WORKING PAPER

ON THE MACROECONOMIC AND DISTRIBUTIONAL EFFECTS OF FEDERAL ESTATE TAX REFORMS IN THE UNITED STATES

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ABSTRACT

This paper studies the effects of the sharp decline since 1980 in U.S. federal estate taxes on the past and future evolution of per capita growth, labor supply, the wealth-to-GDP ratio (capital-output ratio), the real interest rate, and cross-sectional wealth inequality and concentration. To do so, we construct, calibrate, and simulate a dynamic general equilibrium model featuring firms, a fiscal government, and overlapping generations of heterogeneous households connected via bequests and inter-vivos transfers. The model includes crucial elements in the debate on the effects of estate tax changes and accounts for structural developments in recent decades, such as demographic change and 'skill-biased' technological progress. It replicates key U.S. data since the 1960s quite well. We find that the studied estate tax reforms have not generated the desired positive effects on labor supply, private capital formation, and economic activity. Rather, they have contributed considerably to rising after-tax wealth inequality and concentration and explain a fraction of the long-term decline in the real interest rate. The key underlying result from our simulations is that the aggregate stocks of pre-tax wealth and pre-tax bequests are insensitive to changes in the estate tax, even when all households have an after-tax bequest motive. As a result, the foregone estate tax revenues are large.

JEL classification: E17, E21, E27, E62
Keywords: Wealth inequality, economic growth, bequests, estate tax, OLG model

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1. INTRODUCTION

Over the last five decades, the United States experienced a rising household wealth-to-GDP ratio, a growing share of inherited wealth in total household wealth, and a considerable rise in income and wealth concentration. The net household wealth-to-GDP ratio has increased from around 350% to around 500%, the share of inherited wealth in total household wealth from 50% to 60% and the top ten per cent's share in net household wealth from 62% to 75% (Alvaredo et al., 2017; World Inequality Database, 2021, and Federal Reserve Bank of St. Louis, 2021). As important drivers behind rising income and wealth inequality over the last decades, the economic literature highlights globalization and 'skill-biased' technological change, leading to a rise in the relative demand for high skilled workers (de la Croix and Docquier, 2007; Acemoglu and Autor, 2012; Alvaredo et al., 2013, and Jones and Yang, 2016). The particularly sharp increase in wealth concentration in the United States over the last decades, however, cannot be explained solely by forces common to advanced economies. Kaymak and Poschke (2016) show that changes in taxes and transfers explain nearly half of the rise in wealth concentration in the United States. While the introduction of the public pension system helps to explain the declining wealth share at the bottom, several reductions of top tax rates have led to a rising wealth share at the top. In the same context, Alvaredo et al. (2013) point at, among other factors, the increased remuneration of entrepreneurs at the expense of enterprise growth and employment. Meanwhile, the United States has also experienced a secular decline in per capita economic growth, from around 2.5 per cent during the period 1965-79 to below 1.5 per cent over the period 2010-20, and in the equilibrium long-term real interest rate, from around 4% in 1965-79 to around 1% today, see Holston et al. (2017) and Roberts (2018). Several studies emphasize demographic change as an important driver of both trends, see e.g., Krueger and Ludwig (2007), Ludwig et al. (2012) and Gagnon et al. (2021).

Our main goal in this paper is to study the impact of the sharp reduction in U.S. federal estate taxes since 1980 on the above mentioned macroeconomic and distributional trends. Several estate tax reforms during the last four to five decades were part of broader tax reforms aimed at, among other objectives, reducing the overall tax burden on households, and boosting labor supply and economic activity, see Gale and Slemrod (2000), Jacobsen et al. (2007), Public Law (1981 to 2017) and Section 3 of this paper. The most striking changes have been the dramatic increase in the individual lifetime exemption, from around 60.000 USD around 1970 to more than 11.500.000 USD today, the reduction of the top marginal tax rate from around 75% to 40%, and the omission of all intermediate tax brackets. Through the combination of these reforms, and because married couples can easily apply the individual lifetime exemption twice, the number of taxable estates declined from over 6% to below 0.2%, and the yearly tax revenues from around 0.3% to below 0.1% of GDP over the last decades (Joulfaian, 2019 and OECD, 2021).

Methodologically, to investigate the effects of these tax reforms, we construct and calibrate a dynamic general equilibrium model for the United States featuring overlapping generations of heterogeneous households, firms, and a fiscal government. Subsequent generations of households are connected via intentional and accidental bequests and inter-vivos transfers. The model explains the evolution of per capita economic growth and output, labor supply, the wealth-to-GDP ratio (capital-output ratio), the equilibrium real interest rate, and wealth inequality and concentration. To generate realistic evolutions over time for these key variables, we incorporate different sets of exogenous variables (time-varying parameters) in addition to the historical evolution of the U.S. federal estate tax system: i) the historical and projected evolution of fertility rates and life expectancy, together generating demographic change, ii) the historical evolution of public pension replacement rates, iii) technological change, assumed to be 'skill-biased', and iv) the evolution of the gross income shares of entrepreneurs versus workers. A rich literature referred to above, highlighted the importance of these variables and changes. Accounting for them and the reforms of the federal estate tax system, the baseline simulation of our model replicates key macroeconomic developments and the evolution of inequality in the United States over time quite well. By performing different counterfactual simulations with respect to the time-varying parameters underlying the estate tax system, we study their quantitative effects on the U.S. economy.

According to our simulations, the combined U.S. federal estate tax reforms since 1980 had only (very) small effects on aggregate private physical capital, labor supply and per capita economic growth and output. In the long run, the aggregate private physical capital stock is only 3.69% higher in the baseline simulation than in the counterfactual where we keep all estate tax parameters at their (much) higher levels of 1977-79 and where we assume that the additional tax revenues are allocated to government consumption. If we assume that the additional estate tax revenues in the counterfactual could also be used to lower the capital income tax rate, the effect of the estate tax reforms on aggregate capital would even be negative. We find no positive effects on aggregate labor and entrepreneurship in the long run. In the transition, the positive effects (if any) are very small as well. Yearly per capita growth is never more than 0.02%-points higher in the baseline than in the counterfactuals. Aggregate per capita output is therefore only 1.02% higher in the long run compared to the counterfactual where we use the higher estate tax revenues to increase government consumption. In the counterfactual where we use these revenues to lower the capital income tax rate, the positive effect on per capita output also disappears.

Meanwhile, we find that the U.S. federal estate tax reforms since 1980 considerably contributed to rising after-tax wealth inequality and concentration, and somewhat contributed to the secular decline in the equilibrium real interest rate. The top 10% and top 1% shares in cross-sectional net (after tax) household wealth are 6%-points and 5%-points higher in our baseline simulation relative to our counterfactuals where we keep the estate tax parameters constant from 1980. The Gini coefficient of net (after tax) household wealth is 3.5%-points higher in the baseline. The yearly equilibrium real interest rate (net real rate of return to private physical capital) is between 0.11 and 0.19%-points lower in the baseline than in the counterfactuals. According to our simulations, the U.S. federal estate tax reforms over the last decades thus contributed to the development of modern-day economic issues such as high and rising wealth inequality and secular decline in the equilibrium interest rate, instead of boosting labor supply and economic growth. We also find that the foregone estate tax revenues generated by all the reforms are large. According to our simulations, the yearly foregone estate tax revenues are 1.15% of GDP in the long run.

Considering related work that we document in Section 2, we contribute to the literature in four ways. *Our first contribution* is methodological. Most previous papers that study the effects of the estate tax (system) perform steady state analyses. To the best of our knowledge, we are the first to study the effect of the historical changes in the U.S. federal estate tax system using a dynamic OLG framework that considers both the long-run effects and the effects during very long transition periods. Moreover, our dynamic framework, which is driven by different sets of exogenous variables, explicitly allows the effects of the estate tax to vary over time, because the population has aged, the interest rate has declined, the income and wealth distributions have become more unequal, and so on. Our dynamic setup also allows calibrating the model on the dynamic path of the U.S. economy rather than on a hypothetical steady state. In this way, our calibration captures more information from the data. Through our *backfitting* procedure, see Borsch-Supan et al. (2006), Ludwig et al. (2012) and Devriendt and Heylen (2020), we verify that our baseline simulation for several key (macro)economic variables matches their respective empirical counterparts in the past.

Our second contribution is that we simultaneously study the behavioral effects of the estate tax over the lifecycles of (future) donors and (future) recipients of bequests. Consumption, labor supply (including a retirement decision), wealth accumulation and decumulation, inter-vivos transfers and accidental and intentional bequests are all modelled endogenously. Previous studies that considered the behavioral effects of changes in the estate tax (system) either focused solely on the behavior of donors, only on the behavior of recipients, abstracted from endogenous labor supply, or did not consider inter-vivos transfers, see Section 2.

The *third contribution* to the literature is that we allow for different motives behind inter-vivos transfers and bequests. While bequests in our model are driven by warm glow, inter-vivos transfers are motivated by altruism, in line with empirical evidence, see Section 2. Given that since 1976 inter-vivos transfers and bequests are jointly taxed under the U.S. unified credit scheme, both may directly respond to the estate tax. Modelling the correct motive behind inter-vivos transfers and bequests may therefore be crucial. One of the key behavioral results from our simulations is that the inter-vivos transfers of wealthy donors respond much more positively to lower estate taxation than pre-tax bequests. In this way, inter-vivos transfers affect the relationship between the estate tax and the size of pre-tax bequests.

Our *fourth contribution* is that we discuss the effects of the marginal estate tax rate and the average estate tax rate in the households' optimality conditions in the context of (historical changes in) a progressive estate tax system. We show that both tax rates affect the optimal pre-tax bequests of wealthy donors in opposite directions. This explains several of our key behavioral results. First, the central result from our simulations is that aggregate pre-tax wealth and bequests appear to be relatively insensitive to changes in the estate tax system, even when all households have an after-tax bequest motive. Second, we find heterogeneities in the relationship between the estate tax and the size of pre-tax bequests of wealthy donors across the distribution. These heterogeneities typically imply more negative effects of lower estate taxation on the pre-tax bequests at the top of the wealth distribution, and more positive effects lower in the wealth (earnings) distribution. These results contrast with the common view in the previous literature that (aggregate) pre-tax bequests and wealth (of wealthy donors) typically respond positively to lower estate taxation, see e.g., Kopczuk (2010) and Piketty and Saez (2013), but are in line with a minority of papers that also allow for weak or even negative responses to lower estate taxation, see e.g., Gale and Perozek (2000) and De Nardi and Yang (2016). For an extensive review on this topic, we refer to Van Rymenant (2022, forthcoming).

This paper is organized as follows. Section 2 frames our contribution in the context of the previous literature. In Section 3 we provide an overview of the historical evolution of the U.S. federal estate tax system. In Section 4, we present our general equilibrium overlapping generations model for the United States. Section 5 discusses our parameterization and compares our baseline simulation for several key macroeconomic and distributional variables in the U.S. with their respective historical evolutions. In Section 6, we discuss the effects of changes in the U.S. federal estate tax system on the past and future evolution of these key variables. Section 7 concludes the paper.

2. RELATED LITERATURE

Income and wealth inequality: basic features. The most important model features underlying income and wealth inequality in our paper are the same as in Altig et al. (2001), Heer (2001), De Nardi (2004) and De Nardi and Yang (2016), who also study (estate) tax reforms for the United States in calibrated overlapping generations models. These features are i) heterogeneity in age: an overlapping generations structure, ii) heterogeneity in earnings capacity, iii) regression to the mean in earnings capacity, iv) a warm glow bequest motive, with bequests modeled as a luxury good, and v) mortality risk at the household level. Combinations of these features appear in many lifecycle models that study the distribution of wealth.

Income and wealth inequality: time-varying parameters. Our model incorporates the most prominent (time-varying) exogenous variables highlighted in the literature that have affected in the past, and may affect in the future, the distribution of income and wealth. De la Croix and Docquier (2007), Acemoglu and Autor (2012), Alvaredo et al. (2013) and Jones and Yang (2016) identify 'skill-biased' technological change as the most important driver behind rising income and wealth inequality in many industrialized countries, including the United States. In addition to 'skill-biased' technological change, Alvaredo et al. (2013) highlight the reduction in different top tax rates, the increased managerial reward at the expense of workers, and the rising importance of income generated by (inherited) wealth to explain the sharp increase in income concentration in the United States. Kaymak and Poschke (2016) show that changes in taxes and transfers over the last five decades account for nearly half of the rise in wealth concentration in the United States. One important aspect related to transfers was the introduction of the public pension system, and the considerable increase in public pension replacement rates over the last century, see Sommacal (2006) and Buyse et al. (2017). The progressivity of the public pension system is one of the explanations why savings rates increase with (lifetime) income, see Huggett (1996). The introduction of public pensions and the historical increase of public pension replacement rates therefore also shaped the evolution of wealth inequality.

Per capita growth and (equilibrium) real interest rate: time-varying parameters. In addition to the evolution of wealth inequality, our first objective is to obtain realistic evolutions for several key macroeconomic variables, such as per capita economic growth and output, the wealth-to-GDP ratio (capital-output ratio), and the equilibrium real interest rate. In this context, technological change is known to be the (primary) determinant of per capita growth in the long run, and of the marginal productivities of capital and labor, see Solow (1956). In our general equilibrium framework for a closed economy, technological change also drives the equilibrium real interest rate. Demographic change (population ageing) is the second key long-run driver of these three macroeconomic variables. The importance of demographic change has been highlighted by e.g., Krueger and Ludwig (2007), Kotlikoff et al. (2007), Ludwig et al. (2012), Devriendt and Heylen (2020) and Gagnon et al. (2021).

Altruistic inter-vivos transfers have been studied in lifecycle models mostly in an environment of regression to the mean in earnings, see Shorrocks (1979), Becker and Tomes (1979), Davies (1982) and Nordblom and Ohlsson (2006). Inter-vivos transfers will then be sizeable mainly in the upper part of the earnings distribution and in households whose children are considerably worse-off. In our model, inter-vivos transfers are motivated by altruism but bequests are driven by warm glow. These choices are motivated by empirical evidence. Wilhelm (1996), McGarry (1999) and Hochguertel and Ohlsson (2009) found that the size of bequests is solely a function of characteristics of the donor, consistent with the warm glow motive, whereas inter-vivos transfers are also a (negative) function of characteristics of the recipients, in line with the altruistic motive. In the few other theoretical lifecycle models that include inter-vivos transfers and intentional bequests, both are driven by the same motive. I refer to Poterba (2001), Nordblom and Ohlsson (2006), Koeniger and Prat (2018).

The behavioral and aggregate effects of the estate tax (system) have received considerable attention in the literature. Heer (2001), Michel and Pestieau (2005), Bossmann et al. (2007), Jiang (2010), Piketty (2011), Benhabib et al. (2011), Alonso-Carrera et al. (2012), De Nardi and Yang (2016), Wan and Zhu (2019) and Yang and Gan (2020) study the effects of the estate tax in lifecycle models without labor-leisure choice. An extension in our framework compared to these papers is that we study estate tax effects while allowing endogenous labor supply. We also find that approach in Blumkin and Sadka (2003), Castañeda et al. (2003), Garriga et al. (2009), Farhi and Werning (2010), Cremer and Pestieau (2011), Brunner and Pech (2012a, 2012b), Piketty and Saez (2013), Strawczynski (2014), Broadway and Cuff (2015), Belan and Moussault (2018) and Zhu (2019).

The papers highlighted in the previous paragraph all study hypothetical estate tax reforms in a steady state, and most of them consider a linear estate tax. This paper is different in that we study the effects of the true historical evolution of the U.S. federal estate tax system, both in the long run and in long transition periods. The only existing other paper that has this focus on the true historical evolution is Kaymak and Poschke (2016). Furthermore, as in our paper, they also incorporate technological change, the growing wage dispersion between regular and top productivity workers, and time-variation in the demographic structure. This is important. We argue that modelling the historical evolution of fertility and life expectancy is crucial in the context of the estate tax, especially when its effects are studied over time.[1] Kaymak and Poschke (2016) show that the combination of changes in taxes and transfers can explain almost half of the rise in wealth concentration in the United States over 1960-2010.

[1] A realistic population structure helps to transform behavior at the household level into realistic aggregate behavior over time. Much of the aggregate wealth inequality arises naturally because different households are at different stages of life. Also, the mortality rates govern the relative importance of bequests relative to lifecycle motives in the context wealth accumulation. Rising life expectancy therefore affected the relative importance of bequests over time.

One disadvantage of their paper, however, is the assumption of a steady state in 2010. This makes it hard to assess the long-run effects of historical tax changes over (future) generations. Moreover, Kaymak and Poschke miss the effects of the significant changes in the U.S. estate tax regime since 2010, see Section 3. Another drawback is that they do not consider the impact of the historical changes in the estate tax on macroeconomic variables, such as GDP per capita growth or aggregate estate tax revenues. We have called it our first contribution that we study the effects of the historical changes in the U.S. estate tax system both in the long-run and during very long transition periods. We consider both inequality and aggregate macroeconomic effects.

A few other papers studied the effects of estate tax reforms in a dynamic setting, paying attention to both transitional and steady state effects, see Lueth (2003), Cagetti and De Nardi (2009), Guvenen et al. (2019) and Kindermann et al. (2020). All four studies also consider the aggregate macroeconomic effects of the estate tax, but only consider hypothetical estate tax reforms. As in Lueth (2003) and Kindermann et al. (2020), we consider the behavioral response of (future) recipients of bequests. As in Guvenen et al. (2019) we study the case of a tax shift from estate taxation to capital income taxation. As in Cagetti and De Nardi (2009), our model has entrepreneurs. None of these four papers model inter-vivos transfers from parents to children. We called it part of our second contribution. It is important since inter-vivos transfers can act as substitutes for bequests. They are most likely inspired by a different motive (see Introduction), and since 1976 they are both subject to the estate tax in the United States. One of our key results is that pre-tax bequests and inter-vivos transfers respond differently to a given estate tax reform.

3. A BRIEF HISTORY OF THE U.S. FEDERAL ESTATE TAX SYSTEM

The original purpose of the U.S. federal estate tax was to overcome temporary budgetary issues in times of crisis or war. The estate tax has been an important source of tax revenues prior to 1950. Over the last decades, however, the U.S. federal estate tax system was characterized by a gradual increase in its lifetime exemption, a reduction in its top marginal tax rates and a gradual removal of all intermediate tax brackets. The different estate tax cuts over the last decades were all part of broader tax reforms designed to reduce the overall tax burden on households, to boost labor supply and economic activity, and to overcome liquidity problems of small businesses and family firms, see Joulfaian (1998), Slemrod and Bakija (1999), Gale and Slemrod (2000), Jacobsen et al. (2007), and Public Law (1981 to 2017).

First, the *Economic Recovery Tax Act in 1981 (ERTA)* introduced several important reductions in income taxes, capital gains taxes, corporate taxes, and estate taxes.[2] For the estate tax the ERTA allowed a gradual increase in the lifetime exemption to 600.000 USD by 1987, a reduction of the top marginal tax rate from 70% to 50%, and the *permanent introduction of unlimited marital deduction*.[3] Through the *Taxpayer Relief Act in 1997 (TRA)*, several tax rates,

[2] Public Law of the United States (1981). “PL 97-34 Economic Recovery Tax Act of 1981”.
[3] Since the introduction in 1948 of partial marital deduction, eventually leading to unlimited marital deduction from 1982 onwards, spouses of a married couple are allowed to transfer (unlimited) amounts to one another without incurring taxes, both before and after death of the first spouse, see Gale and Scholz (1994), Jacobsen et

including those related to long-term capital gains and individual retirement accounts, were further reduced.[4] For the estate tax, the TRA implied an effective increase of the lifetime exemption to 1.000.000 USD by 2006. The *Economic Growth and Tax Relief Reconciliation Act in 2001 (EGTRRA)* allowed for further periodic increases in the lifetime exemption to 3.500.000 USD by 2009.[5] The *American Taxpayer Relief Act in 2013 (ATRA)* was a mix of reforms where several temporary tax reductions and tax credits were made permanent, some other tax rates even (slightly) increased, while providing a further increase in the lifetime exemption to 5.000.000 USD with a top marginal estate tax rate of 40%.[6,7] Moreover, the ATRA also made permanent the *full portability of the deceased spouse's unused lifetime exemption* introduced in 2010. Under full portability, the 'unused' lifetime exemption of the spouse that passes away first can easily be transferred to the surviving spouse. Together with unlimited marital deduction, full portability implies that the individual lifetime exemption of both spouses can be used very easily in practice for married couples from 2010 onwards, see McGarry (2000), Jacobsen et al. (2007) and Internal Revenue Service (2022). Especially when the lifetime exemption is high, as today, these two tax rules have strongly contributed to the historical decline in the number of taxable estates and the average estate taxes paid over time. Finally, the Tax Cuts and Jobs Act of 2017 (TCJA) implied a (further) reduction in several tax rates for businesses and individuals and provided a doubling of the lifetime exemption to over 11.000.000 USD.[8]

Figure 1 shows the historical evolution since 1950 of the different tax brackets (including the individual lifetime exemption) in the U.S. federal estate tax system, expressed as multiples of per capita GDP, together with their corresponding marginal estate tax rates. Whereas between 1950-64 and 1995-2009 the individual lifetime exemption has always varied between ten- and thirty-times per capita GDP, its value increased drastically over the last two decades. The figure also shows the decline in the top marginal tax rate from more than 70% in 1965-79 to 40% now. We also specifically show the numbers for the year 1977-79, because in terms of lifetime exemption and marginal tax rates, this period contrasts most with the current estate tax system. Given these evolutions, it comes as no surprise that the number of taxable estates decreased dramatically over time. Whereas between 1950 and 2009, the number of taxable estates varied between 1% and 6% of total estates, only 0.19% of the estates paid taxes between 2010 and 2016.

