 60 and 70. Miscellaneous with the government and other types of debt have a bimodal shape along the distribution of age at death. The first peak is below the age of 70, while it increases again for those older than 90.

the two positions is counted as debt. In the reverse case, where claims exceed liabilities, the debt is considered to be zero.

Table A5 Average debt by creditor type

Age group	N	Bank	Government	Health and care	Landlord	Dent collector	Other
0 to 30	803	−427.02	−3,269.82	−1,205.36	−465.41	−104.96	−247.61
30 to 60	4346	−15,535.22	−9,312.46	−2,821.33	−321.96	−3,133.43	−6,594.84
60 to 70	4982	−20,228.87	−6,206.13	−4,321.93	−231.34	−3,506.12	−2,438.46
70 to 80	9164	−7,510.27	−2,182.92	−6,521.36	−166.52	−1,962.18	−1,806.38
80 to 90	9756	−1,671.79	−861.24	−12,414.79	−155.35	−138.72	−1,416.43
90 to 100	8766	−628.78	−1,208.07	−19,508.94	−105.34	−84.39	−3,131.10
100 to 120	543	−45.91	−5.39	−36,303.18	−54.90	0.00	−5,655.64

[a] Note: The table reports the average net debt that the deceased hold with different creditors across age groups. Claims and debt with different entities within one creditor category are offset against each other. Bank debt is both negative current account balances but also other bank debt such as mortgages. Government debt refers to tax liabilities, fees, charges and fines (that are not related to death). Health and care is care home costs, medication, hospitals, and liabilities due to LTC-AR. Liabilities towards landlords are mostly rent arrears, and debt collectors are debts that have been transferred to debt collection agencies. Other debt includes debt vis-à-vis other individuals or organizations.

[b] Source: Own calculations based on probate records in the years 2014-2019

A.5 LTC-AR additional statistics

This Subsection provides additional information on the LTC-AR process and how it affects estates in Vienna. Figure A3 plots the magnitude of LTC-AR debt for each decile of the net probate wealth distribution (with percentiles computed on net probate wealth excluding LTC-AR debt). The graph illustrates that LTC-AR debt is higher in absolute terms at the bottom of the wealth distribution, and has little relevance at the top of the distribution. In the lowest ten deciles of the wealth distribution in the years before the abolition, LTC-AR debt averages around €20,000. At the top, the average is below €5,000. The strong gradient along the wealth distribution is to some extent a result of the correlation between income and net probate wealth.[28] Individuals with high retirement income are likely to cover most of their LTC expenditure from current income or cash-on-hand. As a result, receipt of LTC-related government transfers is lower.

Figure A3: Average LTC-AR debt by wealth percentile

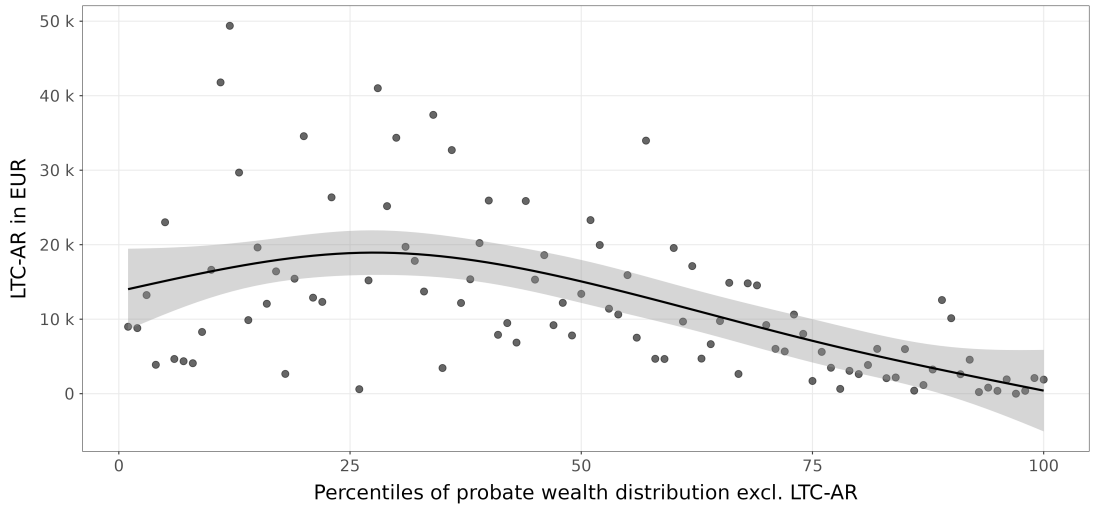


Figure A4 plots Pen's parades for net probate wealth from the first to the 50th percentile. The solid line refers to a measure of net probate wealth that discards LTC-AR debt from the sum of liabilities. The dotted line refers to probate wealth including all assets and liabilities. The graph suggests that LTC-AR debt is a significant component of debt in probate records. However, substantial levels of debt at the bottom of the probate wealth distribution still prevail.