A final key aspect of the U.S. federal estate tax system is that *since 1976 inter-vivos transfers and bequests are jointly taxed***.** Since 1976, the individual lifetime exemption applies to the sum of pre-tax bequests at death and lifetime taxable inter-vivos transfers (i.e. inter-vivos transfer minus the annual exemption for inter-vivos transfers, per spouse, per beneficiary, summed over the lifecycle), see Jacobsen et al. (2007). Every dollar of inter-vivos transfers during life that has exceeded the annual exemption for inter-vivos transfers will thus increase the taxable estate by one dollar.

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al. (2007) and Kopczuk (2007). By transferring the deceased spouse's estate to the surviving spouse and not to the children, the estate tax can be postponed until the surviving spouse's death.

[4] Public Law of the United States (1997). "PL 105-34 Taxpayer Relief Act of 1997".

[5] Public Law of the United States (2001). "PL 107-16 Economic Growth and Tax Relief Reconciliation Act of 2001".

[6] Public Law of the United States (2012). "PL 112-240 American Taxpayer Relief Act of 2012".

[7] For instance, the top marginal income tax rate rose from 35% to 39.6% and the top marginal tax rate on long-term capital gains and top marginal dividends tax rate from 15% to 20%

[8] Public Law of the United States (2017). "PL 115-97 Tax Cuts and Jobs Act of 2017".

Figure 1a: Marginal estate tax rates by size of estate since 1950

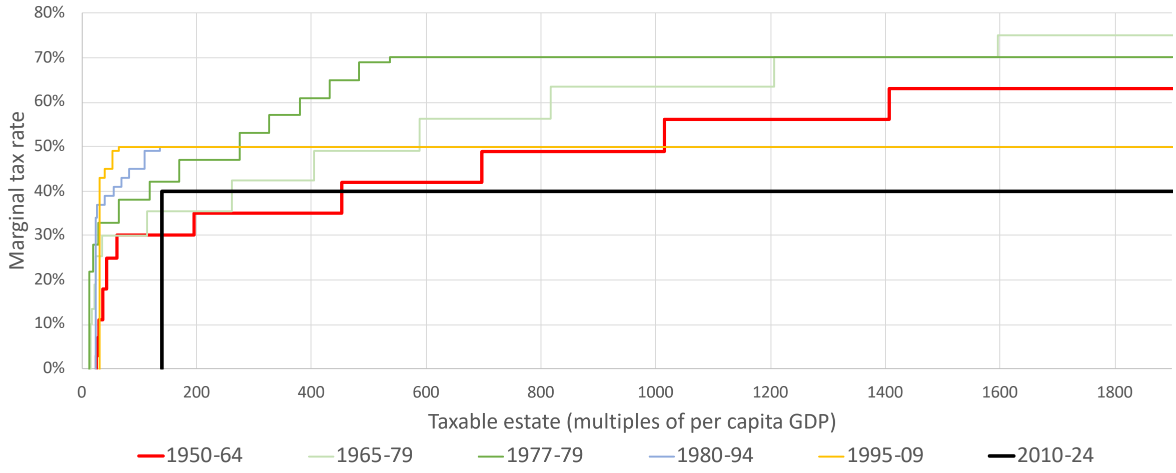
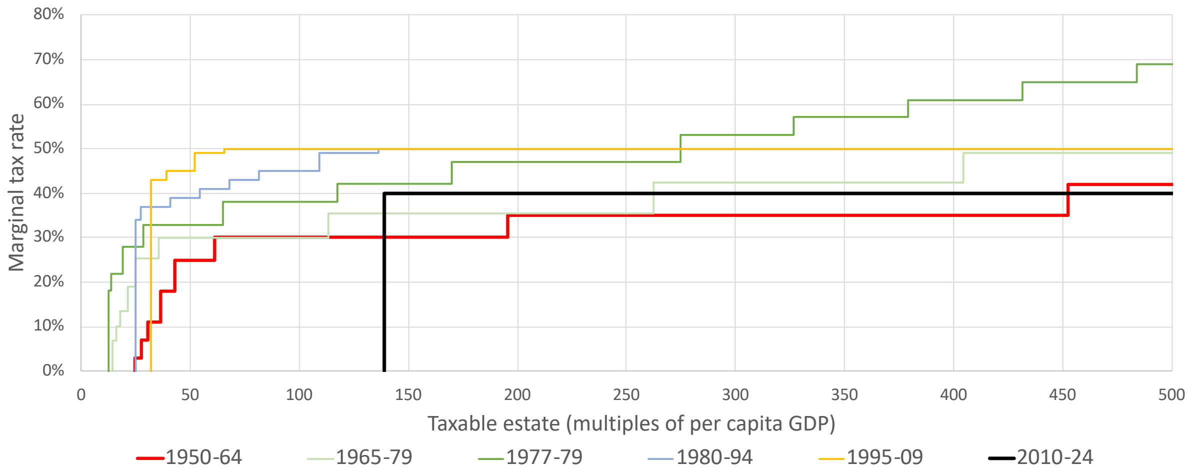


Figure 1b: Closeup of estates below 500 times per capita GDP



Own calculations based on Joulfaian (2000), Gale and Slemrod (2001), Jacobsen et al. (2007), Kaymak and Poschke (2016) and Joulfaian (2019).

4. THE MODEL

We study a six-period overlapping generations economy composed of households, firms, and a fiscal government. Households are heterogeneous by age, earnings capacity, the family in which they are born, and the timing of received transfers and bequests. They are rational and forward-looking, and face mortality risk. We distinguish between workers and entrepreneurs. Households interact with firms on the goods market, the capital market, and the labor market. Our model economy is closed: capital and labor are both internationally immobile. In line with the objectives of this paper, specific data for the exogenous variables and parameters in the model will be chosen for or calibrated to the United States.

The behavior of households and firms over time is driven by the historical and projected evolution of different sets of exogenous variables: fertility and life expectancy, 'skill-biased' technological change, the public pension replacement rate, various tax rates, and the gross income shares of entrepreneurs and workers. The tax rates that we consider, include estate taxes following the true historical evolution of the U.S. federal system. In addition to estates, the government taxes consumption, labor income and capital income, and uses its tax revenues to finance public consumption and public pensions.

At the household level, consumption, labor supply, non-human wealth, inter-vivos transfers and accidental and intentional bequests are all endogenous and may directly and indirectly respond to changes in the estate tax system. The distributions of income and wealth, aggregate consumption, aggregate labor, aggregate private capital and per capita economic growth and output, as well as the equilibrium real interest rate and real wages, are therefore also endogenous.

Concerning notation, for aggregate variables the subscript t denotes an historical period. For variables at the household level, we denote the historical period in which a household is born by a superscript t. The model age of a household is indicated by a subscript s.

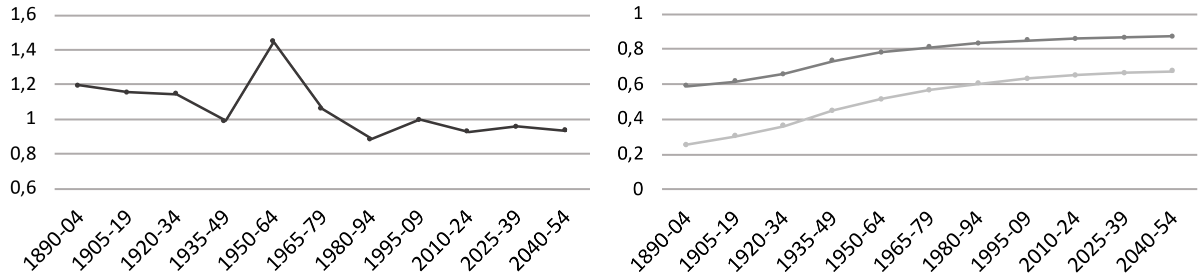
4.1 Demographics

Every household lives at most six periods of 15 years (0-14, 15-29, 30-44, 45-59, 60-74, 75-89), indicated by $s = 1, \ldots, 6$. We denote the size of the youngest cohort born in historical period t by N_1^t. At age 30, this household gives birth to $N_1^{t+2}/N_3^t = (1 + n_{t+1})(1 + n_{t+2})$ children.[9] Therein, $1 + n_t$ is the fertility rate in historical period t. Households face mortality risk from age 59 onwards. π_5^t and π_6^t are the unconditional probabilities, at birth, of a household born in historical period t, of being alive and enjoying utility in periods of life $s = 5$ (ages 60-74) and $s = 6$ (ages 75-89) respectively.

Fertility and life expectancy are the two exogenous variables (time-varying parameters) that drive the demographic evolution in our model. We take the historical evolutions and projections of fertility from the U.S. Census Bureau (2020).[10] In our simulations, $1 + n_t$ captures the baby boom after World War II, the subsequent decline in fertility, and all infant mortality and net migration taking place before age thirty. The historical and projected evolutions for π_5^t and π_6^t are based on data provided by the Human Mortality Database (2020). Figure 2 shows the historical and projected evolutions for $1 + n_t$, π_5^t and π_6^t. The left panel of Figure 3 compares our model's overall dependency ratio with its true (projected) evolution. The right panel of Figure 3 shows that we do not overestimate nor underestimate the ratio of adult deaths as a fraction of total population.[11]

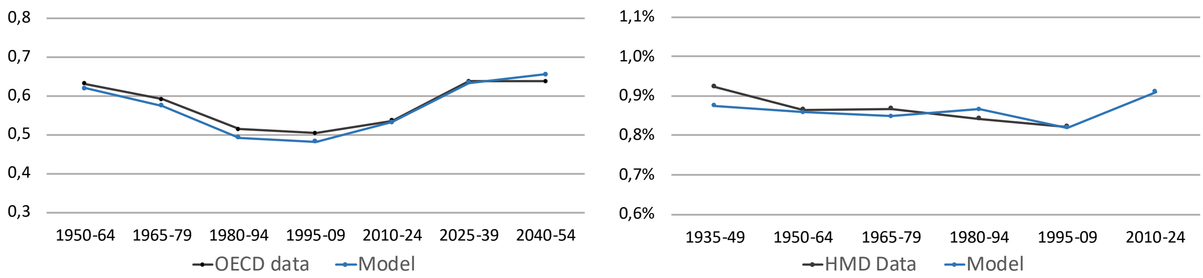
[9] A household survives with certainty until age 59, therefore $N_3^t = N_2^t = N_1^t$ and hence $N_1^{t+2}/N_3^t = N_1^{t+2}/N_1^t$.
[10] We calculate $1 + n_t$ as the relative size of the cohorts aged 0-14 and 15-29 in period t from the Census data.
[11] We obtain a realistic ratio of adult deaths as a fraction of total population even though our model abstracts from deaths taking place before age 60 and after age 90.

Figure 2: Fertility rate, $1 + n_t$ (left panel) and unconditional probabilities at birth to be alive during model periods 5 and 6: π_5^t (right panel, top curve) and π_6^t (right panel, bottom curve).



Sources: Fertility: own calculations based on historical data and projections from the U.S. Census Bureau (2020).
Life expectancy: own calculations based on historical data and projections from the Human Mortality Database (2020). The time on the horizontal axis indicates the period of birth of those whose corresponding survival probabilities are reported.

Figure 3: Overall dependency ratio (left panel) and ratio of yearly adult deaths (age +20) to total population (right panel).



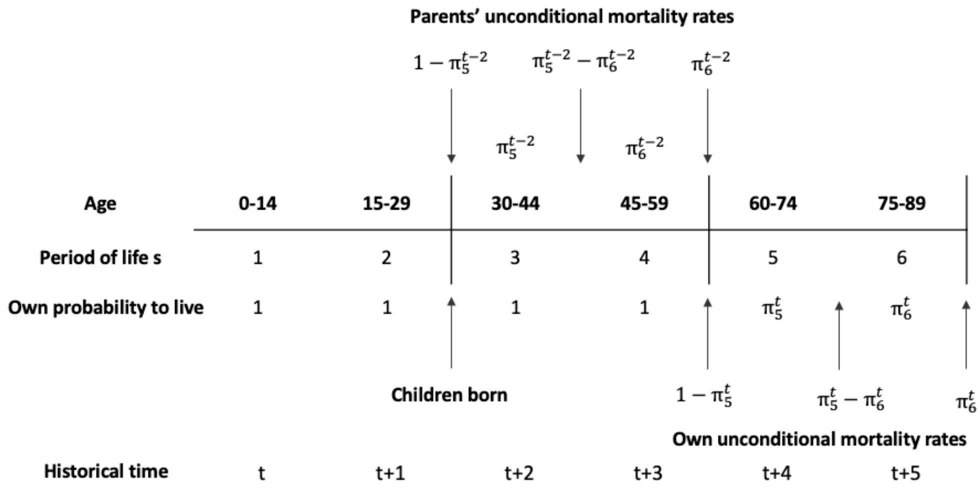
Sources: Dependency ratio: Population aged -15 and +75 / Population aged 15-74 from the OECD (2020).
Ratio of adult deaths to total population: own calculations based on Human Mortality Database (2020).

4.2 Uncertainty

Households face two sources of uncertainty. First, there is their own mortality risk, captured by π_5^t and π_6^t. Upon death, the entire stock of wealth (net of estate taxes) will be divided equally between the own children, see Section 4.8.3. There is no aggregate uncertainty: the fractions of households born in historical period t that pass away the night before turning 60, 75 and 90 are $1 - \pi_5^t$, $\pi_5^t - \pi_6^t$ and π_6^t respectively.[12] These fractions coincide with the fractions of households born in historical period $t + 2$ that inherit at ages 30, 45 and 60 respectively. The second source of uncertainty is the parents' mortality risk, because it implies uncertainty with respect to the timing of inter-vivos transfers and bequests received.[13]

[12] These fractions coincide with (the complement of) unconditional survival probabilities at the household level.
[13] Households are rational and forward-looking: they have full information about all aggregate variables and their own and their parents' state variables. Therefore, they infer the size of inter-vivos transfers and bequests they will receive in each of the possible states for the mortality of the parents, see Section 4.8.3.

Figure 4: Schematical representation of events for a household born in historical period t



4.3 Earnings capacity and the transmission of earnings from parents to children

We denote by $h_{s,i}$ the effective earnings capacity of household i in active period of life $s = 2, \ldots, 5$. We take the distribution of $h_{s,i}$ from Altig et al. (2001).[14] Figure 5 shows these effective earnings capacity profiles. There are twelve earnings capacity groups. The first and final group represent the bottom 2% and top 2% of earners. Group two and eleven represent the remaining 8% of the bottom and the top decile respectively. The eight groups in between all constitute 10% of the population. We assume that the distribution of earnings capacity shown in Figure 5 applies both to workers and entrepreneurs, see Sections 4.4 and 4.5.3.

Let us denote the parents of household i by the index j. $h_{s,j}$ then describes the effective earnings capacity of the parents j at their age s. Earnings capacity of parents and children will be correlated in our model. We allocate each of the newborn children i to a parent household j by applying a permutation matrix T. The properties of T are such that we obtain i) a stable distribution of earnings capacity over time, shown by Figure 5, ii) regression to the mean in earnings capacity, iii) somewhat higher mobility in the middle of the earnings distribution than at the top and at the bottom, and iv) a correlation between parents' and children's log family income of around 0.60 for children entering the labor market in 1980-94, consistent with the empirical findings of Solon (1992).[15] The permutation matrix T is constant over time. We describe T in detail in Appendix A.[16]

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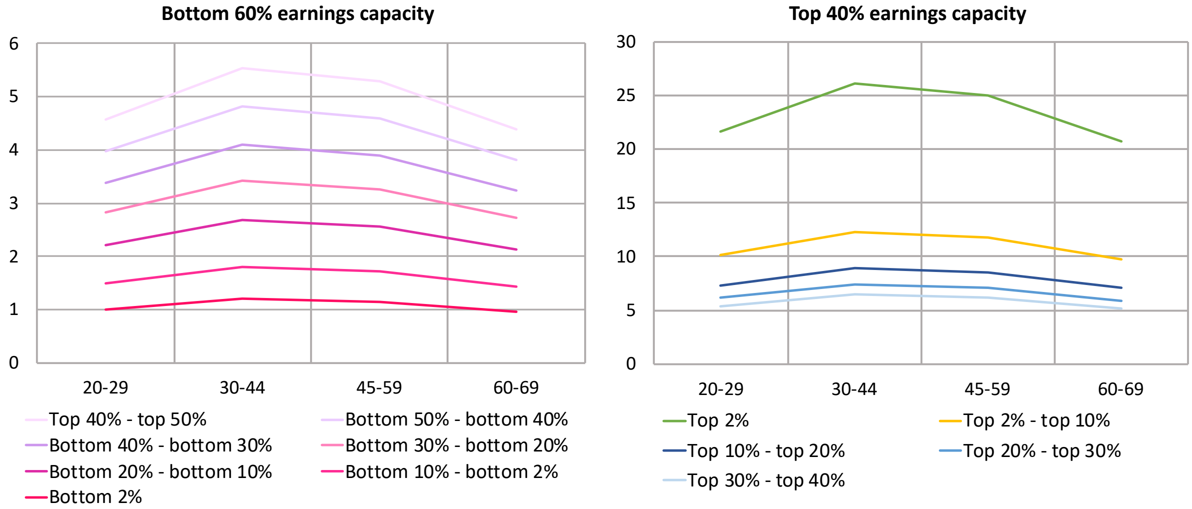
[14] In Altig et al. (2001) technological change is constant and equal to 1% per year. This shapes the effective age-productivity profile when a model is simulated over time. In our framework, technological change is time-varying. Before applying the age-earnings profile of Altig et al., we first filter out their productivity growth rate of 1%. This is easily done by setting the parameter λ in their age-earnings formula equal to 0 instead of 0.01.

[15] In Solon (1992) the correlation of log total family income between parents and children is around 0.50 when yearly income is considered. The different correlation measures in that paper typically increase by two-to-three percentage points if one considers periods of three to five years. In our model, a period of life equals fifteen years. Moreover, our model is a discretized approximation of reality, and there are no income shocks. A somewhat higher correlation than the value of 0.50 reported by Solon is therefore justified.

[16] Earnings capacity captures both nature and nurture and we do not attempt to disentangle the two. All siblings of a household have identical earnings capacity and we implicitly assume perfect assortative mating. We also

Figure 5: Effective earnings capacity profiles over the lifecycle ($h_{s,i}$ for $s = 2, \ldots, 5$)



Source: Altig et al. (2001), whose earnings profiles are based on the Panel Study of Income Dynamics.

4.4 Earnings capacity and intermediate levels of labor $L_{\theta,t}$ and entrepreneurship $E_{\theta,t}$

In each cohort, 9% of households become entrepreneur once they become economically active and the remaining 91% of households become workers, see Section 5.1. The distribution of the earnings capacity of workers and entrepreneurs is the same and given by Figure 5.

As a first step to allow for 'skill-biased' technological change in our model, see Section 4.5.3, we group the effective labor and entrepreneurship supplied by households of different earnings capacity $h_{s,i}$ into broader categories. We denote by $L_{\theta,t}$ (and $E_{\theta,t}$) the effective labor (entrepreneurship) supplied by the households of category θ, with $\theta \in \{T_2, T_{10}, H, M, B\}$. For example, $L_{B,t}$ is the effective labor supplied by all households in the bottom 30% of earnings capacity, summed over all age groups (the pink lines in Figure 5, 'bottom').[17] $L_{M,t}$ comprises the effective labor supplied by all households in the next 30% in terms of earnings capacity (the purple lines in Figure 5, 'middle'), and so on.[18] Effective entrepreneurship within each broad category θ is grouped in the same way. Workers who belong to the same category θ are thus assumed to be perfect substitutes in the labor market. The same applies to entrepreneurs.[19]

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assume that the transmission of earnings capacity is an automatic process: parents cannot deliberately invest in their children's earnings capacity.

[17] Effective labor and entrepreneurship at the household level are further defined in Section 4.8.1.

[18] $L_{H,t}$ combines the effective labor supplied by households with 'high' earnings capacity. We grouped the effective labor of all households except those in top 10% in terms of earnings capacity. $L_{T_2,t}$ captures the effective labor from all households in the top 2% in terms of earnings capacity (the top curve in the right panel of Figure 5, 'top 2'). $L_{T_{10},t}$ groups the effective labor supplied by all households in the remainder of the top 10%. We formalize $L_{\theta,t}$ for all five categories $\theta \in \{T_2, T_{10}, H, M, B\}$ in Appendix H.

[19] As we will further explain in Section 4.8.1, workers only supply labor but entrepreneurs supply a mix of labor and entrepreneurship.

Next, we model aggregate effective ordinary labor L_t and aggregate effective entrepreneurship E_t both as CES composites of the five intermediate levels of effective labor $L_{\theta,t}$ and effective entrepreneurship $E_{\theta,t}$ respectively, see Equations (1a) and (1b). $\eta_{\theta,t}$ are the input shares of the different types of labor and entrepreneurship in L_t and E_t, and ς is the elasticity of substitution.

$$L_t = \left(\eta_{T_2,t} {L_{T_2,t}}^{1-\frac{1}{\varsigma}} + \eta_{T_{10},t} {L_{T_{10},t}}^{1-\frac{1}{\varsigma}} + \eta_{H,t} {L_{H,t}}^{1-\frac{1}{\varsigma}} + \eta_{M,t} {L_{M,t}}^{1-\frac{1}{\varsigma}} + \eta_{B,t} {L_{B,t}}^{1-\frac{1}{\varsigma}}\right)^{\frac{\varsigma}{\varsigma-1}} \tag{1a}$$

$$E_t = \left(\eta_{T_2,t} {E_{T_2,t}}^{1-\frac{1}{\varsigma}} + \eta_{T_{10},t} {E_{T_{10},t}}^{1-\frac{1}{\varsigma}} + \eta_{H,t} {E_{H,t}}^{1-\frac{1}{\varsigma}} + \eta_{M,t} {E_{M,t}}^{1-\frac{1}{\varsigma}} + \eta_{B,t} {E_{B,t}}^{1-\frac{1}{\varsigma}}\right)^{\frac{\varsigma}{\varsigma-1}} \tag{1b}$$

As in Jones and Yang (2016) we model 'skill-biased' technological change by letting the input shares of more productive workers and entrepreneurs, $\eta_{T_2,t}$ and $\eta_{T_{10},t}$, increase over time relative to the input shares of less productive workers and entrepreneurs, see Section 4.5.3. As we show in Section 4.5.1, all workers (entrepreneurs) who belong to the same category θ have the same wage rate per unit of effective labor (entrepreneurship) and are hence affected by 'skill-biased' technological change in the same way, even though they are heterogeneous in terms of earnings capacity $h_{s,i}$.

4.5 Firms, the evolution of gross income shares, and 'skill-biased' technological change

Firms act competitively on output and input markets and maximize profits. The representative firm produces goods according to the production function:

$$Y_t\left(K_t, \hat{L}_t\right) = {K_t}^{\alpha_t}(A_t\hat{L}_t)^{1-\alpha_t} \tag{2a}$$

with

$$\hat{L}_t = {E_t}^{\xi_t}{L_t}^{1-\xi_t} \tag{2b}$$

In Equation (2a), K_t is the stock of private physical capital at the start of period t. It depreciates over time at a constant rate δ. Furthermore, $A_t\hat{L}_t$ is aggregate labor input in efficiency units in period t, with $\hat{L}_t$ aggregate effective labor and A_t the stock of labor augmenting technology. The latter evolves over time according to $A_t = (1 + x_t)A_{t-1}$, see Section 4.5.2. $\hat{L}_t$ is a Cobb-Douglas aggregate of effective ordinary labor L_t and effective entrepreneurship E_t. Both L_t and E_t were defined in Section 4.4. ξ_t is the share of aggregate labor income entitled to entrepreneurship. We define the gross capital income share α_t, and the gross income shares of ordinary labor $(1 - \alpha_t)(1 - \xi_t)$ and entrepreneurship $(1 - \alpha_t)\xi_t$ in Section 4.5.4, where we also show their evolutions over time.

4.5.1 Factor prices

Competitive behavior implies that firms employ physical capital such that its marginal product (net of depreciation) equals the real interest rate. It also implies equality between the real wages of labor and entrepreneurship and their marginal products for the different earnings categories θ, see Section 4.4.

$$\left[\alpha_t \left(\frac{A_t \hat{L}_t}{K_t}\right)^{1-\alpha_t} - \delta_t\right] = r_t \tag{3}$$

For ordinary labor:

$$A_t^{1-\alpha_t}(1-\alpha_t)\left(\frac{K_t}{\hat{L}_t}\right)^{\alpha_t}(1-\xi_t)\left(\frac{E_t}{L_t}\right)^{\xi_t}\eta_{\theta,t}\left(\frac{L_t}{L_{\theta,t}}\right)^{\frac{1}{\varsigma}} = w_{\theta,t}^L, \qquad \forall\theta = T_2, T_{10}, H, M, B \tag{4a}$$

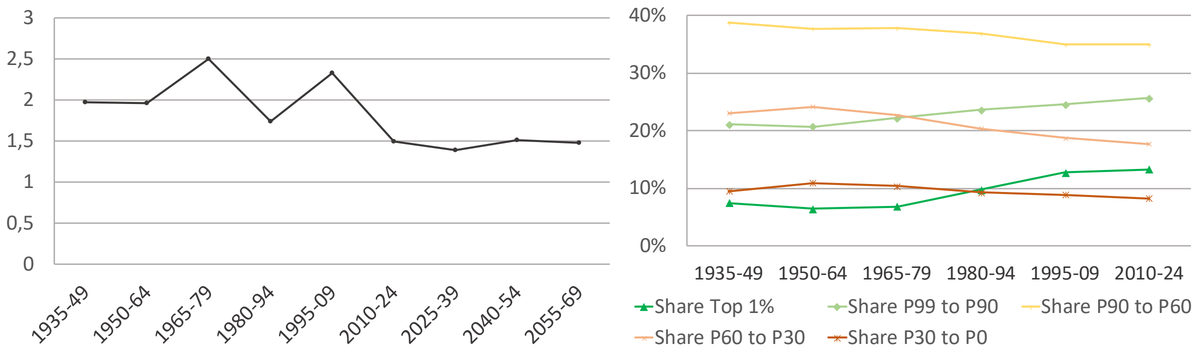
For entrepreneurship:

$$A_t^{1-\alpha_t}(1-\alpha_t)\left(\frac{K_t}{\hat{L}_t}\right)^{\alpha_t}\xi_t\left(\frac{L_t}{E_t}\right)^{(1-\xi_t)}\eta_{\theta,t}\left(\frac{E_t}{E_{\theta,t}}\right)^{\frac{1}{\varsigma}} = w_{\theta,t}^E, \qquad \forall\theta = T_2, T_{10}, H, M, B \tag{4b}$$

4.5.2 The evolution of 'skill-neutral' technological change x_t

In our production function, $A_t = (1 + x_t)A_{t-1}$ captures all variation in Y_t that is not in K_t or $\hat{L}_t$. We calculate the historical evolution of technological change x_t based on the evolution of TFP-growth provided by the Penn World Tables 9.1 (Feenstra et al., 2015). The projections after 2020 for x_t are taken from the OECD (2018).[20]

Figure 6: Annual rate of 'skill-neutral' technological change x_t (left panel), historical evolution of gross wage income shares of workers in the United States (right panel)



Sources: Left panel: own calculations based on Penn World Tables 9.1 (Feenstra et al., 2015).
Right panel: Kopczuk et al. (2010) for 1950-2004; after 2005: Economic Policy Institute (2021) based on Kopczuk et al. and Social Security Administration Wage Statistics. For the top wage income shares before 1950 we take the data from Piketty and Saez (2003), and for the other shares Kopczuk et al. (2010).

4.5.3 From 'skill-neutral' to 'skill-biased' technological change

The evolution of x_t in the left panel of Figure 6 reflects 'skill-neutral' technological change. In the right panel of Figure 6 we show the historical evolution of the gross wage income shares of full-time workers in the United States. The main observation is that the top decile ('Share Top 1%' + 'Share P99 to P90') and especially the top one per cent experienced a considerable increase in their gross wages over the last decades. The three subgroups within the bottom 90% of wage earners have all seen their income share decline.

[20] A_t is related to total factor productivity: $A_t = TFP_t^{1/(1-\alpha_t)}$ and x_t equals TFP-growth divided by $(1-\alpha_t)$. We do not model human capital accumulation endogenously, x_t also captures the impact on output growth from human capital growth in the data.

Skill-biased technological change, reflected by rising input shares of more productive households ($\eta_{T2,t}$ and $\eta_{T10,t}$) and falling input shares of less productive households in (1a), can explain this change in relative wages, as shown by (4a). A (long-lasting) rise in income (and wealth) inequality will follow. We calibrate the historical evolution of $\eta_{\theta,t}$ for $\theta \in \{T_2, T_{10}, H, M, B\}$ such that our simulated gross wage income shares of workers exactly replicate their true historical evolutions shown in the right panel of Figure 6. After identifying the different input shares in (1a), we also impose them to (1b). This pushes up the relative wages of more productive entrepreneurs through Equation (4b). 'Skill-biased' technological change thus affects entrepreneurs in the same way as workers in our model.

4.5.4. Evolution over time of the gross income shares α_t, $(1-\alpha_t)(1-\xi_t)$ and $(1-\alpha_t)\xi_t$

Table 1 reports the evolution over time of the three gross income shares. We rely on national income data provided by the Federal Reserve Bank of St. Louis (FRED, 2021). We take the 'gross proprietors' share of national income' in the FRED database as a proxy for $(1-\alpha_t)\xi_t$ in our model.[21] We thus see the proprietors in the FRED database as the empirical counterpart of the entrepreneurs in our model.[22] The second part of the aggregate gross labor income share in our model, $(1-\alpha_t)(1-\xi_t)$, corresponds to the FRED category 'gross compensation of employees as a fraction of national income'.[23] We then calculate the gross capital income share α_t as the residual of national income: 1 – gross compensation of employees – gross compensation of entrepreneurs. α_t captures many income categories from the data including 'rental income to persons', 'corporate profits', 'net dividends' and 'net interest'.

[21] We calculate the 'gross proprietors' share of national income' by dividing the series 'PROPINC' by the series 'NICUR', see description below Table 1. We take both series from the FRED database (2021).
[22] In reality, $(1-\alpha_t)\xi_t$ is a mix of capital income and labor income: typical entrepreneurs supply a mix of labor, entrepreneurship, and own capital in their business. However, economists faced difficulties in correctly disentangling $(1-\alpha_t)\xi_t$ into a labor income and a capital income component when calculating the aggregate labor share in the U.S. economy, see Monthly Labor Review of February 2017 of the Bureau of Labor Statistics. We therefore abstract from an additional type of capital that is employed by entrepreneurs in their businesses and assume that $(1-\alpha_t)\xi_t$ only consists of entrepreneurial labor income and not of capital income. Hence, entrepreneurs in our model do not have additional decision variables compared to workers.
[23] We calculate the 'gross compensation of employees as a fraction of national income' by dividing the series 'COE' by the series 'NICUR', see description below Table 1. We take both series from the FRED database (2021).

Table 1: Gross income shares in national income

Category in FRED	gross compensation of employees (fraction of national income)	gross compensation of entrepreneurs[24] (fraction of national income)	gross capital income (fraction of national income)
Translated to our model	$(1-\alpha_t)(1-\xi_t)$	$(1-\alpha_t)\xi_t$	α_t
1935-49	0,5986	0,1543	0,2471
1950-64	0,6207	0,1135	0,2658
1965-79	0,6504	0,0843	0,2652
1980-94	0,6619	0,0698	0,2683
1995-09	0,6454	0,0844	0,2701
2010 -	0,6193	0,0918	0,2889

Source: Data taken directly from the national accounts of the Federal Reserve Bank of St. Louis (FRED, 2021). COE – National Income: Compensation of Employees, Paid, Billions of Dollars, Quarterly, Seasonally Adjusted Annual Rate; PROPINC – Proprietors' Income with Inventory Valuation Adjustment (IVA) and Capital Consumption Adjustment (CCAdj), Billions of Dollars, Quarterly, Seasonally Adjusted Annual Rate; NICUR – National Income, Billions of Dollars, Quarterly, Seasonally Adjusted Annual Rate.

4.6 The fiscal government

The focus in this paper is on the effects of changes in the U.S. federal estate tax system over the last decades. We described its evolution in Section 3, and further specify the modelling of the estate tax system in Section 4.6.2. We first turn to all other types of taxes.

4.6.1 Taxes on labor income, capital income and consumption

In addition to estates, the government in our model taxes consumption, capital income and labor income. We denote the consumption tax rate by $\bar{\tau}_c$, the capital income tax rate by $\bar{\tau}_k$ and the labor income tax rate by $\bar{\tau}_w$. Entrepreneurs in our model are taxed in the same way as workers. All three tax rates are linear and constant over time.[25] Their values are calculated to match their respective true averages over the period 1950-2015, as calculated by McDaniel (2017), see Section 5.1. In some of our counterfactual simulations we let $\bar{\tau}_w$, $\bar{\tau}_k$ and $\bar{\tau}_c$ adjust to maintain budget balance but suppress their time index for simplicity.

4.6.2 Modelling the historical evolution of the U.S. federal estate tax system

Let us denote by $BR_{q,t}$, with $q = 1,2,\dots,\bar{q}_t$, the lower bound of the different tax brackets q in historical period t, with $\bar{q}_t$ indicating the highest tax bracket. The different levels for $BR_{q,t}$ coincide with the values on the horizontal axis where the curves in Figure 1 become vertical. $BR_{1,t}$ is the individual lifetime exemption in historical period t.[26] Let us denote by $\tau_{q,t}$ for $q = 1,2,\dots,\bar{q}_t$ the marginal estate tax rate that applies from $BR_{q,t}$ onwards. The historical

[24] For a detailed description of this category, see Guide to the National Income and Product Accounts of the United States (NIPA): www.bea.gov/national/pdf/nipaguid.pdf

[25] In previous versions of our model, we let $\bar{\tau}_w$ and $\bar{\tau}_k$ vary over time in all our simulations. Their respective evolutions, assuming linear taxes, can also be calculated directly from the FRED national accounts data. Allowing them to vary over time does not affect our results regarding the dynamic effects of the estate tax system, however. For simplicity, we keep both $\bar{\tau}_w$ and $\bar{\tau}_k$ constant in our baseline simulation.

[26] From 2010-24 onwards, there is only the lifetime exemption: $\bar{q}_t = 1$. The only bracket is then $BR_{1,t}$.

evolutions of $\tau_{q,t}$ for $q = 1,2, \dots, \bar{q}_t$ are also shown in Figure 1. They coincide with the values on the vertical axis where the curves are horizontal.

In addition to the different tax brackets and the corresponding marginal tax rates, our simulations incorporate several important aspects of the U.S. federal estate tax system that matter for the calculation of effective estate tax rates over time. The first crucial aspect is the *unification in 1976 of the federal estate tax and gift tax system*, see Gale and Slemrod (2001) and Jacobsen et al. (2007). From then on, lifetime inter-vivos transfers and bequests are jointly taxed, and the individual lifetime exemption $BR_{1,t}$ applies to the sum of the estate and lifetime taxable inter-vivos transfers. Let IV_t indicate whether inter-vivos transfers made in historical period t will eventually be added to the taxable estate at death. Inter-vivos transfers prior to 1980 will not be added to the taxable estate: $IV_t = 0$. From our historical model period 1980-94 onwards, we set $IV_t = 1$. Only the amount of inter-vivos transfers that exceeded the yearly allowance for inter-vivos transfers at the time of giving, which we denote by AZ_t, counts. The yearly allowance was 10.000 USD since 1976 and is indexed for inflation. AZ_t is per year, per spouse, per beneficiary: we therefore multiply AZ_t by 15 and by the number of children, for each spouse, see Equation 5. For simplicity, we assume that inter-vivos transfers before 1980 are untaxed.[27]

The second crucial aspect of the U.S. federal estate tax system is that *married couples can apply the individual lifetime exemption $BR_{1,t}$ twice*. From 2010 onwards, this automatically follows from the combination of unlimited marital deduction and full portability of the deceased spouses' unused lifetime exemption, see Section 3. Before 2010, this double application of $BR_{1,t}$ follows in our model from the assumption of rational and forward-looking households. Given that there was no full portability of exemptions, and that the estate tax system was progressive before 2010, see Figure 1, the tax minimizing strategy for spouses would always be to split up the estate and each bequeath half of it directly to the children. In all our simulations, to compute estate taxes, we assume that this strategy is implemented. The household's estate is split equally between both spouses and individual lifetime exemptions of both spouses are applied to the maximum, see Equations 5 and 6.[28]

Let the parents of household i again be indexed by j and let $m_j \in \{4,5,6\}$ indicate whether parents j passed away after their respective fourth, fifth or sixth model period. The index m_j is a key characteristic of household i as it determines the path of inter-vivos transfers and bequests received over the lifecycle of household i, see Section 4.8.3. Let us denote by $\Omega^t_{s,i,m_j}/2$ the pre-tax stock of wealth at the end of period of life $s = 4,5,6$ per spouse of household i born in period t with parents' mortality m_j. Let $\tilde{Z}^t_{s,i,m_j}/2$ be the total expenditures on inter-vivos transfers per spouse of household i in periods of life $s = 4,5,6$, see Sections 4.7.3 and 4.8.3. With AZ_t the yearly allowance (per spouse, per beneficiary)

[27] This does not affect our results regarding the historical effects of the estate tax whatsoever since we study changes from 1980 onwards. $IV_t = 0$ prior to 1980 thus holds both in our baseline simulation and in all our counterfactual simulations.

[28] From 2010 onwards, tax minimization can then by attained by two different strategies, which are equivalent (given that the estate tax system has become linear from 2010 onwards). Either the married couple splits the estate and uses the individual lifetime exemption of both spouses separately, as before 2010. Or the couple applies full marital deduction upon the death of the first spouse, and then uses full portability of the deceased unused lifetime exemption, such that the surviving spouse can apply both lifetime exemptions.

related to inter-vivos transfers, we calculate the taxable estate per spouse of household i at the end of period of life $s = 4,5,6$, denoted by $\breve{\Omega}^{t}_{s,i,m_j}/2$, as:[29]

$$\frac{\breve{\Omega}^{t}_{s,i,m_j}}{2} = \frac{\Omega^{t}_{s,i,m_j}}{2} + \sum_{v=4}^{s} IV_{t+v-1} max \left\{0, \left[\frac{\tilde{Z}^{t}_{s,i,m_j}}{2} - 15\frac{N^{t+2}_{1}}{N^{t}_{3}} AZ_{t+v-1}\right]\right\} \tag{5}$$

The taxable estate of a spouse of household i exceeds the pre-tax bequest $\Omega^{t}_{s,i,m_j}/2$ if the spouse made inter-vivos transfers above the yearly allowance AZ_{t+v-1} during historical periods $t + v - 1$, for $v = 4, \dots, s$, after 1980. We impose that $\Omega^{t}_{s,i,m_j}, \tilde{Z}^{t}_{s,i,m_j}, \breve{\Omega}^{t}_{s,i,m_j} \geq 0$.

Let us denote by $\bar{\tau}^{t}_{b,s,i,m_j}$ the effective average estate tax rate that is levied on the pre-tax bequests $\Omega^{t}_{s,i,m_j}/2$ of a spouse of household i at the end of period s. We calculate $\bar{\tau}^{t}_{b,s,i,m_j}$ using Equation (6). Given that households equally split Ω^{t}_{s,i,m_j} and $\tilde{Z}^{t}_{s,i,m_j}$, $\bar{\tau}^{t}_{b,s,i,m_j}$ is the same for both spouses. Equation (6) shows that both spouses benefit from their respective individual lifetime exemption: $BR_{1,t+s-1}$, applying to historical period $t + s - 1$.

$$\bar{\tau}^{t}_{b,s,i,m_j} = \frac{1}{\Omega^{t}_{s,i,m_j}/2} \sum_{q=1}^{\bar{q}_t} \left[\tau_{q,t+s-1} - \tau_{q-1,t+s-1}\right] * max \left\{0, \left[\frac{\breve{\Omega}^{t}_{s,i,m_j}}{2} - BR_{q,t+s-1}\right]\right\} \tag{6}$$

Total estate taxes due on the pre-tax wealth at death Ω^{t}_{s,i,m_j} of household i are then $\bar{\tau}^{t}_{b,s,i,m_j}\Omega^{t}_{s,i,m_j}$, and the after-tax bequest $B^{t}_{s,i,m_j} = \left(1 - \bar{\tau}^{t}_{b,s,i,m_j}\right)\Omega^{t}_{s,i,m_j}$ left by household i will be divided equally between the children of household i. The effective marginal estate tax rate τ^{t}_{b,s,i,m_j}, which is equal for both spouses, is the marginal estate tax rate $\tau_{q,t}$ that applies to the final dollar of taxable pre-tax bequests per spouse of household i:[30]

$$\tau^{t}_{b,s,i,m_j} = \frac{\partial \bar{\tau}^{t}_{b,s,i,m_j}}{\partial \breve{\Omega}^{t}_{s,i,m_j}/2} \tag{7}$$

4.6.3 Expenditure side of fiscal policy

The government uses its revenues from the labor income tax, the consumption tax, the capital income tax and the estate tax system, denoted by $T_{w,t}$, $T_{c,t}$, $T_{k,t}$ and $T_{b,t}$ respectively, to finance public consumption $C_{g,t}$ and social security in the form of public pension benefits P_t. The pension system is fully integrated into government accounts. We abstract from public debt. In our baseline simulation, the government's demand for goods $C_{g,t}$ adjusts to maintain budget balance.

$$P_t + C_{g,t} = T_{c,t} + T_{k,t} + T_{b,t} + T_{w,t} \tag{8}$$

[29] $\tilde{Z}^{t}_{v,i,m_j}$ equals the inter-vivos transfer of household i per adult equivalent child, i.e., Z^{t}_{v,i,m_j}, multiplied by the number of children, see Section 4.8.3.

[30] We refer to Appendix E for more information on the derivation of Equation (7).

We denote by $\bar{p}_t$ the average net public pension replacement rate in historical period t. We show its historical evolution in Table 2. In our simulations, the public pension system is progressive, see Appendix B. Both workers and entrepreneurs receive public pension payments. Their benefits are calculated using the same formula. Since entrepreneurs have a (much) higher total labor income than workers, see Section 4.8.1, their effective replacement rates will, on average, be lower.

Table 2: Historical evolution of the average net public pension replacement rate $\bar{p}_t$

	Average net public pension replacement rate, $\bar{p}_t$
pre-1935	0,0000
1935-49	0,0962
1950-64	0,1787
1965-79	0,3162
1980-94	0,4399
1995-09	0,5224
2010-	0,4812

Sources: Historical series of Marchiori et al. (2017). Pensions at a Glance (OECD, versions 2011 to 2019) for the more recent data. We keep the net replacement rate constant from 2020 onwards in our simulations.