Table A6 presents the regression estimates for the effect of LTC-AR on net probate wealth (inverse hypoerbolic sine transformed) in column 1, and the RIFs for the top 10% share (column 2), the bottom 30% share (column 3) and the Gini index of net probate wealth (column 4).

[28]Data on retirement income in the probate records is patchy and measurement error is likely. The correlation between retirement income and terminal wealth in probate records that feature information on retirement income falls into a 95% confidence interval between 0.05 and 0.17 with a point estimate of 0.11.

Figure A4: Pen's parade excluding/including LTC-AR

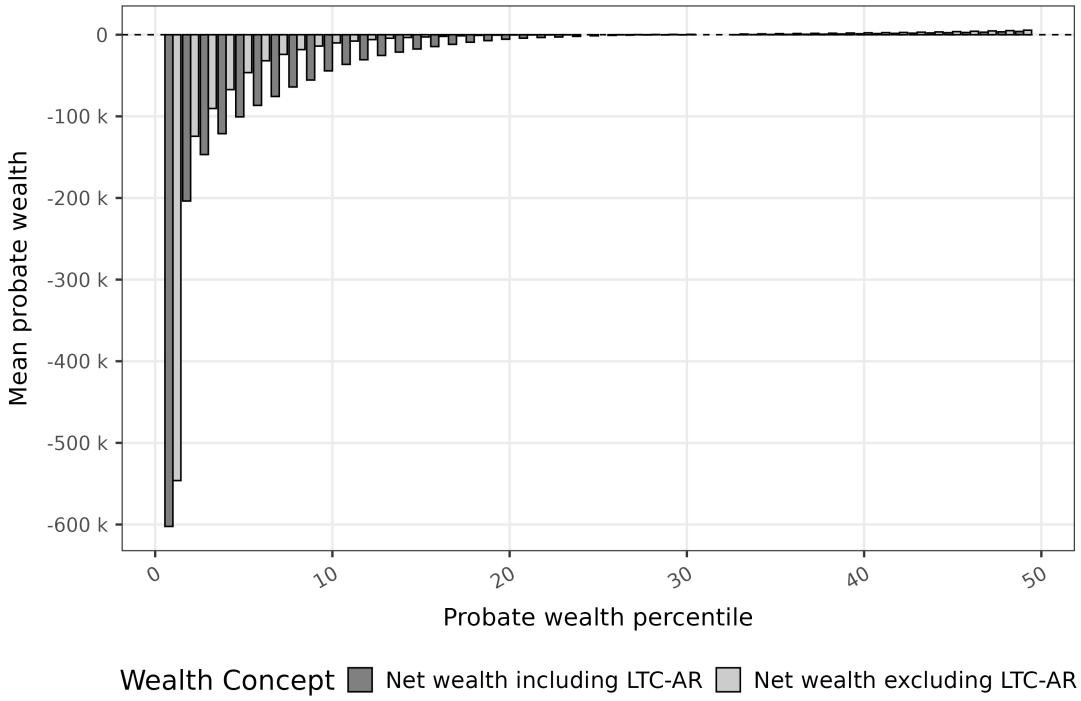


Table A6: LTC-AR and terminal wealth

	Level	Top 10% share	Bottom 30% share	Gini
LTC-AR:yes	−9.864***	0.703***	−0.647***	1.227***
	(0.355)	(0.047)	(0.060)	(0.094)
Num.Obs.	4,709	4,709	4,709	4,709
R2	0.224	0.068	0.037	0.052
Demographic controls (incl age)	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001
Each specification features district fixed effects and year fixed effects. Observations without age data are dropped. Source: Own calculations and data with district weights.

A.6 Data triangulation

The data presented in this study marks an important contribution to measuring the volume and distribution of bequests in Austria. Due to conceptual differences, our estimates are not directly comparable to prior evidence on intergenerational wealth transfers in Austria.