4.7. Household preferences and time allocation

4.7.1 Time allocation

Every household is endowed with one unit of time in each period of life $s = 1,2, \dots, 6$. They allocate it to either labor or leisure. In every period, it holds that $l^t_{s,i,m_j} = 1 - n^t_{s,i,m_j}$, with l^t_{s,i,m_j} the fraction of time allocated to leisure and n^t_{s,i,m_j} the fraction of time worked. In the second period of life (ages 15-29) households are allowed to work only from age twenty onwards, hence $n^t_{2,i,m_j} \leq 2/3$ and $l^t_{2,i,m_j} \geq 1/3$. In the fifth model period (ages 60-74) we consider an endogenous retirement decision. The choice variable R^t_{5,i,m_j} indicates the fraction of period $s = 5$ that the household is still on the labor market, and $\tilde{n}^t_{5,i,m_j}$ is labor supplied within this fraction R^t_{5,i,m_j}. We model l^t_{5,i,m_j} as a CES composite of the leisure time prior to retirement, $R^t_{5,i,m_j}\left(1 - \tilde{n}^t_{5,i,m_j}\right)$ and after retirement, $\left(1 - R^t_{5,i,m_j}\right)$, as in Buyse et al. (2017), see Appendix C. Total effective labor supplied in period five is then $n^t_{5,i,m_j} = \tilde{n}^t_{5,i,m_j} R^t_{5,i,m_j}$.

4.7.2 Preferences over own consumption, leisure, and bequests

Preferences are time separable. The utility function in period of life s of household i is additively separable in own consumption and leisure:

$$U^t_{s,i,m_j}\left(c^t_{s,i,m_j}, l^t_{s,i,m_j}\right) = \frac{{c^t_{s,i,m_j}}^{1-\rho} - 1}{1-\rho} + v_s \frac{{l^t_{s,i,m_j}}^{1-\gamma} - 1}{1-\gamma}, \tag{9}$$

with $v_s, \rho, \gamma > 0$, $\rho \neq 1$ and $\gamma \neq 1$. Leisure time l_{s,i,m_j} has been defined over the lifecycle in section 4.7.1. Consumption c^t_{s,i,m_j} is consumption per adult equivalent in period of life s.[31] Furthermore, ρ is the inverse of the intertemporal elasticity of substitution in consumption, γ is the inverse of the intertemporal elasticity of substitution in leisure time, and v_s are the relative utility weights of leisure versus consumption in the different periods of life.

Let us denote by $B^t_{s,i,m_j} = \left(1 - \bar{\tau}^t_{b,s,i,m_j}\right) \Omega^t_{s,i,m_j}$ the stock of after-tax bequests left by household i at the end of period $s = 4{,}5{,}6$. As defined in Section 4.6.2, $\bar{\tau}^t_{b,s,i,m_j}$ is the average effective estate tax rate that will be levied on the pre-tax bequests of household i left at the end of model period s, Ω^t_{s,i,m_j}. The instantaneous utility from bequeathing B^t_{s,i,m_j} is:

$$\Phi^t_{s,i,m_j}\left(B^t_{s,i,m_j}\right) = b\,\frac{{B^t_{s,i,m_j}}^{1-\omega} - 1}{1-\omega}. \tag{10}$$

with $b, \omega > 0$, $\omega \neq 1$ and $\omega < \rho$. The parameter b measures the overall strength of the bequest motive and ω is the inverse of the intertemporal elasticity of substitution of bequests. We model bequests as a luxury good by setting ω below ρ. The warm glow bequest motive and modelling bequests as a luxury good have both become standard in studies that attempt to generate realistic lifecycle profiles of wealth and/or a realistic distribution of wealth, see e.g., Heer (2001), Dynan et al. (2002, 2004), De Nardi (2004) and De Nardi and Yang (2016).

4.7.3 Altruistic inter-vivos transfers

Let s_k denote the model period of the children while household i is in period s, such that $s_k = s - 2$. Altruism during model periods $s = 4{,}5{,}6$ by household i born in period t towards the children k is captured by:

$$U^t_{s,i,m_j}\left(c^{t+2}_{s_k,k,m_i}\right) = z U^{t+2}_{s_k,k,m_i}\left(c^{t+2}_{s_k,k,m_i}\right) = z\,\frac{{c^{t+2}_{s_k,k,m_i}}^{1-\rho} - 1}{1-\rho} \tag{11}$$

with $z > 0$. Parents derive utility directly from the current consumption level of their children, $c^{t+2}_{s_k,k,m_i}$ and evaluate this consumption in the same way as their children k, through the instantaneous utility function $U^{t+2}_{s_k,k,m_i}\left(c^{t+2}_{s_k,k,m_i}\right)$, with z the degree of altruism.[32] As we derive in Section 4.9.2, the optimal inter-vivos transfer Z^t_{s,i,m_j} is a positive function of own endowments and a negative function of the children's endowments, consistent with the findings of Wilhelm (1996), McGarry (1999) and Hochguertel and Ohlsson (2009). We impose that $Z^t_{s,i,m_j} \geq 0$.

[31] Consumption per adult equivalent is equal to total consumption expenditures (before consumption tax) at the household level divided by the number of household members, using eq as the relative weight of one dependent child in total consumption of the parents' household, see Section 4.8.3. Adult-equivalent consumption enters the utility function to prevent that utility from consumption automatically increases with the household size.

[32] We can drop the index $m_i \in \{4,5,6\}$ here: inter-vivos transfers are relevant only in the case where household i is still alive.

4.8. Household budget constraints

4.8.1 Labor earnings of workers versus entrepreneurs

Households are allowed to work only from age 20 and will retire during model period $s = 5$, see Section 4.7.1. The net labor income of *a worker* with effective earnings capacity $h_{s,i}^t$ in periods $s = 2, \dots, 5$ is:

$$ninc_{s,i,m_j}^t = h_{s,i}^t \, n_{s,i,m_j}^t w_{\theta,t+s-1}^L (1 - \bar{\tau}_w) \tag{12a}$$

$w_{\theta,t+s-1}^L$ is the real gross wage rate (see Equation 4a) in historical periods $t+1, \dots, t+4$ per unit of effective labor supplied $h_{s,i}^t n_{s,i,m_j}^t$. The effective labor $h_{s,i}^t n_{s,i,m_j}^t$ of all workers i that belong to the same category θ are then combined in $L_{\theta,t}$, for each $\theta \in \{T_2, T_{10}, H, M, B\}$, via Equation (1a). $\bar{\tau}_w$ is the constant labor income tax rate.

Entrepreneurs differ from workers in three main ways: i) the average income of entrepreneurs is higher, ii) they supply a mix of labor and entrepreneurship, and iii) income inequality among entrepreneurs is considerably higher than among workers, see below. The total net labor income in period s of *an entrepreneur* with effective earnings capacity $h_{s,i}^t$ during active model periods $s = 2, \dots, 5$ is:

$$ninc_{s,i,m_j}^t = \left[\lambda h_{s,i}^t \, n_{s,i,m_j}^t w_{\theta,t+s-1}^L + (1-\lambda) f\left(h_{s,i}^t\right) n_{s,i,m_j}^t w_{\theta,t+s-1}^E \right] (1 - \bar{\tau}_w) \tag{12b}$$

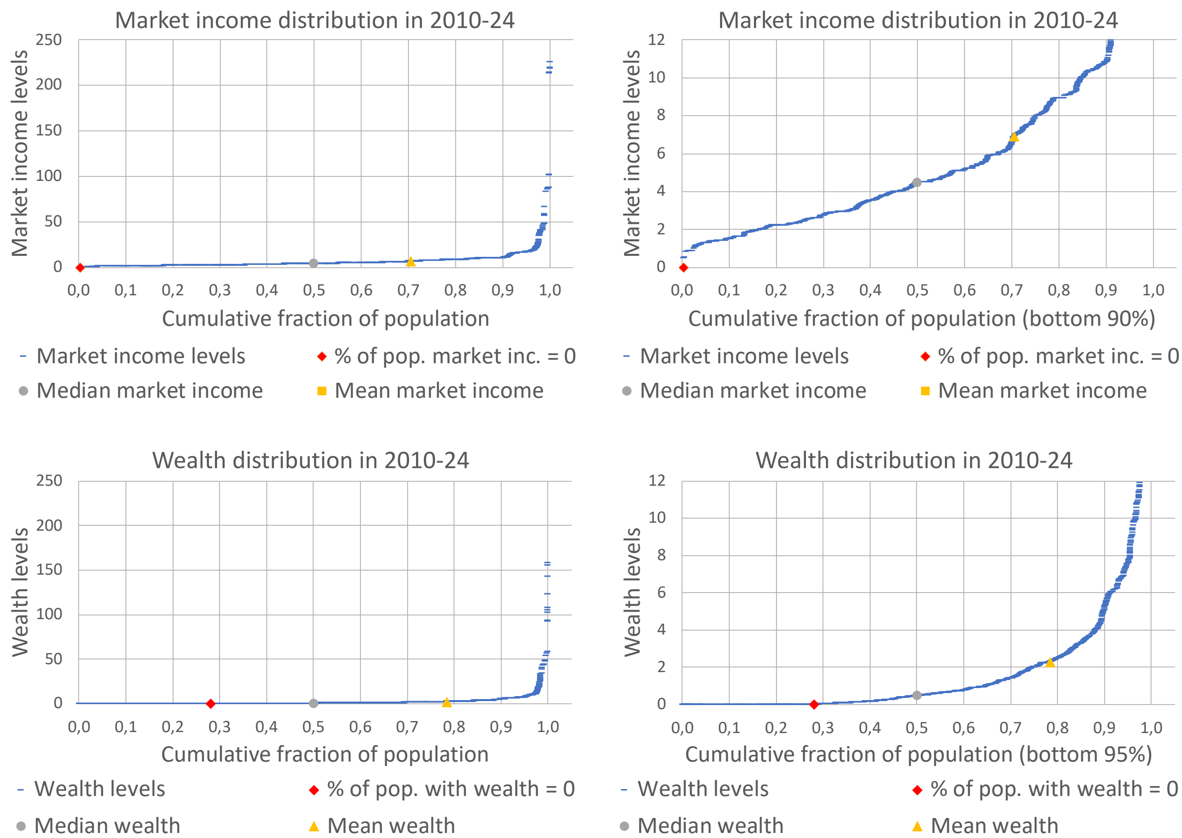
with $f\left(h_{s,i}^t\right) = {h_{s,i}^t}^{\psi}$ and $\psi > 1$, see below. λ and $1-\lambda$ are the fractions of time devoted to labor and entrepreneurship respectively. We deliberately set $\lambda > 0$ to be consistent with how the entrepreneurs' gross income share $(1-\alpha_t)\xi_t$ has been defined by FRED (2021). Entrepreneurs supply a mix of labor and entrepreneurship. $\lambda h_{s,i}^t n_{s,i,m_j}^t$ is the effective labor supplied by the entrepreneur in period s. For all entrepreneurs who belong to the same category θ, their effective labor is added to the labor of workers in that category, and all together form $L_{\theta,t}$. The corresponding real gross wage rate is $w_{\theta,t+s-1}^L$. Likewise, $(1-\lambda) f\left(h_{s,i}^t\right) n_{s,i,m_j}^t$ indicates the effective entrepreneurship supplied by the entrepreneur. For all entrepreneurs belonging to the same category θ, the effective entrepreneurship is combined in $E_{\theta,t}$. All $E_{\theta,t}$, for $\theta \in \{T_2, T_{10}, H, M, B\}$, together compose aggregate entrepreneurship E_t via Equation (1b). The real gross wage rate per unit of effective entrepreneurship in $E_{\theta,t}$ is $w_{\theta,t+s-1}^E$. The wage rates $w_{\theta,t+s-1}^L$ and $w_{\theta,t+s-1}^E$ are defined through Equations 4a and 4b respectively.

Figure 7 shows the implied aggregate cross-sectional distributions of total gross market income and pre-tax wealth generated by our model in 2010-24.[33] The right panels are close-ups of the bottom 90% or 95%. Considerable income (and wealth) concentration in our model is due to four main factors: i) a relatively small fraction of households (9%) qualifies as entrepreneurs, but their respective income share $(1-\alpha_t)\xi_t$ is relatively high, see Table 1, ii)

[33] Gross market income in our model is the sum of ordinary labor income, entrepreneurial labor income, and capital income, see Section 4.8.3.

entrepreneurs supply a mix of entrepreneurship and labor, hence they also earn a fraction of $(1-\alpha_t)(1-\xi_t)$, see Equation (9b), iii) of this relatively large share of income, a relatively large fraction will end up in the hands of the most productive entrepreneurs. We have noticed, however, that the combination of i) to iii) understates the true concentration of (labor) incomes. We therefore ensure that iv) the concentration of incomes among entrepreneurs is higher than among workers: relatively small differences in earnings capacity lead to larger differences in effective earnings compared to workers. Our function $f\left(h_{s,i}^t\right)$ captures this.[34] The most productive entrepreneurs in our model earn (much) higher total labor incomes than the most productive workers. i) to iv) are consistent with Quadrini (1999), Cagetti and De Nardi (2006) and De Nardi et al. (2007).

Figure 7: Simulated inverse cumulative density functions of cross-sectional gross market income and cross-sectional pre-tax wealth in 2010-24. The right panels are closeups.



Note: Directly taken from our baseline simulation (see Section 5). We sort both the gross market incomes (taken over a 15-year period) and pre-tax wealth levels from low to high and then plot their absolute levels for each household (vertical axis) at their position in the income or wealth distribution (horizonal axis). The red dot indicates the fraction of households that have zero income or wealth (horizontal axis). The vertical levels of the grey and yellow dots coincide with the median and mean respectively (vertical axis).

[34] We choose the simplest functional form for $f\left(h_{s,i}^t\right)$. Calibration in Section 5.1 yields a value of 1.85 for ψ.

4.8.2 Public pension

From age $60 + 15R^t_{5,i,m_j}$, the household is retired. Received pension benefits are linear functions of the household's own (revalued) after-tax labor income during its active periods $s = 2, \dots, 5$:[35]

$$pen^t_{5,i,m_j} = \left(1 - R^t_{5,i,m_j}\right) p_{t+4,i,m_j} \frac{1}{3} \sum_{s=2}^{5} ninc^t_{s,i,m_j} \frac{A_{t+4}}{A_{t+s-1}}, \tag{13a}$$

$$pen^t_{6,i,m_j} = p_{t+4,i,m_j} \frac{1}{3} \sum_{s=2}^{5} ninc^t_{s,i,m_j} \frac{A_{t+5}}{A_{t+s-1}}. \tag{13b}$$

p_{t+4,i,m_j} is the effective net replacement rate of household i in historical period $t + 4$, the period in which the household born in t retires. The public pension system is progressive: p_{t+4,i,m_j} is a decreasing function of the own career-long labor earnings, $\sum_{s=2}^{5} ninc^t_{s,i,m_j}$, see Appendix B.

4.8.3 Budget constraints and the link between parents and children

Every household lives for a maximum of six periods of fifteen years (0-14, 15-29, 30-44, 45-59, 60-74, 75-89). As before, let c^t_{s,i,m_j} be consumption per adult equivalent of household i during period of life s, and $\bar{\tau}_c$ the consumption tax rate. Let Ω^t_{s,i,m_j} denote the stock of pre-tax wealth at the end of period of life s. Let r^n_{t+s-1} represent the net (after capital income tax) real interest rate received in historical period $t + s - 1$ on the stock of wealth that was carried over from the households' previous period, namely Ω^t_{s-1,i,m_j}. More precisely, $r^n_{t+s-1} = r_{t+s-1}(1 - \bar{\tau}_k)$, with r_{t+s-1} the equilibrium real interest rate in historical period $t + s - 1$, which equals the marginal product of private physical capital net of depreciation in that period, see Equation (3), and $\bar{\tau}_k$ the capital income tax rate. The household's net labor income in active periods $s = 2, \dots, 5$ is denoted by $ninc^t_{s,i,m_j}$, see Section 4.8.1. As explained in Section 4.6.2, $m_j \in \{4,5,6\}$ indicates the timing of death of the parents j and is therefore informative about the path of wealth received by household i. We denote by W^t_{s,i,m_j} the flow of wealth received in periods of life $s = 2,3,4,5$ by household i from the parents j. As long as the parents j are alive, W^t_{s,i,m_j} consists of (non-negative) inter-vivos transfers. In one specific period of life, W^t_{s,i,m_j} equals the invested after-tax bequests from the parents' previous period. W^t_{s,i,m_j} automatically turns zero afterwards. We formalize the intra-family transmission of wealth via W^t_{s,i,m_j} in Appendix D.

[35] We take a reference career of three model periods, or forty-five years. These are spread out over the periods of life 2 to 5. Due to the revaluation factors A_{t+4}/A_{t+s-1} and A_{t+5}/A_{t+s-1} the labor earnings from periods $t + s - 1$ are scaled up towards the economy wide wage level during retirement, as in reality.

The first three budget constraints of household i born in period t with parents j are given by (12a) to (12c):[36]

$$(1+\bar{\tau}_c)\, c_{1,i}^{t} = (1+\bar{\tau}_c)\, eq\, c_{3,j}^{t-2} \tag{14a}$$

$$(1+\bar{\tau}_c)\, c_{2,i}^{t} + \Omega_{2,i}^{t} = ninc_{2,i}^{t} + W_{2,i}^{t} \tag{14b}$$

$$(1+\bar{\tau}_c)\left(1+eq\,\frac{N_1^{t+2}}{N_3^t}\right) c_{3,i,m_j}^{t} + \Omega_{3,i,m_j}^{t} = ninc_{3,i,m_j}^{t} + (1+r_{t+2}^{n})\Omega_{2,i}^{t} + W_{3,i,m_j}^{t} \tag{14c}$$

Young children (aged 0-14) make no own decisions and are integral part of their parents' household. The latter provide a flow of consumption goods for the former. In Equations (14a) and (14c), eq indicates the relative weight of one dependent child in total consumption of the parent's household, see Section 5.1. We impose that these consumption goods cannot be sold by the children: $c_{1,i}^{t} = eq c_{3,j}^{t-2}$.[37] In the second period of life, $s=2$, household i becomes economically active and independent from the parents' household j. At the start of period $s=3$, at age thirty, household i gives birth to $N_1^{t+2}/N_3^t = (1+n_{t+2})(1+n_{t+1})$ children, whom we index by k.[38]

At the start of period $s=4$, the children k become independent. From then on, household i behaves altruistically towards them, see Section 4.7.3. Denote by Z_{s,i,m_j}^{t} the inter-vivos transfer per child in model periods $s=4,5,6$ provided by household i.[39] Let pen_{s,i,m_j}^{t} again be the public pension benefits received during model periods $s=5,6$. The three final budget constraints of household i are:

$$(1+\bar{\tau}_c)c_{4,i,m_j}^{t} + \frac{N_1^{t+2}}{N_3^t}\, Z_{4,i,m_j}^{t} + \Omega_{4,i,m_j}^{t} = ninc_{4,i,m_j}^{t} + (1+r_{t+3}^{n})\Omega_{3,i,m_j}^{t} + W_{4,i,m_j}^{t} \tag{14d}$$

$$(1+\bar{\tau}_c)c_{5,i,m_j}^{t} + \frac{N_1^{t+2}}{N_3^t}\, Z_{5,i,m_j}^{t} + \Omega_{5,i,m_j}^{t} = pen_{5,i,m_j}^{t} + ninc_{5,i,m_j}^{t} + (1+r_{t+4}^{n})\Omega_{4,i,m_j}^{t} + W_{5,i,m_j}^{t} \tag{14e}$$

$$(1+\bar{\tau}_c)c_{6,i,m_j}^{t} + \frac{N_1^{t+2}}{N_3^t}\, Z_{6,i,m_j}^{t} + \Omega_{6,i,m_j}^{t} = pen_{6,i,m_j}^{t} + (1+r_{t+5}^{n})\Omega_{5,i,m_j}^{t} \tag{14f}$$

We assume $\Omega_{s,i,m_j}^{t} \geq 0$ in all model periods. This rules out negative bequests.

[36] In the first two budget constraints we can drop the index m_j, because the mortality rates of the parents j turn positive only at the end of their respective fourth model period, see Figure 4.

[37] The initial wealth of a household at the start of the second model period is therefore always zero. Empirically observed wealth levels are also very low before age 30, see Section 5.2.1.

[38] Total consumption expenditures in period three by household i, taking into account the dependent children, are $(1+\bar{\tau}_c)\left(1+eq\,\frac{N_1^{t+2}}{N_3^t}\right) c_{3,i,m_j}^{t}$, as shown by Equation (14c).

[39] Total expenditures on inter-vivos transfers during period of life s are $\tilde{Z}_{s,i,m_j}^{t} = Z_{s,i,m_j}^{t} N_1^{t+2}/N_3^t$. To calculate $\bar{\tau}_{b,s,i,m_j}^{t}$ and τ_{b,s,i,m_j}^{t}, we add $\tilde{Z}_{s,i,m_j}^{t}/2$ to the pre-tax bequest of each spouse (after 1980), see Section 4.6.2.

4.9. Expected lifetime utility and household optimization

Household i with earnings capacity $h_{s,i}$ born in period t with parents j whose mortality is indicated by m_j and with children k has the following expected lifetime utility function U_i^t:

$$\begin{aligned}
U_i^t &= U_{1,i}^t\left(c_{1,i}^t, 1\right) + \beta U_{2,i}^t\left(c_{2,i}^t, l_{2,i}^t\right) + \beta^2 E\left[U_{3,i,m_j}^t\left(c_{3,i,m_j}^t, l_{3,i,m_j}^t\right)\right] \\
&+ \quad \beta^3 E\left[U_{4,i,m_j}^t\left(c_{4,i,m_j}^t, l_{4,i,m_j}^t\right) + U_{4,i,m_j}^t\left(c_{2,k,m_i}^{t+2}\right) + (1-\pi_5^t)\Phi_{4,i,m_j}^t\left(B_{4,i,m_j}^t\right)\right] \\
&+ \pi_5^t\beta^4 E\left[U_{5,i,m_j}^t\left(c_{5,i,m_j}^t, l_{5,i,m_j}^t\right) + U_{5,i,m_j}^t\left(c_{3,k,m_i}^{t+2}\right) + (1-\pi_6^t/\pi_5^t)\Phi_{5,i,m_j}^t\left(B_{5,i,m_j}^t\right)\right] \\
&+ \pi_6^t\beta^5 E\left[U_{6,i,m_j}^t\left(c_{6,i,m_j}^t, 1\right) \qquad + U_{6,i,m_j}^t\left(c_{4,k,m_i}^{t+2}\right) + \Phi_{6,i,m_j}^t\left(B_{6,i,m_j}^t\right)\right]
\end{aligned} \tag{15}$$

with $0 < \beta < 1$ the constant discount factor, and π_5^t and π_6^t the unconditional probabilities to be alive and experience utility during model periods five and six respectively, see the right panel of Figure 2.

Household i chooses the paths of c_{s,i,m_j}^t (for $s = 2,3,4,5,6$), l_{s,i,m_j}^t (for $s = 2,3,4,5$), including the retirement decision R_{5,i,m_j}^t, and of Z_{s,i,m_j}^t (for $s = 4,5,6$) that maximize the expected lifetime utility function U_i^t, subject to its own time and budget constraints (for $s = 2,3,4,5,6$), the budget constraints of the children k (for $s_k = 2,3,4$) and the equations for pen_{5,i,m_j}^t and pen_{6,i,m_j}^t, see Section 4.8.2. Expectations are taken with respect to the own mortality process, which is a function only of the own unconditional survival probabilities π_5^t and π_6^t, and with respect to the future values of received wealth W_{s,i,m_j}^t. The latter includes the future inter-vivos transfers and the after-tax bequest received from the parents j during model periods $s = 3, 4, 5$ of household i. Since households in our model are rational and forward-looking, they have full information about the future paths of W_{s,i,m_j}^t in each of the possible states regarding the mortality of the parents, $m_j \in \{4,5,6\}$. In Appendix D, we specify the intra-family transmission of wealth via W_{s,i,m_j}^t. There, we link W_{s,i,m_j}^t for $s = 2,3,4,5$ to the decision variables of the parents j for each $m_j \in \{4,5,6\}$.

4.9.1 Optimal consumption versus bequests over the lifecycle and the role of the estate tax

Taking the total derivative of U_i^t with respect to $c_{2,i}^t$, subject to (14b) and (14c), we obtain the optimal path for consumption per adult equivalent of household i between periods $s = 2$ and $s = 3$. It takes the form of a standard expected Euler equation:

$$c_{2,i}^{t\ -\rho} = \beta(1 + r_{t+2}^n)\left[\pi_5^{t-2} c_{3,i,5}^{t\ -\rho} + (1 - \pi_5^{t-2}) c_{3,i,4}^{t\ -\rho}\right] \tag{15a}$$

$c_{3,i,5}^t$ and $c_{3,i,4}^t$ are the optimal third period consumption levels of household i in case the parents j survive into their fifth period of life ($m_j \neq 4$) and in case they pass away at the end of their fourth period ($m_j = 4$) respectively. The probabilities related to these two states are given by the parents' conditional survival rate π_5^{t-2} and mortality rate $1-\pi_5^{t-2}$. We further determine $c_{3,i,5}^t$ and $c_{3,i,4}^t$ through Equations (15b) and (15c).[40]

In case the parents are still alive during household i's third period of life, optimal consumption in period $s=3$ will again be given by an expected Euler equation:

$$c_{3,i,5}^{t}{}^{-\rho}=\beta(1+r_{t+3}^{n})\left[\frac{\pi_6^{t-2}}{\pi_5^{t-2}}c_{4,i,6}^{t}{}^{-\rho}+\left(1-\frac{\pi_6^{t-2}}{\pi_5^{t-2}}\right)c_{4,i,5}^{t}{}^{-\rho}\right] \tag{15b}$$

Therein, $c_{4,i,6}^t$ and $c_{4,i,5}^t$ are the optimal fourth period consumption levels of household i in case the parents j also survive into their sixth period of life ($m_j=6$) and in case they pass away at the end of their fifth period ($m_j=5$) respectively. By contrast, if the parents already passed away ($m_j=4$) household i no longer faces uncertainty with respect to the parents' mortality, such that the Euler equation simplifies to (15c).

$$c_{3,i,4}^{t}{}^{-\rho}=\beta(1+r_{t+3}^{n})c_{4,i,4}^{t}{}^{-\rho} \tag{15c}$$

The role of the estate tax for pre-tax wealth in model periods $s=2,3$: Even though the estate tax does not appear explicitly in the first order conditions (15a) to (15c), it already affects the young household i in three ways. First, in case the parents j already passed away and bequeathed, household i has already been directly affected by the average effective estate tax rate faced by their parents, captured by $W_{3,i,4}^t$, see Appendix D. Second, if the parents j are still alive, household i forms expectations about the (future) levels of after-tax bequests, captured by the future levels of $W_{4,i,5}^t$ and $W_{5,i,6}^t$, which directly affect $c_{4,i,5}^t$ and $c_{5,i,6}^t$ via (14d) and (14e) respectively. Third, one day, household i may also become a donor of taxable bequests. Since after-tax bequests matter for utility, the own future effective estate tax rates affect the behavior of young household i through Equations (14b) to (14f) and (15a) to (15f).

From model period $s=4$ onwards, there is no longer uncertainty regarding the mortality of the parents.[41] However, household i now starts facing own mortality risk and derive utility from after-tax bequests in the event of death. By taking the total derivative of U_i^t with respect to c_{4,i,m_j}^t subject to (14d) and (14e) we obtain, after rearranging:

$$c_{4,i,m_j}^{t}{}^{-\rho}=\pi_5^t\beta(1+r_{t+4}^{n})c_{5,i,m_j}^{t}{}^{-\rho}+b(1-\pi_5^t)\left[(1+\bar{\tau}_c)\left(1-\tau_{b,4,i,m_j}^t\right)\right]B_{4,i,m_j}^{t}{}^{-\omega} \tag{15d}$$

Likewise, optimal consumption c_{5,i,m_j}^t can be obtained by taking the total derivative of U_i^t with respect to c_{5,i,m_j}^t subject to (14e) and (14f):

$$c_{5,i,m_j}^{t}{}^{-\rho}=\frac{\pi_6^t}{\pi_5^t}\beta(1+r_{t+5}^{n})c_{6,i,m_j}^{t}{}^{-\rho}+b\left(1-\frac{\pi_6^t}{\pi_5^t}\right)\left[(1+\bar{\tau}_c)\left(1-\tau_{b,5,i,m_j}^t\right)\right]B_{5,i,m_j}^{t}{}^{-\omega} \tag{15e}$$

[40] Also note that we always have that $c_{3,i,5}^t=c_{3,i,6}^t$, because in model period $s=3$ household i does not know yet whether the parents j will survive into their respective sixth model period, and because household i can only choose one consumption level in period $s=3$.

[41] As a result, we can write the optimal path for consumption per adult equivalent of household i between periods $s=4$ and $s=6$ for a given m_j, see Equations (15d) to (15f).

In the final period of life, $s = 6$, the mortality rate turns 1 and the condition for optimal consumption simplifies to:

$$c_{6,i,m_j}^{t}{}^{-\rho} = b\left[(1+\bar{\tau}_c)\left(1-\tau_{b,6,i,m_j}^{t}\right)\right] B_{6,i,m_j}^{t}{}^{-\omega} \tag{15f}$$

In Equations (15d) to (15f), B_{s,i,m_j}^{t} are the stocks of after-tax bequests left by household i at the end of model periods $s = 4,5,6$ respectively. Equations (15d) to (15f) show that the marginal utility of consuming one dollar today must be equal to the expected marginal utility of saving one dollar, knowing that this dollar will turn into a bequest in the event of death. The conditional mortality rates during $s = 4,5,6$ are $(1-\pi_5^t)$, $(1-\pi_6^t/\pi_5^t)$ and 1 respectively. The second term on the right-hand side of (15d) and (15e) reflects the expected marginal utility of bequests, which is increasing in the mortality rate and in the warm glow parameter b. The expected marginal utility of bequests is also increasing in the factor $(1+\bar{\tau}_c)\left(1-\tau_{b,s,i,m_j}^{t}\right)$, the relative price of consumption versus bequests.[42] We derive (15d) to (15f) in Appendix E. The mortality rate of 1 at the end of period $s = 6$ allows writing final pre-tax wealth Ω_{6,i,m_j}^{t} as a function of c_{6,i,m_j}^{t}, the effective marginal and average estate tax rates, and parameters. After rearranging (15f) and using $B_{6,i,m_j}^{t} = \left(1-\bar{\tau}_{b,6,i,m_j}^{t}\right)\Omega_{6,i,m_j}^{t}$ we obtain:

$$\Omega_{6,i,m_j}^{t} = \left(1-\bar{\tau}_{b,6,i,m_j}^{t}\right)^{-1}\left[b(1+\bar{\tau}_c)\left(1-\tau_{b,6,i,m_j}^{t}\right)\right]^{1/\omega} c_{6,i,m_j}^{t}{}^{\rho/\omega} \tag{15g}$$

The ratio ρ/ω measures the extent to which bequests are a luxury good.[43] Figure 8 shows the cross-sectional distributions of final wealth (Ω_{6,i,m_j}^{t}, bottom panels) and the joint distribution of wealth at ages 60 and 75 (Ω_{4,i,m_j}^{t} and Ω_{5,i,m_j}^{t}, top panels) generated by our model in 2010-24. Final wealth (intentional bequests) is more concentrated than wealth earlier in life (accidental bequests). This is because we model bequests as a luxury good and because bequests are the only reason to hold on to wealth during period $s = 6$. In earlier periods, wealth is also motivated by future consumption and future inter-vivos transfers.

---

[42] Given that after-tax bequests B_{s,i,m_j}^{t} matter for utility, the factor $\left(1-\tau_{b,s,i,m_j}^{t}\right)$ appears on the right-hand side when taking the derivative of Φ_{s,i,m_j}^{t} with respect to B_{s,i,m_j}^{t} and then of B_{s,i,m_j}^{t} with respect to Ω_{s,i,m_j}^{t}, as we show in Appendix E. It is the effective marginal estate tax rate τ_{b,s,i,m_j}^{t} that drives the optimal allocation between consumption and after-tax bequests at the margin.

[43] Given $\omega < \rho$, $B_{s,i,m_j}^{t}/c_{s,i,m_j}^{t}$ will be increasing in c_{s,i,m_j}^{t}: bequests will be more concentrated at the top of the earnings (capacity) distribution. This results from higher savings rates for households with higher earnings, a feature from the data that cannot be generated by a standard lifecycle model.

Figure 8: Simulated inverse cumulative density functions of pre-tax wealth (bequests) at age 90 (bottom panels) and ages 60 and 75 (top panels) in 2010-24. The right panels are closeups.

Note: Interpretation of Figure 8 is the same as for Figure 7, see note below Figure 7.

The role of the estate tax for pre-tax wealth in model periods $s = 4{,}5{,}6$*:* The above optimality conditions clearly show that the estate tax directly affects the consumption-bequests trade-off in periods $s = 4{,}5{,}6$. In particular, using $B^t_{s,i,m_j} = \left(1 - \bar{\tau}^t_{b,s,i,m_j}\right)\Omega^t_{s,i,m_j}$ in (15d) to (15f), it appears that the own effective marginal estate tax rate τ^t_{b,s,i,m_j} and the own effective average estate tax rate $\bar{\tau}^t_{b,s,i,m_j}$ affect optimal pre-tax wealth Ω^t_{s,i,m_j} in opposite directions. While a higher τ^t_{b,s,i,m_j}, ceteris paribus, has a negative effect on Ω^t_{s,i,m_j}, as it raises, at the margin, the relative cost of after-tax bequests relative to own consumption, a higher $\bar{\tau}^t_{b,s,i,m_j}$ has a positive effect on pre-tax bequests.[44] The explanation for the positive relationship between $\bar{\tau}^t_{b,s,i,m_j}$ and Ω^t_{s,i,m_j} is that donors of taxable bequests will adjust their pre-tax bequests to avoid large

[44] We acknowledge that both tax rates are endogenous and depend on Ω^t_{s,i,m_j}, and that τ^t_{b,s,i,m_j} may also affect $\bar{\tau}^t_{b,s,i,m_j}$. To study the effects on Ω^t_{s,i,m_j} and other variables of changes in the estate tax parameters $BR_{q,t}$ and $\tau_{q,t}$, we solve the model numerically. Since the U.S. federal estate tax system has many tax brackets in most historical periods and given that inter-vivos transfers are also added to the taxable estate from 1980 onwards, analytically solving for Ω^t_{s,i,m_j} as a function of exogenous variables and parameters only would result in very complex expressions. Even though τ^t_{b,s,i,m_j} and $\bar{\tau}^t_{b,s,i,m_j}$ are both endogenous in Equations (15d) to (15g), these two tax rates allow us to easier interpret our numerical results as to the effects of lower estate taxation on pre-tax bequests and wealth, see Section 6.

fluctuations in after-tax bequests if $\bar{\tau}^t_{b,s,i,m_j}$ changes. For instance, donors will keep up Ω^t_{s,i,m_j} to avoid large reductions in B^t_{s,i,m_j} if $\bar{\tau}^t_{b,s,i,m_j}$ increases. Equations (15d) to (15g) furthermore show that the relative effects of $\bar{\tau}^t_{b,s,i,m_j}$ and τ^t_{b,s,i,m_j} depend on the elasticities of substitution in consumption ρ and in bequests ω. The lower ω, the stronger the positive impact of a lower effective marginal tax rate on optimal pre-tax bequests and wealth.

The opposite impact of the effective marginal versus the effective average estate tax rate explains part of the heterogeneities in the effects of estate taxation across the distribution, see Section 6. For donors with levels of Ω^t_{s,i,m_j} above but relatively close to the lifetime exemption $BR_{1,t+s-1}$, the effective average tax rate may be considerably below the effective marginal tax rate. For very wealthy donors by contrast, $\bar{\tau}^t_{b,s,i,m_j}$is typically much closer to, and more closely follows, τ^t_{b,s,i,m_j}. A given reduction in the effective marginal tax rate will then lead to a much larger reduction in the average tax rate for wealthier households than for moderately wealthy households, and vice versa. Because a lower average estate tax rate negatively affects Ω^t_{s,i,m_j}, the net effect of lower estate taxation on optimal pre-tax bequests becomes more negative (or less positive) at higher wealth levels, ceteris paribus. Meanwhile, a higher lifetime exemption, ceteris paribus, leads to a lower effective average estate tax rate for a given effective marginal tax rate. If estate tax reforms are characterized by lower marginal tax rates and by a higher lifetime exemption, as in the United States over the last decades, it may be that the effective average estate tax rates have declined more over time (pushing down Ω^t_{s,i,m_j}) than the effective marginal estate tax rates (pushing up Ω^t_{s,i,m_j}). This allows for an overall reduction in optimal pre-tax bequests of wealthy donors, and vice versa.

This is also what we find in our simulations: the pre-tax bequests of the wealthiest donors respond negatively to the combination of U.S. federal estate tax reforms (tax cuts) over the last decades, see Section 6. One explanation is the substantial increase in the lifetime exemption. Another explanation is that wealthy donors substitute inter-vivos transfers for own consumption and bequests, see Section 4.8.2. To the best of our knowledge, we are first to discuss the inverse effects of the effective marginal estate tax rate versus the effective average estate tax rate in the optimal trade-off between consumption and bequests of wealthy donors.[45]

4.9.2. Optimal inter-vivos transfers and the role of the estate tax

The optimal inter-vivos transfer is the one that equates the marginal utility of own consumption c^t_{s,i,m_j} with the marginal utility of the children's consumption $c^{t+2}_{s_k,k}$ in their respective period $s_k = s-2$, evaluated through $U^t_{s,i,m_j}\left(c^{t+2}_{s_k,k,m_i}\right)$. By taking the total derivative of U^t_i with respect to Z^t_{s,i,m_j} for $s = 4,5,6$, subject to the own budget constraints in $s = 4,5,6$ and those of the children k in $s_k = 2,3,4$, we obtain (see Appendix F):

[45] For an extensive review on the relationship between the estate tax and the size of pre-tax bequests of wealthy donors, we refer to Van Rymenant (2022, forthcoming).

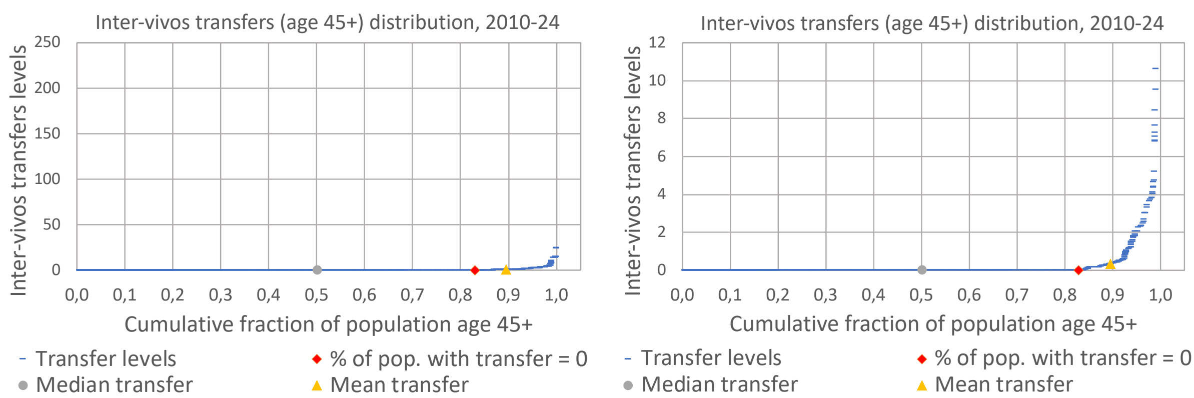
$$\frac{Z^t_{4,i,m_j}}{(1+\bar{\tau}_c)} = \left[z\left(1 - IV_{t+3}\left[\frac{(1-\pi^t_5)}{1}\tau^t_{b,4,i,m_j} + \frac{(\pi^t_5-\pi^t_6)}{(1+r^n_{t+4})}\tau^t_{b,5,i,m_j} + \frac{\pi^t_6}{(1+r^n_{t+4})(1+r^n_{t+5})}\tau^t_{b,6,i,m_j}\right]\right)\frac{N^t_3}{N^{t+2}_1}\right]^{1/\rho} c^t_{4,i,m_j} - \frac{ninc^{t+2}_{2,k} - \Omega^{t+2}_{2,k}}{(1+\bar{\tau}_c)} \tag{16a}$$

$$\frac{Z^t_{5,i,m_j}}{(1+\bar{\tau}_c)} = \left[z\left(1 - IV_{t+4}\left[\left(1-\frac{\pi^t_6}{\pi^t_5}\right)\tau^t_{b,5,i,m_j} + \frac{\pi^t_6/\pi^t_5}{(1+r^n_{t+5})}\tau^t_{b,6,i,m_j}\right]\right)\frac{N^t_3}{N^{t+2}_1}\right]^{1/\rho} \left(1+eq\frac{N^{t+4}_1}{N^{t+2}_3}\right)^{1-1/\rho} c^t_{5,i,m_j} - \frac{ninc^{t+2}_{3,k,5} + (1+r^n_{t+4})\Omega^{t+2}_{2,k} - \Omega^{t+2}_{3,k,5}}{(1+\bar{\tau}_c)} \tag{16b}$$

$$\frac{Z^t_{6,i,m_j}}{(1+\bar{\tau}_c)} = \left[z\left(1 - IV_{t+5}\tau^t_{b,6,i,m_j}\right)\frac{N^t_3}{N^{t+2}_1}\right]^{1/\rho} c^t_{6,i,m_j} - \frac{ninc^{t+2}_{4,k,6} + (1+r^n_{t+5})\Omega^{t+2}_{3,k,5} - \Omega^{t+2}_{4,k,6} - \frac{N^{t+4}_1}{N^{t+2}_3}Z^{t+2}_{4,k,6}}{(1+\bar{\tau}_c)} \tag{16c}$$

Equations (16a) to (16c) show that optimal inter-vivos transfers provided by household i in periods $s = 4,5,6$ are compensatory: they are a positive function of own consumption c^t_{s,i,m_j} and a negative function of the children's own endowments $ninc^{t+2}_{s_k,k,s} + (1 + r^n_{t+s-1})\Omega^{t+2}_{s_k-1,k,s-1}$. Figure 9 shows the cross-sectional distribution of inter-vivos transfers provided by households in periods $s = 4,5,6$ generated by our model in 2010-24. A comparison of Figures 8 and 9 shows that inter-vivos transfers (over periods of 15 years) are lower, on average, than pre-tax wealth and that inter-vivos transfers are more concentrated than bequests. Whereas every household has an after-tax bequests motive ($\Omega^t_{6,i,m_j} > 0$ holds for all households), only parents with well-above average earnings capacity and consumption, or parents who have children with well-below average earnings capacity and consumption will demand positive transfers $Z^t_{s,i,m_j} > 0$, given the compensatory nature of transfers.