First, our probate data refers to Viennese districts, such that heavy extrapolation would be necessary to draw conclusions about the estate distribution at the national level. Our data captures wealth at death of 38,382 individuals across ten Viennese districts in the period 2014 – 2019. In Austria, a total of 492,625 individuals deceased (Statistics Austria 2023) in these years. Therefore, our dataset covers 7.79% of the relevant Austrian reference population. Working with a sample of data is not a problem in and of itself, especially when sampling probabilities are known. In our case, the key problem hindering direct comparison with available estimates on the distribution of bequests across Austria is that the distribution of wealth in Vienna is structurally different from the distribution of wealth in the rest of the country, especially rural areas. Region-specific estimates based on the HFCS suggest that the median Viennese household owns approximately a quarter of the wealth level of the median household in the other provinces of Austria (Dabrowski et al. 2020). On average, mean wealth in the Austrian districts that we do not cover exceeds mean wealth in the 10 Viennese districts of this study by more than 40%. Therefore, the aggregates in this would likely require upscaling to the national average, under the assumption that the probate wealth ratio is similar to the ratio of survey net wealth.

Second, our probate data refers to the number of completed probate cases, rather than to the entity of bequeathed wealth. Especially in recent years, not all probate cases will be completed. A simplistic weighting approach that scales up the weights of the sampled cases uniformly is problematic if ongoing cases are systematically different from completed ones. Moreover, it is not clear whether the number of incomplete cases differs across Austrian court districts.

Third, there are important conceptual differences between wealth at death and inheritances, to which prior evidence from the HFCS refers. Wealth can be transferred irrespective of death. Therefore, wealth at death tends to underestimate total wealth transferred from one generation to the next.[29] While gifts are in principle part of estimations of the level and distribution of intergenerational wealth transfers, we are not able to cover gifts systematically. In summary, our probate data leads to an under-estimation of total wealth transferred from one generation to the next and thus inherited and gifted wealth.

Our results, suggesting that 7.79% of the deceased population in Austria bequeathed an annual value of €0.8 billion, add a new data point to the estimated value of intergenerational transfers in Austria. A back-of-the-envelope calculation suggests a total bequest

[29] In terms of gifts made before death, a key concern is the transfer of closely held businesses and real estate. A substantial body of work on bequests and inheritances suggest that, especially at the upper tail of the wealth distribution, wealth transfers are well-planned with the purpose of ensuring that wealth remains *within the family* in its entity and without being split-up across several entitled heirs (Bessière and Gollac 2023).

volume of approximately €14.4 billion annually.[30] Recent evidence from the Austrian gifts registry suggests that the volume of large gifts made is around €6 billion per year, resulting in a total transfer of wealth of €20.4 annually. These results supplement the findings of Humer (2016), who estimates using HFCS data that the bequest volume is likely to increase from €8 billion in 2010 to €20 billion in 2035. The Austrian HFCS however under-samples the uppermost percentiles of the wealth distribution substantially, suggesting the results provided by Humer (2016) are not accounting for the largest bequests. In contrast, our probate data has been obtained by over-sampling the top of the estate distribution. Another point of reference is a recent contribution using parliamentary inquiries that resulted in tabulated information on taxed inheritances and gifts (Ertl 2024). Notably, this paper refers to the years 2002, 2005, 2006 and 2007, before the inheritance tax was abolished. The estimates imply an annual transfer flow between €4.7 billion and €6.2 billion. These estimates likely underestimate the transfer flow, given a substantial share of non-filing individuals and the fact that many asset types were exempted from taxation. Most recent estimates based on the Austrian HFCS and the microsimulation model INTAXMOD suggest that in 2025, the volume of bequests will reach €21 billion (Derndorfer et al. 2024). This estimate adjusts for the fact that the HFCS misses observations at the top of the distribution by applying pareto-tail corrections. This estimate is very close to ours for the average in the years 2014 and 2019. Crucially, Derndorfer et al. (2024) work with 2017 HFCS data and inflate property values by 50% to approximate the house price development between 2017 and the early 2020s. Therefore, we suspect that rebasing their estimates to the 2014-2019 period would result in an annual bequest flow that is lower than ours.

Neither the existing evidence from the HFCS nor the earlier tax data provide data on the distribution of bequests, as we set out above. Therefore, we cannot benchmark the distributional statistics provided in this paper with any other external sources.

It is important to emphasize that based on the results presented here, no strong conclusions can be drawn about the volume and distribution of bequests in Austria. Paralleling previous research on bequests, this study is not based on full population data providing a complete survey but a sample of all probate cases. Although significant quality improvements in the sample selection as compared to existing population surveys were achieved through oversampling, further progress can be achieved through expanding the coverage of the sample. However, given the substantial number of records and limited existence of digitized files, this approach is quite resource intensive.

[30] Flow of bequests according to probate data/Share of population covered in weighted probate sample * (Mean wealth in regions not in sample according to HFCS/Mean wealth in regions in sample according to HFCS) * (1 - Share of population covered in weighted probate sample) + Flow of bequests according to probate data = $0.8/0.07791 \cdot 1.44 \cdot 0.92209 + 0.8 \approx 14.4$.