Figure 9: Simulated inverse cumulative density functions of inter-vivos transfers (periods $s = 4,5,6$) in 2010-24. The right panel is a closeup of the bottom 95%.



Note: Interpretation of Figure 9 is the same as for Figure 7, see note below Figure 7.

The role of the estate tax for inter-vivos transfers in model periods $s = 4,5,6$: Even though inter-vivos transfers are not immediately taxed, (16a) to (16c) show that optimal inter-vivos transfers are a direct function of the own future marginal estate tax rate. Rational and forward-looking households explicitly bear in mind that, at the margin, every additional dollar of inter-vivos transfers above AZ_t will increase the future taxable estate $\breve{\Omega}^t_{s,i,m_j}$ (from 1980 onwards), see Equation (5) in Section 4.6.2.[46] A higher $\breve{\Omega}^t_{s,i,m_j}$ pushes up the effective average estate tax rate $\bar{\tau}^t_{b,s,i,m_j}$, see Equation (6), and in turn reduces after-tax bequests B^t_{s,i,m_j}, implying a future income loss for the children. Donors of inter-vivos transfers take this into account. At the margin, it is the own future effective marginal estate tax rate that drives the optimal allocation between inter-vivos transfers and own consumption during periods of life $s = 4,5,6$ of household i. The blue factors in (16a), to (16c) capture this. We derive (16a) to (16c) in detail in Appendix F. How strongly the current inter-vivos transfer Z^t_{s,i,m_j} responds to changes in the future marginal estate tax rates depends on $1/\rho$. The higher ρ, the weaker the positive effect of a lower future effective marginal estate tax rate.

By combining these insights with those from Section 4.9.1, it appears that even though bequests and inter-vivos transfers are jointly taxed under the unified credit scheme (from 1980 onwards in our simulations), the estate tax has a different impact on optimal inter-vivos transfers than on optimal pre-tax bequests. First, the positive effect of a lower effective marginal estate tax rate on transfers depends on $1/\rho$, while the positive effect on pre-tax wealth depends on $1/\omega$. Second, the negative effect of a lower $\bar{\tau}^t_{b,s,i,m_j}$ is more direct and stronger for pre-tax bequests than for inter-vivos transfers. Our numerical results also confirm this. The explanation is that a lower $\bar{\tau}^t_{b,s,i,m_j}$ directly increases B^t_{s,i,m_j}. As we have mentioned above, donors of taxable bequests will then adjust their pre-tax bequests. The negative effect of a lower $\bar{\tau}^t_{b,s,i,m_j}$ on Z^t_{s,i,m_j}, however, depends on how strongly the children increase their consumption. This difference can most clearly be seen by comparing Equations (15d) to (15g) with Equations (16a) to (16c). The factor $1 - \bar{\tau}^t_{b,s,i,m_j}$ directly enters Equations (15d) to (15g) after substituting out B^t_{s,i,m_j}. For inter-vivos transfers, a reduction in $\bar{\tau}^t_{b,s,i,m_j}$, leading to higher expected after-tax bequests received by the children, also leads to a reduction in the children's labor supply (a lower $ninc^{t+2}_{s_k,k,m_i}$) and savings earlier in life (a lower $\Omega^{t+2}_{s_{k-1},k,m_i}$). These two decision variables explicitly appear on the right-hand side of Equations (16a) to (16c) after substituting out $c^{t+2}_{s_k,k,m_i}$. The reductions in $ninc^{t+2}_{s_k,k,m_i}$ and $\Omega^{t+2}_{s_{k-1},k,m_i}$ both dampen the increase in $c^{t+2}_{s_k,k,m_i}$. For a given reduction in $\bar{\tau}^t_{b,s,i,m_j}$, the implied reduction in Z^t_{s,i,m_j} is therefore typically smaller than the implied reduction in Ω^t_{s,i,m_j}. As a result, overall positive effects of lower estate taxation (via the combined effects of a lower τ^t_{b,s,i,m_j} and a lower $\bar{\tau}^t_{b,s,i,m_j}$) on Z^t_{s,i,m_j} are therefore stronger than on Ω^t_{s,i,m_j}, and overall negative effects on Z^t_{s,i,m_j} are weaker than on Ω^t_{s,i,m_j}.

[46] Before 1980 in our simulations, we set $IV_{t+s-1} = 0$. From 1980 onwards, we set $IV_{t+s-1} = 1$: taxable inter-vivos transfers from 1980 onwards are added to the taxable estate at death, see Section 4.6.2.

4.9.3. Optimal labor supply over the lifecycle and the optimal retirement age

In the first and final period of life, leisure is equal to 1 by construction. In between, households face a labor-leisure trade-off, see Section 4.7.2. We derive the first-order conditions for optimal labor supply n_{s,i,m_j}^t during periods $s = 2, \dots, 5$ and for the retirement decision R_{5,i,m_j}^t in Appendix G. The decision variables n_{s,i,m_j}^t, l_{s,i,m_j}^t and R_{5,i,m_j}^t are not direct functions of the estate tax. They are only indirectly affected by the estate tax through consumption, which determines the marginal utility gain from work, see Section 4.9.1.

4.10 Aggregate variables and aggregate equilibrium

Total population in historical period t consists of the cohorts born in periods $t - s + 1$, for $s = 1, \dots, 6$. Let N_s^{t-s+1} denote the size of the cohort of age s in historical period t.[47] We sum the behavior of all entrepreneurs and workers over all age groups $s = 1, \dots, 6$, over all the earnings capacities i, and over all $m_j \in \{4,5,6\}$.[48] In each cohort, 9% of households are entrepreneurs and the remaining 91% are workers. We use the superscript L to denote a (decision) variable of (a group of) workers and the superscript E to denote a (decision) variable of (a group of) entrepreneurs.

The aggregate stock of pre-tax wealth of all households i at the end of historical period $t - 1$, or equivalently, at the start of period t, denoted by Ω_t, sums all the individual stocks of pre-tax wealth from the end of $t - 1$ over all workers and entrepreneurs i, over all relevant model ages $s = 2, \dots, 6$ and over all $m_j \in \{4,5,6\}$:

$$
\begin{aligned}
\Omega_t &= N_s^{t-2} \sum_i \left[0.09\Omega_{2,i}^{t-2,E} + 0.91\Omega_{2,i}^{t-2,L}\right] \\
&+ N_s^{t-3} \sum_i 0.09\left[\left(1 - \pi_5^{t-5}\right)\Omega_{3,i,4}^{t-3,E} + \pi_5^{t-5}\Omega_{3,i,5}^{t-3,E}\right] + N_s^{t-3} \sum_i 0.91\left[\left(1 - \pi_5^{t-5}\right)\Omega_{3,i,4}^{t-3,L} + \pi_5^{t-5}\Omega_{3,i,5}^{t-3,L}\right] \\
&+ \sum_{s=4}^{6} N_s^{t-s} 0.09 \sum_i \left[\left(1 - \pi_5^{t-s-2}\right)\Omega_{s,i,4}^{t-s,E} + \left(\pi_5^{t-s-2} - \pi_6^{t-s-2}\right)\Omega_{s,i,5}^{t-s,E} + \pi_6^{t-s-2}\Omega_{s,i,6}^{t-s,E}\right] \\
&+ \sum_{s=4}^{6} N_s^{t-s} 0.91 \sum_i \left[\left(1 - \pi_5^{t-s-2}\right)\Omega_{s,i,4}^{t-s,L} + \left(\pi_5^{t-s-2} - \pi_6^{t-s-2}\right)\Omega_{s,i,5}^{t-s,L} + \pi_6^{t-s-2}\Omega_{s,i,6}^{t-s,L}\right]
\end{aligned}
\tag{17}
$$

The aggregate flow of consumption expenditures C_t, the aggregate flow of inter-vivos transfers Z_t, and aggregate pension benefits P_t to retired households i in historical period t are calculated in a parallel way, see Appendix H.

[47] In Equation (17) and in Appendix H, N_s^{t-4} and N_s^{t-5} already capture π_5^{t-4} and π_6^{t-5}, respectively.

[48] m_j describes the timing of death of the parents j. The fractions of households i in historical period t whose parents j have passed away at end of their respective fourth, fifth and sixth model period are given by $1 - \pi_5^{t-s-1}$, $\pi_5^{t-s-1} - \pi_6^{t-s-1}$ and π_6^{t-s-1}, respectively.

Our assumption of a closed economy and the absence of public debt implies that the accumulated individual stocks of wealth at the end of historical period $t-1$ constitute the supply of private physical capital that can be rented out to firms at the start of period t.

$$\Omega_t = K_t \tag{18}$$

The real interest rate r_t in historical period t will adjust to balance the aggregate stocks of wealth and aggregate firm demand for capital at the start period t, see Equation (3) in Section 4.5.1. Aggregate gross investment in private physical capital by firms in period t, I_t, is:

$$I_t = K_{t+1} - (1-\delta)K_t. \tag{19}$$

Therein, δ is the constant private physical capital depreciation rate. The aggregate supply of goods Y_t equals its demand (with $C_{G,t}$ the government's demand for final goods in historical period t, see Section 4.6.3):

$$Y_t = C_t + I_t + C_{G,t}. \tag{20}$$

As explained in Sections 4.4 and 4.5.3, we model aggregate effective ordinary labor L_t and entrepreneurship E_t both as CES composites of the five intermediate levels of ordinary labor $L_{\theta,t}$ and entrepreneurship $E_{\theta,t}$ respectively, with $\theta \in \{T_2, T_{10}, H, M, B\}$. For instance, $E_{T2,t}$ comprises the effective entrepreneurship supplied by all entrepreneurs (summed over all active periods $s = 2, \ldots, 5$ and over all m_j) representing the top 2% in terms of earnings capacity. We specify $L_{\theta,t}$ and $E_{\theta,t}$ for all θ in Appendix H.

We can now also calculate the government's aggregate revenues from the different types of taxes. For the consumption tax, the labor income tax, and the capital income tax respectively:

$$T_{c,t} = \bar{\tau}_c C_t \tag{21}$$

$$T_{w,t} = \bar{\tau}_w \sum_\theta \left[w_{\theta,t}^L L_{\theta,t} + w_{\theta,t}^E E_{\theta,t} \right] \tag{22}$$

$$T_{k,t} = \bar{\tau}_k r_t K_t \tag{23}$$

Furthermore, $T_{b,t}$ indicates the aggregate estate tax revenues in historical period t. $T_{b,t}$ aggregates all $\bar{\tau}_{b,s,i,m_j}^t \Omega_{s,i,m_j}^t$ (i.e., the effective average estate tax rate multiplied by the stock of pre-tax wealth at death) for all workers and entrepreneurs i that have passed away the night before reaching historical period t. We specify $T_{b,t}$ in Appendix H.

5. PARAMETERIZATION, BASELINE SIMULATION AND EMPIRICAL RELEVANCE

5.1 Parameterization of the model

The economic environment described in Section 4 allows us to simulate the macroeconomic and inequality effects of the historical changes in the U.S. federal estate tax system since 1980. Table 3 provides an overview of the different (sets of) exogenous variables (time-varying parameters) that we include to our model. For a more detailed description of the exogenous variables, we refer to our discussion in the previous sections.

Table 3: Overview of exogenous variables imposed to our model

Exogenous variable	Explanation	Evolution shown	Historical evolution	Projection
$1+n_1^t$	Fertility rate	Figure 2, left panel	Census Data (2020)	Census Data (2020)
π_5^t, π_6^t	Unconditional survival probabilities	Figure 2, right panel	HMD (2020)	HMD (2020)
x_t	'Skill-neutral' technological change	Figure 6, left panel	PWT 9.1 (Feenstra et al.)	OECD (2018)
$\alpha_t, (1-\alpha_t)\xi_t, (1-\alpha_t)(1-\xi_t)$	Gross shares in national income	Table 1	FRED (2021)	(Constant after 2020)
$BR_{q,t}, \tau_{q,t}, IV_t, AZ_t$	Historical evolution of estate tax parameters, driving the effective marginal and average estate tax rates over time	Figure 1, Section 4.6.2	Kaymak and Poschke (2016), Joulfaian (2000, 2019), Gale et al. (2001), Jacobsen et al. (2007), IRS (2021)	(Constant after 2020)
$\bar{p}_t$	Average net public pension replacement rate	Table 2	Marchiori et al. (2017), Pensions at a Glance (OECD, versions 2011 to 2019)	(Constant after 2020)
$\eta_{T_2,t}, \eta_{T_{10},t}, \eta_{H,t}, \eta_{M,t}, \eta_{B,t}$	Labor input shares in aggregate ordinary labor L_t and aggregate entrepreneurship E_t	Figure 6*, right panel	Piketty and Saez (2003), Kopczuk et al. (2010), Economic Policy Institute (2021).	(Constant after 2020)

*The evolution of the five input shares $\eta_{T_2,t}, \eta_{T_{10},t}, \eta_{H,t}, \eta_{M,t}$ and $\eta_{B,t}$ are calibrated to obtain the true evolution of the gross wage income shares shown in the right panel of Figure 6.

Table 4 reports the remaining parameters. Many have been set in line with the existing literature. Others have been calibrated to match key data for the United States in 1950-2019. Our calibrated parameters are conditional on the evolution of the exogenous variables summarized in Table 3, and therefore take into account important information from the data. Some parameters are calibrated on sub-periods, however, because of data limitations.

The discount factor β is chosen to match the average net household wealth to GDP ratio of 3.60 over the period 1950–1994, based on FRED data (2021). On a yearly basis, the resulting discount factor is 0.9963. The physical capital depreciation rate is set equal to 6% on a yearly basis, a standard value, as in De Nardi (2004) and De Nardi and Yang (2016). This implies a value for δ of 0.6047 over a period of 15 years.

Table 4. Parameterization of the model

Technology and preference parameters

Goods production (output): $\varsigma = 1/0.7$; $\delta = 0.6047$

x_t, α_t, $(1-\alpha_t)\xi_t$, $(1-\alpha_t)(1-\xi_t)$, time-varying, see Table 3

$\eta_{T_2,t}$, $\eta_{T_{10},t}$, $\eta_{H,t}$, $\eta_{M,t}$, $\eta_{B,t}$, time-varying, see Table 3

Earnings capacity profiles $h_{s,i}$: taken from Altig et al. (2001).

Preferences: $\rho = 1.5$, $\gamma = 2.5$, $\omega = 0.75$, $eq = 0.47$

$\beta = 0.946$ (targetting $\Omega_t/Y_t = 3.60$, average over 1950-94)

$b = 9.20$ (targetting yearly flow of pre-tax bequests/K_t = 1.47%, 1965-94)

$z = 0.295$ (targetting yearly Z_t/K_t = 0.343%, 1965-94)

$v_2 = 2.666$, $v_3 = 7.369$, $v_4 = 8.301$, $v_5 = 17.652$

(targetting the hours worked profile of McGrattan and Rogerson (2004) in 1980-94

Fiscal policy and pension parameters

Tax rates: $\tau_c = 8{,}4\%$, $\tau_{w,t} = 16{,}5\%$ and $\tau_{k,t} = 28{,}9\%$

Historical evolution of U.S. federal estate tax system: see Figure 1 and Section 4.6.2.

Spending on consumption goods ($C_{g,t}/Y_t$): endogenous, ranging from 12% to 22%.

Average net public pension replacement rate: $\bar{p}_t$, time-varying, see Table 2

Entrepreneurs versus workers

Fraction of households that becomes an entrepreneur: 9%

Fraction of labor time devoted to labor by entrepreneurs: $\lambda = 0.365$

Parameter ψ which governs entrepreneurial income inequality via $f\left(h_{s,i}^t\right) = {h_{s,i}^t}^{\psi}$: $\psi = 1.85$

The value for the inverse of the intertemporal elasticity of substitution in consumption ρ is set equal to 1.5, as in Castañeda et al. (2003), Cagetti and De Nardi (2009) and De Nardi and Yang (2016). We set the inverse of the intertemporal elasticity of substitution in leisure time γ equal to 2.5, consistent with Rogerson (2007) who puts forward a reasonable range from 1 to 3. Active households in our model work half of their available time on average over the period 1950-2019. Given $\gamma = 2.5$, the implied Frisch elasticity of average hours worked is 0.4, nicely within the reasonable range of 0.2 to 0.7, see Kotlikoff et al. (2007) and Guvenen et al. (2014).[49] The utility weights on leisure in the different periods, i.e. v_s for $s = 2, \ldots, 5$, are chosen to match the shape of the mean cross-sectional profile of hours worked in 1980-94 of McGrattan and Rogerson (2004), see Table 4 and in Appendix I.

Values in the literature for the yearly flow of after-tax bequests in percent of the aggregate private capital stock over the period 1965-1994 range from 0.88% to 1.18%, see Hendricks (2001), De Nardi and Yang (2016) and Guvenen et al. (2019). On average, this is 1.03%. Given

[49] With isoelastic utility from leisure, the theoretical (average) Frisch elasticity of labor supply can be calculated as $(1-\bar{n})/(\bar{n}\gamma) = (1-0.5)/(0.5 * 2.5) = 0.4$, see Guvenen et al. (2014).

that funeral expenses, taxes, charitable bequests and other types of deductions amount to at least 30% of pre-tax bequests, on average, see Joulfaian (1994), Hendricks (2001) and Gale Slemrod (2001), the implied yearly flow of pre-tax bequests to the aggregate capital stock must be around 1.47%.[50] In our baseline simulation, we target the latter ratio in 1965-1994. The implied warm glow parameter b is 9.20. With b equal to 9.20, the average stock of pre-tax bequests (and wealth) at age ninety in the model is 39.3% of its true level in the period 1980-1994, see Fernández-Villaverde and Krueger (2011) and Section 5.2.1. It is normal that we understate this level. In our model, bequests are the only motive for holding wealth at age 90. In reality, there are also other motives, see Section 5.2.1. By further increasing b we may overstate the role of the bequest motive and hence of the estate tax.

We model bequests as a luxury good by setting ω below ρ. With ρ equal to 1.50 we set ω equal to 0.75. The implied elasticity in 1995 of pre-tax bequests at age 90 with respect to the present value of own lifetime endowments is around 1.60 and is relatively stable over the entire range of endowments. As to the altruism parameter, we target a ratio of 0.343% for the yearly flow of inter-vivos transfers to the aggregate private capital stock in 1965-1994, consistent with Gale and Scholz (1994), Villanueva et al. (2005) and Alvaredo et al. (2017) who find that the flow of parent-to-children inter-vivos transfers is about one-third of the after-tax bequest flow.[51] The implied altruism parameter z is equal to 0.295.

We calculate eq as the relative weight of two additional children in a household that consists of two adults, based on the mean equivalence scales provided by Fernández-Villaverde and Krueger (2007). The weight of two adults in a household is 1.34. The additional absolute weight of two children is 0.63. As we normalize the total weight of two adults to 1, the additional relative weight of the two children is 0.63/1.34 = 0.47.
Most technology parameters are time-varying: see Table 3. The elasticity of substitution between the different types of labor, ς, is constant over time and is taken from Jones and Yang (2016), who impose a similar CES-function: $\varsigma = 1/0.7$.

All tax rates except the estate tax rate are constant over time in our baseline simulation: the consumption tax rate $\bar{\tau}_c = 0.084$, the labor income tax rate $\bar{\tau}_w = 0.165$ and the capital income tax rate $\bar{\tau}_k = 0.289$. These historical averages over the period 1950-2015 are taken from McDaniel (2017). The labor income tax rate covers both the social contribution to be paid by employers and a labor income tax and the social contribution paid by workers. The value for $\bar{\tau}_k$ is nicely in between the values of 0.20, reported by Altig et al. (2001) and De Nardi and Yang (2016), and 0.36, as in Heer (2001).

The lifecycle profiles of earnings capacity of the twelve earnings groups are taken from Altig et al. (2001), see Figure 5. Within each cohort, 9% of households are entrepreneurs. We choose this fraction to obtain that active households headed by an entrepreneur represent 7.5% of the total population in 1990-2005, as in De Nardi et al. (2007). The parameter λ, which indicates the fraction of time devoted to labor by entrepreneurs, see Section 4.8.1, is set equal to 0.365. In this way, the total (labor plus entrepreneurial) income share of all active entrepreneurs is 18% in 1990-2005, as in De Nardi et al. (2007).

[50] We obtain this value as follows: 1.03% divided by $(1-0.3)$.
[51] One-third of 1.03% equals 0.343%.

As to the parameter governing entrepreneurial income inequality via $f\left(h_{s,i}^{t}\right) = {h_{s,i}^{t}}^{\psi}$, we set $\psi = 1.85$. This implies that the total income (from entrepreneurship plus labor) of the median entrepreneur equals 1.90 times the labor income of the median worker over the period 1989-2004, as in De Nardi et al. (2007). With $\psi = 1.85$ we understate the income of top entrepreneurs. Given our fifteen-year periods and given that entrepreneurs in our model remain entrepreneur throughout their entire career, a rather cautious value for ψ is appropriate.[52]

5.2 Baseline simulation and empirical relevance of the model

The calibration procedure described in Section 5.1 involves matching the *average level* of certain target variables over the calibration period. Thanks to our dynamic setup, we can also compare the simulated *evolution over time* of key (macroeconomic) outcomes in our model with their respective empirical counterparts.[53] This gives an indication about the empirical relevance of the model, as well as about the importance of the exogenous variables that drive these evolutions. The key (macroeconomic) variables considered over the period 1950-2019 are: the aggregate growth rate of GDP per capita, the net household wealth to GDP ratio, the (equilibrium) real interest rate, aggregate labor supply and the average retirement age, the annual flow of bequests and inter-vivos transfers, the cross-sectional Gini coefficients of gross market income and net household wealth, the respective shares of the top 1%, top 10% and bottom 50%, and several outcome variables related to the estate tax system.

In addition to the evolution over time of these key (macroeconomic) variables, we also examine how well our model replicates the cross-sectional profiles of consumption and wealth from the data. Generating certain aspects of the true cross-sectional (or lifecycle) profiles of consumption and wealth, is an objective that is often highlighted in the literature, see Fernández-Villaverde and Krueger (2007, 2011), Ludwig et al. (2012) and Capatina (2015). We compare our simulated cross-sectional profiles of consumption and wealth with the empirical profiles provided by Fernández-Villaverde and Krueger (2007, 2011).

All model generated data in this section are directly taken from our *baseline simulation*, which is driven by the historical and projected evolution of the different sets of exogenous variables listed in Table 3, including the true historical evolution of the U.S. federal estate tax system. As explained, all sets of exogenous variables remain unchanged from 2020 onwards, except the demographic variables N_1^t, π_5^t and π_6^t, and our projection for the rate of technological change x_t, see Table 3. All policy variables thus remain unchanged after 2019, except

[52] Moreover, further increasing ψ also implies a further reduction in the wage rates per unit of effective entrepreneurship for entrepreneurs with the lowest earnings capacity. With $\psi = 1.85$, we have that the effective wage per unit of time supplied in entrepreneurial activities by the entrepreneur with the lowest earnings capacity (i.e., ${h_{s,50}^{t}}^{\psi} w_{B,t+s-1}^{E}$ from Section 4.8.1) is at least 50% of the effective wage per unit of time supplied in labor ($h_{s,50}^{t} w_{B,t+s-1}^{L}$ from Section 4.8.1.), should this entrepreneur choose to work full time as a worker.

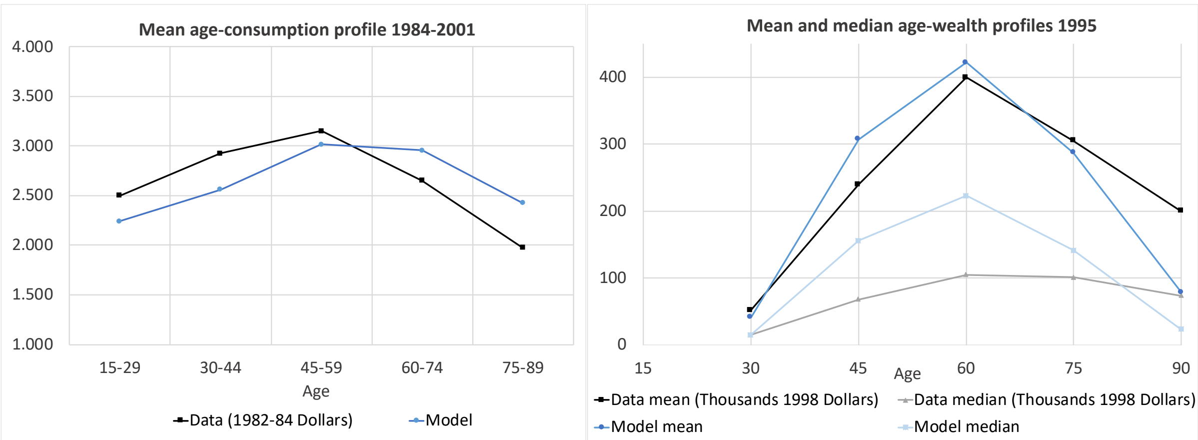
[53] This is often called 'backfitting'. The term 'fitting' may be a bit misleading, as there is no procedure of minimizing a certain function of deviations around the true data. Backfitting only involves graphically comparing the model outcomes with their respective true evolutions over time. For other examples of backfitting, see Borsch-Supan et al. (2006), Ludwig et al. (2012) and Devriendt and Heylen (2020).

government consumption $C_{g,t}$, which adjusts to maintain a balanced budget. Except for the nonnegativity constraints $\Omega_{s,i,m_j}^t \geq 0$ in all model periods and $Z_{s,i,m_j}^t, \breve{\Omega}_{s,i,m_j}^t \geq 0$ for $s = 4,5,6$, there is full flexibility in all endogenous variables in our baseline simulation.

5.2.1. Cross-sectional profiles of consumption and wealth

In Figure 10 we show the model's predictions for the cross-sectional profiles of consumption expenditures and net wealth, directly taken from our dynamic baseline simulation, together with their respective empirical counterparts.[54] The empirical cross-sectional profile of consumption expenditures is taken from Fernández-Villaverde and Krueger (2007, 2011) and is an average over the period 1984-2001. We therefore calculate our consumption profile as a weighted average of the simulated cross-sectional profiles from the model periods 1980-1994 and 1995-2009. The simulated and empirical consumption profiles are both expressed in adult equivalent terms. The left panel shows that we match the overall shape of the cross-sectional lifecycle profile of consumption expenditures reasonably well.[55]

Figure 10: Cross-sectional profiles of consumption expenditures and net wealth: model versus data



Source: Actual data for consumption and wealth profiles: Fernández-Villaverde and Krueger (2007, 2011). The lifecycle profiles are cross-sectional: the points in the figure concern different cohorts.

The empirical (mean and median) cross-sectional wealth profiles for 1995 are also taken from Fernández-Villaverde and Krueger (2011). Our simulated wealth profiles concern the end of our model period 1980-1994 or equivalently, the start of 1995. Our model understates the mean and median wealth at old age, as expected. In our model, there is no life after age ninety.[56] Overall, we match the level and shape of the mean wealth profile well, which gives

[54] The five points that constitute the different curves in Figure 10 always concern the mean consumption or mean wealth level of five different cohorts living at the same time. They are not the mean paths of consumption and wealth over the lifecycle of one cohort.

[55] We normalize the overall mean level of our simulated consumption profile to match the overall mean level of the consumption profile from Fernández-Villaverde and Krueger, and then compare their shape.

[56] Neither do we consider uncertain medical expenses, which are important to explain the relatively high levels of wealth at older age, see De Nardi et al. (2010), Dynan et al. (2002) and Kopecky and Koreshkova (2014). The only reason to hold on to wealth at old age in our model is the bequest motive. We do not attempt to match the true levels of wealth at age 90, as we wish to avoid overstating the role of bequests and hence the potential effects of the estate tax.

us confidence that our model at least captures the most important motives behind wealth over the lifecycle.[57,58] We overstate the median wealth profile for middle-aged households, however.[59]

5.2.2 Baseline simulation for key (macroeconomic) variables

Figure 11 shows our baseline simulation for several key macroeconomic variables since 1950, together with their respective empirical counterparts. We argue that over the period 1950-2019 our model does relatively well in generating realistic evolutions.

The top left panel of Figure 11 shows the true and simulated evolutions of *aggregate per capita economic growth*, together with the imposed evolution of x_t, taken from OECD (2018). In the very long run, per capita growth will be equal to this (projected) future rate of technological change x_t. The per capita economic growth rate from our model indeed converges to x_t in the long run. In long transition periods however, per capita growth deviates from x_t, driven by other factors than technological change. All in all, our model generates a reasonable evolution of per capita economic growth over the period 1950-2019 given the true historical evolution of x_t. Whereas during the period 1965-1994 there has always been a (wide) positive gap between per capita growth and x_t, both in the data and our model, there will no longer be such a positive gap in the future, according to our simulations. The main explanation is demographic change.[60]

As to the ratio of *net household wealth to GDP*, our model outcome over the period 1950-2019 matches reality reasonably well. As explained in Section 5.1, we fix the discount factor β to obtain a realistic average level for the net household wealth to GDP ratio over the period 1950-1994. Its evolution over time is an endogenous outcome of the model, driven by the evolution of different exogenous variables. Our simulations for the future are characterized by additional wealth accumulation and a further rise in the net household wealth to GDP ratio (capital-to-output) ratio. The increasing importance of capital and wealth in the future is driven by two main factors. The first explanation is demographic change (rising life

[57] Note that we match the true mean cross-sectional profile of hours worked of McGrattan and Rogerson (2004) by construction, since we set the utility weights on leisure, v_s for $s = 2, \dots, 5$, to generate the desired level and shape (profiles shown in Appendix I).

[58] In Appendix I we show that the cross-sectional profiles of consumption are relatively stable over time, but we do find sizable effects of demographic change and other factors on the lifecycle profiles of wealth.

[59] The first explanation is that we impose borrowing constraints. Relaxing them would result in a lower median wealth profile. The second explanation is the forward-looking character of our model combined with the projected increase in wage inequality. For the median households, this implies a declining path of wages over time, such that the median household saves more today. The third explanation is the (projected future) decline in the real interest rate. With a coefficient of relative risk aversion ρ equal to 1.5, we have that the negative income effect from a lower (projected future) interest rate dominates the positive substitution effect on current consumption. As a result, households accumulate more wealth today. The fourth explanation is that we somewhat understate wealth concentration in general, see below. Because we match the mean wealth profile well, our simulated median must be above the true median.

[60] During the 1965-94 period the baby boom generation was in its most active periods on the labor market, implying a decline in the overall dependency ratio (see Figure 3) and a positive arithmetic effect on per capita growth, see Devriendt and Heylen (2020). However, because the baby boom generation is currently retiring, together with rising life expectancy, the dependency ratio is expected to rise considerably over the next decades (see left panel of Figure 3), which limits current and future per capita growth.

expectancy), leading to increased saving by households. The second explanation is rising income inequality, mainly driven by skill-biased technological change, combined with the fact that bequests are a luxury good.[61] For a decomposition of the evolution of the net household wealth to GDP shown in Figure 11, we refer to Appendix J. It is unsurprising that we do not capture the full rise in the wealth to GDP ratio, since we abstract from e.g., financialization and the emergence of financial derivatives, heterogeneous returns to wealth, and the historical evolution of house prices.

As to the average fraction of time worked by the population at working age, our model is unable to generate the (relatively small) variations in the data.[62] We nevertheless match the key fact that over a very long period aggregate hours worked by the population at working age have been stable. Because demographic change in our model generates a realistic evolution of the overall dependency ratio over time (see Figure 3), we are confident that we will not largely over- or understate the evolution of aggregate hours worked per person in the long run. Furthermore, we match the true evolution of *the average retirement age* well. Our model generates the considerable decline in the retirement age over the twentieth century, followed by an increase from 1995-2009 onwards. While the former is explained by the introduction of the public pension system and rising replacement rates during the twentieth century, the latter is driven by rising life expectancy combined with a stagnation of replacement rates.

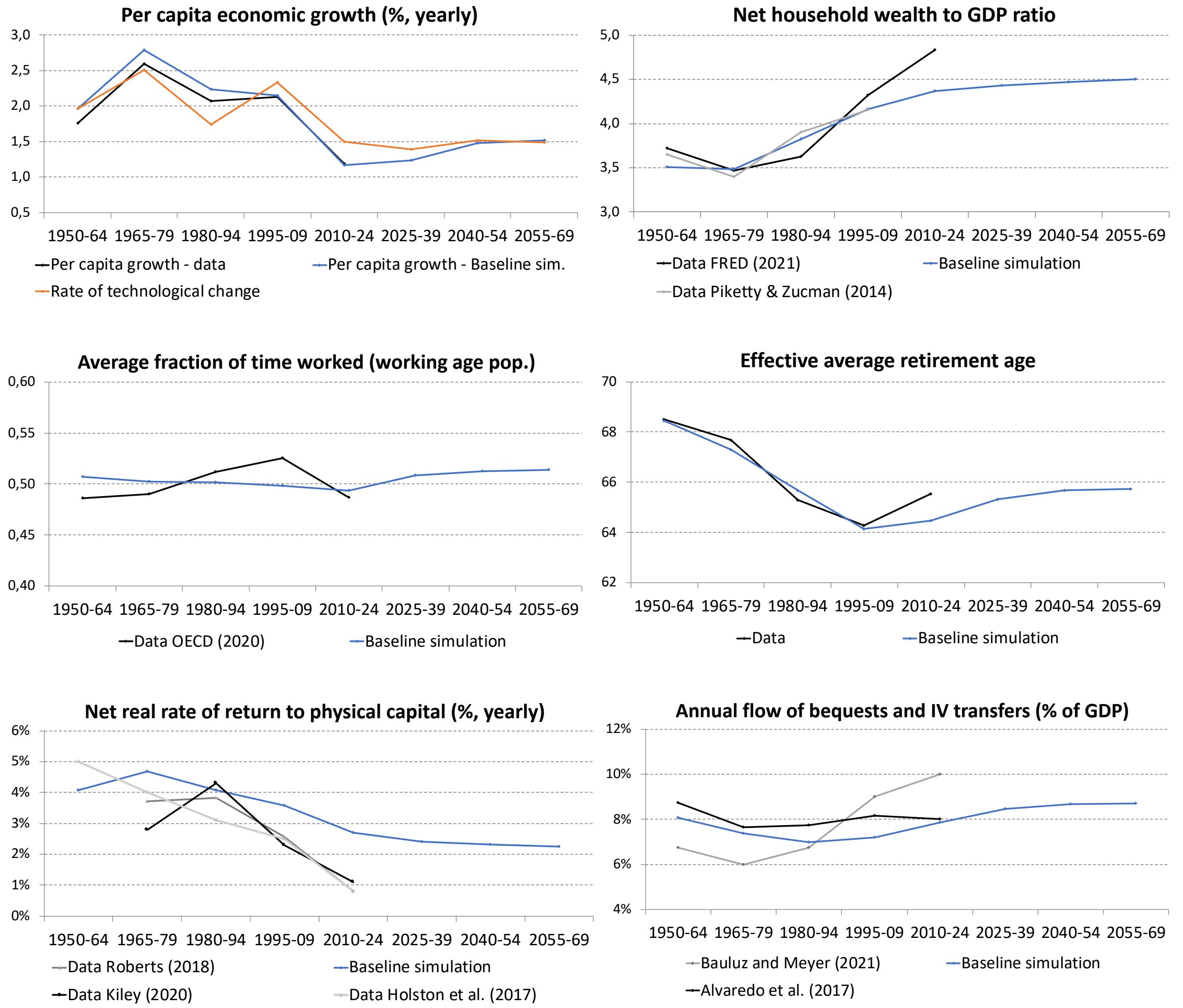
Our baseline simulation is also characterized by a declining *equilibrium real interest rate*. The previous literature already identified several important long-run drivers behind this evolution. Most of them are also present in our simulations: the historical decline in x_t, demographic change (rising life expectancy), and rising income and wealth inequality. Our baseline simulation also shows a further decline in r_t after 2025. This happens even though the main driver of the marginal productivity of capital, namely x_t, does not decline anymore after 2010-24. Under the assumptions of a constant future gross capital income share α_t and a constant capital income tax rate $\bar{\tau}_k$, a higher capital-output ratio K_t/Y_t is accompanied by a lower r_t in our model.

Finally, our simulations match the true evolution over time of the *yearly flow of bequests and inter-vivos transfers* (as a percentage of GDP) reasonably well. While the historical decline before 1980 is mainly driven by declining mortality rates, the projected increase is mainly explained by the projected increase in the net household wealth to GDP ratio combined with a projected increase in inter-vivos transfers. The latter follows from the compensatory nature of inter-vivos transfers combined with the projected increase in wealth inequality.

[61] Equation (15g) most clearly illustrates this: the higher consumption inequality, the higher the overall level of wealth and bequests, via the power $\rho/\omega > 1$.

[62] Explanations may be that we abstract from an endogenous participation decision between the ages 15 and 59, women's gradual entry into the workforce, the true evolution of labor income taxes, the historical increase in the years of (tertiary) education.

Figure 11: Evolution of key macroeconomic variables: baseline simulation versus data



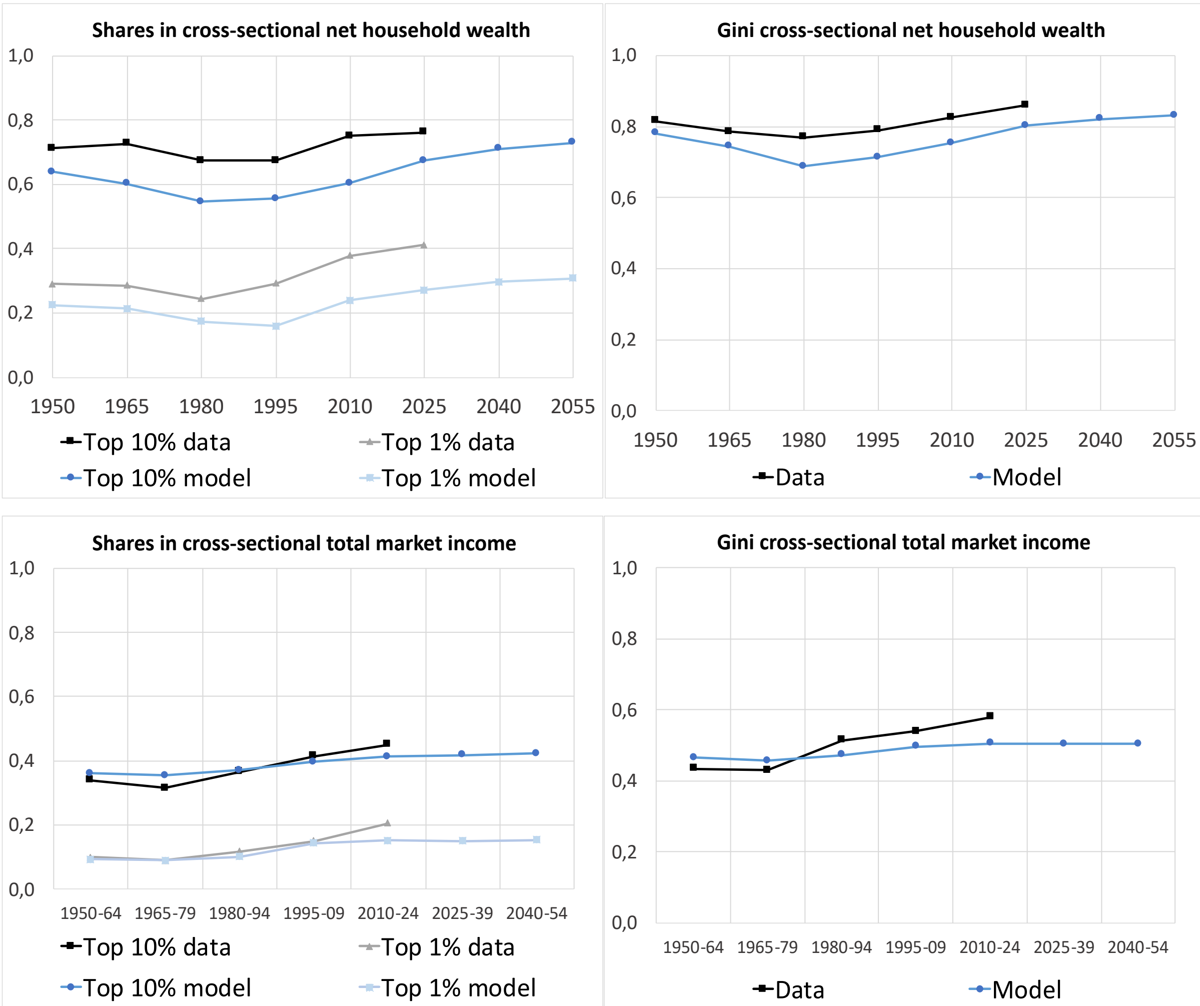
Sources: Per capita growth and rate of technological change: Penn World Tables 9.1 (Feenstra et al., 2015), Investment and Capital Stock Dataset (2017). Net household wealth to GDP ratio: Federal Reserve Bank of St. Louis (2021) and Piketty and Zucman (2014). Effective Retirement Age: OECD (2020), before 1970: Gendell and Siegel (1992). Aggregate hours worked per person at working age over the period 1950-2019: combining the series of total hours worked per worker (intensive margin) with the employment rate per person at working age (extensive margin), both series taken from the OECD (2020). To enable comparison between hours worked in the data and the model outcome (the latter being expressed in fractions of periods), we normalize the data for hours worked to obtain that its average over the period 1950-2019 is also 50%.Net real return to private physical capital: the data concern the historical evolution of the real 'neutral' long-term interest rate, i.e., the real long-term interest rate consistent with a zero-output gap, see Holston et al. (2017), Roberts (2018) and Kiley (2020). Historical evolution of the annual flow of bequests and inter-vivos transfers: Bauluz and Meyer (2021) and the supplementary material of Alvaredo et al. (2017).

Note: Our model generates Y_t: the flow of output over a period of fifteen years. Per capita output is then: Y_t/N_t. As to *per capita economic growth*, in our model there is no growth within model periods. We can only calculate per capita growth *between* model periods of fifteen years: $\frac{Y_t/N_t}{Y_{t-1}/N_{t-1}} - 1$ and then calculate the average yearly growth rate. We therefore calculate per capita growth from the data in the same way: as the average yearly per capita economic growth *between* periods of fifteen years.

5.2.3 Baseline simulation for key inequality measures

Two sets of exogenous variables directly generate rising income and wealth inequality in our model: the increasing entrepreneurial income share, $(1-\alpha_t)\xi_t$ since the 1990s, as shown by Table 1, and the rising input shares of more productive workers and entrepreneurs, i.e., 'skill-biased' technological change since 1980. As explained in Sections 4.4 and 4.5.3, the increase in $\eta_{T_2,t}$ and $\eta_{T_{10},t}$ relative to $\eta_{H,t}$, $\eta_{M,t}$ and $\eta_{B,t}$ generate the long-lasting increase in wage income inequality shown in the right panel of Figure 6.

Figure 12: Evolution of key inequality measures: baseline simulation versus data



Sources: For the top wealth shares: Saez and Zucman (2016) and extrapolated from 2010 onwards based on the evolution of the shares of net personal wealth in World Inequality Database (2021). For the Gini coefficients of wealth and total market income: Kuhn et al. (2018). The included data point for the Gini coefficient of household wealth in 2025 is the average of actual values in 2016-17.

Note: The wealth concept in the data is net household wealth and captures different types of assets including for example, individual retirement accounts (through pension funds), but it excludes the present value of all future Social Security benefits, see Saez and Zucman (2016). Even though in our model we only consider one type of asset, this wealth concept is probably the closest to our specification of wealth.

Figure 12 shows how well our model translates the evolution of these exogenous variables into realistic levels and developments of income and wealth inequality. Reported results concern cross-sectional total market income and cross-sectional net household wealth. We systematically understate wealth inequality. This does not come as a surprise. In addition to the fact that we have periods of fifteen years and that our model is a discrete representation of reality, we abstract from jackpot winners, real estate, land ownership, heterogeneous returns to wealth, and so on. Our model is nevertheless rich enough to obtain reasonable evolutions over time both for the top 10% and top 1% shares of total market income and net household wealth, and for the Gini coefficient of net household wealth. Our projections for the future are characterized by a further increase in wealth concentration over the next three to four decades. This happens even though all exogenous drivers behind rising inequality remain constant from 2020 in our simulations, see Table 3.

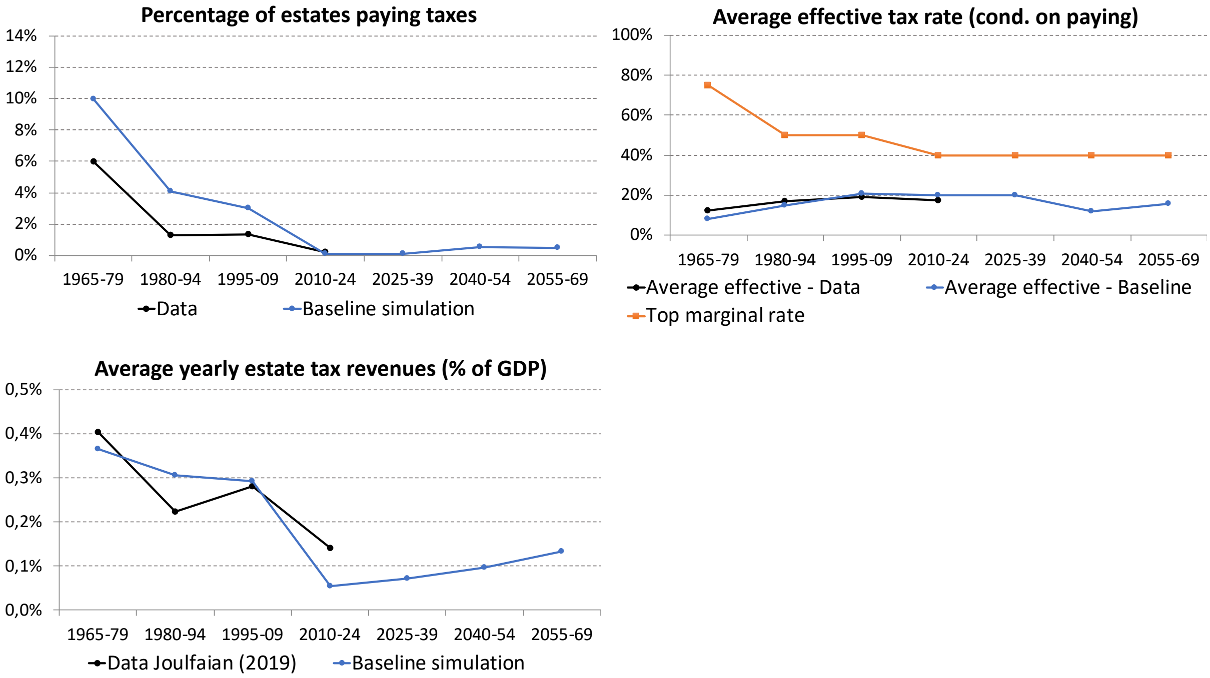
In Appendix J, we decompose the evolutions of wealth concentration shown in Figure 12. We show that 'skill-biased' technological change from 1965-79 onwards, and the increased remuneration of entrepreneurs (the increase in ξ_t within the total labor income share $1-\alpha_t$) from 1980-94 onwards, together explain virtually the entire increase in pre-tax wealth concentration after 1965 in our model. The marginal contribution of rising life expectancy is small. Rising life expectancy is nevertheless a key driver of the observed and projected increase in the wealth-to-GDP ratio, as explained in Section 5.2.2. As we show in Section 6, the historical evolution of the U.S. federal estate tax system has only mildly affected the distribution of pre-tax wealth, but its evolution has largely contributed to rising after-tax wealth inequality over time.

5.2.4. Outcome variables related to the estate tax system

Figure 13 shows several outcome variables related to the estate tax system generated by our baseline simulation, together with their respective historical evolutions. The top left graph in Figure 13 shows that the number of taxable estates (individuals) declined dramatically over time. The main explanations are the sharp increase in the lifetime exemption, the introduction in 1982 of unlimited marital deduction, and the introduction in 2010 of full portability of the deceased spouse's unused lifetime exemption, see Section 3. Our baseline simulation overstates the number of taxable estates, especially during the 1965-1994 period. This is because in our model households always equally split the estate between the two spouses, and directly bequeath to the children. In reality, heavy reliance on (full) marital deduction has been very common since 1948, see Kopczuk (2007, 2013). In about half of the households who report taxable estates, the first dying spouse only bequeaths to the surviving spouse, thereby applying (full) marital deduction. This has strongly reduced the number of taxable estates during that period.

The blue and black lines in the top right panel of Figure 13 show the average effective estate tax paid conditional on paying a positive tax, in the baseline simulation and data respectively. As a reference, we also plot the historical evolution of the top marginal estate tax rate. Although the latter declined from 75% to 40%, we find an increase in the average effective estate tax paid conditional on paying over the period 1965-2009, as in reality. Behind this increase is the historical decline in the number of taxable estates. The bottom panel in Figure 13 shows the evolution of the aggregate estate tax revenues (as a fraction of GDP) in our baseline simulation, and in the data. Given the dramatic decline in the number of taxable estates, it does not come as a surprise that the estate tax revenues also decreased considerably over the last decades. As to the future, our baseline simulation shows a slight increase in the number of taxable estates and in the total estate tax revenues.

Figure 13: Variables related to the estate tax system: baseline simulation versus data



Sources: For the fraction of individuals paying taxes and the average effective estate tax paid: directly taken from the Internal Revenue Service (2021). For the estate tax revenues as percentage of GDP: Joulfaian (2019) before 2010, afterwards we consider the fact that the estate tax revenues during 2010-18 amount to half the tax revenues during 1995-2009 (OECD, 2021).

Note: Data displayed in the top panels concern 1965-2016, in the bottom panel 1965-2018, the model outputs always concern the period 1965-2024 (but the estate tax system is constant after 2020 in our simulations).

Overall, we conclude that our model does reasonably well in generating realistic evolutions over time of the key variables under consideration, including the evolution of per capita growth and cross-sectional inequality, as explained in Sections 5.2.2 and 5.2.3. As shown in Section 5.2.1, our model also generates realistic age-consumption and mean age-wealth profiles. Moreover, summary outcomes regarding the estate tax also match reality reasonably well. These observations raise confidence about the reliability of our simulations for the future and of our assessment of the effects of the changes in the estate tax system that we study in Section 6 of this paper.

6. ESTATE TAX REFORMS: DISTRIBUTIONAL AND MACROECONOMIC EFFECTS

As explained in Section 5, our baseline simulation for the future is characterized by low per capita economic growth, a further increase in the wealth-to-GDP (capital-output) ratio, and further decline in the equilibrium real interest rate, combined with high and rising wealth inequality and concentration. These developments are generated by changes in a range of exogenous variables that we impose to our model, including the historical interventions in the U.S. federal estate tax system, captured over time by $BR_{q,t}$, $\tau_{q,t}$, IV_t and AZ_t. Our goal in this section is to uncover the impact of these interventions.

6.1 Counterfactual simulations versus baseline simulation

In this section, we study several counterfactual simulations where we keep the different tax brackets $BR_{q,t}$, including the lifetime exemption $BR_{1,t}$, and the corresponding marginal tax rates $\tau_{q,t}$, for $q = 1, \dots, \bar{q}$, all at their 1977-79 levels from 1980 onwards. In 1977-79, the individual lifetime exemption $BR_{1,t}$ was only 12.5 times per capita GDP, with an initial marginal tax rate $\tau_{1,t}$ of 18%. The subsequent marginal estate tax rates $\tau_{q,t}$, for $q = 2, \dots, \bar{q}$ also applied to relatively low levels of pre-tax bequests, with a top marginal tax rate of 70% for estates of around 536 times per capita GDP. From 1980 onwards, there have been dramatic changes in the U.S. federal estate tax system, including a substantial increase in $BR_{1,t}$ and a dramatic decline in the marginal estate tax rates, see Figure 1 and Section 3. We therefore take the 1977-79 situation as a benchmark.

In *counterfactuals 1a and 1b*, we will keep $BR_{q,t}$ and $\tau_{q,t}$, for $q = 1, \dots, \bar{q}$, all at their 1977-79 levels from 1980 onwards, and we impose, as in our baseline simulation, that inter-vivos transfers and bequests are jointly taxed after 1980 (by setting $IV_t = 1$ from 1980 onwards, see Section 4.6.2). By comparing the outcomes of our baseline simulation with those of counterfactuals 1a and 1b, we study the dynamic effects of the reduction in U.S. federal estate taxes since 1980 taking into account the joint taxation of inter-vivos transfers and bequests from that year on. The decline in estate taxes in the baseline therefore also feeds through in reduced taxation of inter-vivos transfers.

In *counterfactuals 2a and 2b*, we also keep $BR_{q,t}$ and $\tau_{q,t}$, for $q = 1, \dots, \bar{q}$, at their 1977-79 levels from 1980 onwards. However, contrary to our baseline simulation and counterfactuals 1a and 1b, we now assume that inter-vivos transfers remain untaxed (as they were before 1980 in our simulations). That is, we set $IV_t = 0$ over the entire simulation. A comparison of counterfactuals 1a and 1b with counterfactuals 2a and 2b shows the partial effect of a change in the tax treatment of inter-vivos transfers, i.e., of adding these transfers to the taxable estate, given the high estate taxation of 1977-79.

In counterfactuals 1a and 2a, we assume that the additional estate tax revenues in the counterfactual are absorbed by extra government consumption $C_{g,t}$. In counterfactuals 1b and 2b, by contrast, we keep the path for government consumption the same as in our baseline simulation, and we let the capital income tax rate $\bar{\tau}_{k,t}$ adjust downwards to maintain budget balance in the counterfactual.[63] Table 5 provides an overview.

Table 5. Counterfactual simulations versus baseline simulation

	True historical evolution of U.S. federal estate tax system?	IV transfers and bequests jointly taxed from 1980 onwards?	Which variable adjusts to maintain budget balance?
Baseline simulation	Yes	Yes, $IV_t = 1$ from 1980	Gov. Consumption $C_{g,t}$
Counterfactual 1a	**No, from 1980 constant at 1977-79 levels**	Yes, $IV_t = 1$ from 1980	Gov. Consumption $C_{g,t}$
Counterfactual 1b	**No, from 1980 constant at 1977-79 levels**	Yes, $IV_t = 1$ from 1980	**Capital income tax rate $\tau_{k,t}$**
Counterfactual 2a	**No, from 1980 constant at 1977-79 levels**	**No, $IV_t = 0$ from 1980**	Gov. Consumption $C_{g,t}$
Counterfactual 2b	**No, from 1980 constant at 1977-79 levels**	**No, $IV_t = 0$ from 1980**	**Capital income tax rate $\tau_{k,t}$**

As explained in Section 4.6.2 and as shown by Equations (6) and (7), the estate tax parameters $BR_{q,t}$ and $\tau_{q,t}$ directly affect the effective average estate tax $\bar{\tau}^t_{b,s,i,m_j}$ and effective marginal estate tax rate τ^t_{b,s,i,m_j} faced by households. Keeping $BR_{q,t}$ and $\tau_{q,t}$ at their 1977-79 levels from 1980 onwards implies that households face much higher effective estate tax rates in the different counterfactuals than in the baseline simulation. This is especially the case from 2010 onwards, where the lifetime exemption $BR_{1,t}$ becomes very high in the baseline.

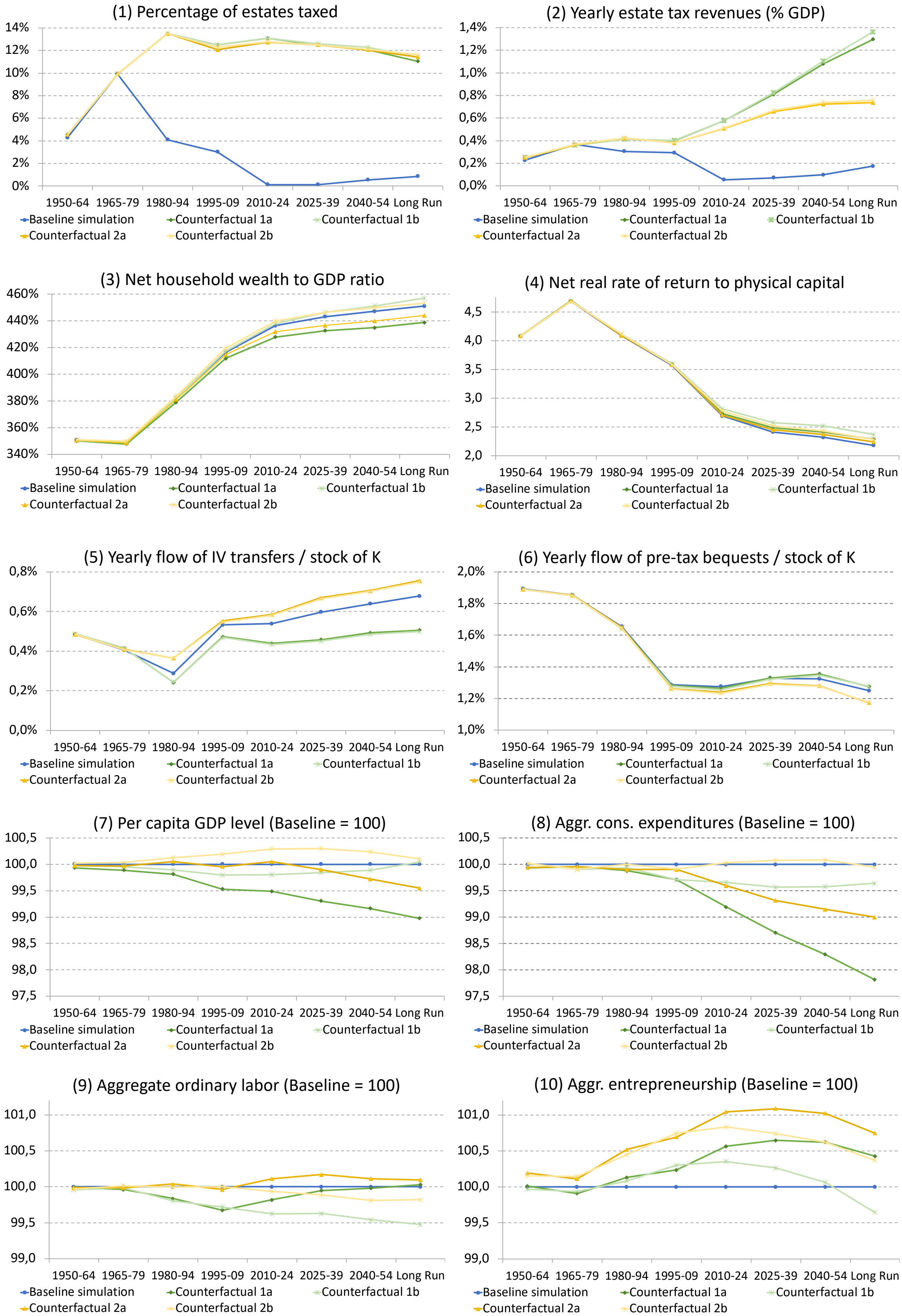
Because households in our model are rational and forward looking, they know and take into account their own and their parents' future state variables, including their own and their parents' effective estate tax rates. The (projected) estate tax parameters $BR_{q,t}$ and $\tau_{q,t}$ therefore drive the behavior of (future) donors and (future) recipients of taxable bequests and inter-vivos transfers, as explained in Sections 4.9.1 and 4.9.2. We further describe these behavioral effects in Section 6.3. We first turn to the macroeconomic effects of the U.S. federal estate tax reforms since 1980.

6.2 Macroeconomic effects of the U.S. federal estate tax reforms since 1980

Figure 14 shows the past and future evolution of several key macroeconomic variables in our baseline simulation and in the different counterfactual simulations where we keep the different tax brackets $BR_{q,t}$ and the corresponding marginal tax rates $\tau_{q,t}$, for $q = 1, \ldots, \bar{q}$, all at their 1977-79 levels from 1980 onwards, see Table 5.

[63] We also performed several alternative counterfactuals where we let the labor income tax rate $\bar{\tau}_{w,t}$ (counterfactuals 1c and 2c) or the consumption tax rate $\bar{\tau}_{c,t}$ (counterfactuals 1d and 2d) adjust downwards to maintain budget balance, keeping the path for $C_{g,t}$ the same as in our baseline simulation. The results from counterfactuals 1c and 1d always lie between those from counterfactuals 1a and 1b, and the results from counterfactuals 2c and 2d always between those from 2a and 2b.

Figure 14: Evolution of key macroeconomic variables: baseline versus counterfactuals



Panel (1) of Figure 14 shows that the estate tax reforms since 1980 considerably reduced the *number of taxable estates* over time. Compared to all counterfactuals, where we keep the estate tax parameters at their much higher 1977-79 levels, we observe a decline of about 10.5%-points of estates taxed in the long run. Panel (2) shows that, according to our simulations, the foregone *estate tax revenues* are large. Yearly revenues are projected to fall back to a level below 0.2% of GDP. Under the tax rules of 1977-79 they would be more than 1% of GDP higher in the long run.

Even though the estate tax reforms since 1980 considerably reduced the overall estate tax burden on U.S. households, the positive effects on the ratio of net household wealth to GDP (capital-output ratio K_t/Y_t), aggregate labor L_t, aggregate entrepreneurship E_t, and aggregate per capita output are small, as shown by panels (3), (7), (9) and (10) of Figure 14.

In the long run, the *capital-output ratio* (net household wealth to GDP ratio) is only 12%-points and 7%-points higher in the baseline simulation than in counterfactuals 1a and 2a respectively. In these two counterfactuals, all the extra estate tax revenues are absorbed by additional unproductive government consumption $C_{g,t}$. If, alternatively, the extra estate tax revenues were used to lower the capital income tax rate $\bar{\tau}_{k,t}$, as in counterfactuals 1b and 2b, we even obtain slightly higher capital-output ratios than in the baseline simulation.[64] We also find that the effects on *aggregate labor and entrepreneurship* are very small, as shown by panels (9) and (10) of Figure 14. The evolution of aggregate labor L_t is quasi the same in the baseline and the counterfactual scenarios. For entrepreneurship E_t the baseline simulation yields lower long-run values than three out of four counterfactuals.

As a result, we do not find strong positive effects on *aggregate per capita output* in the long run. As shown by panel (7) of Figure 14, aggregate per capita output is only 1% and 0.5% higher in the baseline simulation than in counterfactuals 1a and 2a respectively. If the additional estate tax revenues in the counterfactual were used to lower the capital income tax rate, the positive baseline effects on per capita GDP would even disappear. These results are consistent with Guvenen et al. (2019) who find that reducing a linear estate tax and increasing the capital income tax leads to negative effects on aggregate private capital and output.[65]

Also in the transition, the (positive) effects on the capital-output ratio, aggregate labor and entrepreneurship, and aggregate per capita output *are very small*. Yearly per capita economic growth is nowhere more than 0.02% higher in the baseline simulation than in the counterfactual simulations. According to our simulations, the combined U.S. federal estate

[64] The additional estate tax revenues in counterfactuals 1b and 2b allow a reduction in the capital income tax rate $\bar{\tau}_{k,t}$ of 9.6%-points and 4.7%-points respectively in the long run. This stimulates private physical capital formation in counterfactuals 1b and 2b relative to the baseline simulation, and leads to a higher net real rate of return to private physical capital, ceteris paribus, see below.

[65] In Guvenen et al., each entrepreneur produces goods according to an idiosyncratic production function by supplying own private capital. The implied increase in $\bar{\tau}_k$ then leads to lower capital incomes especially for the most productive entrepreneurs, which causes their productive capital stock to grow more slowly, reducing overall efficiency. In our model, entrepreneurs do not have a specific production function and we do not distinguish between their personal wealth and private capital in their business. However, we also find that the combination of lower estate taxation and higher capital income taxation may reduce aggregate private capital. In our model, this negative effect is much smaller than in Guvenen et al., however.

tax reforms (tax cuts) since 1980 have thus not generated the desired positive effects on the U.S. economy.

Furthermore, we find that the estate tax reforms have contributed to the secular decline in the equilibrium real interest rate, see panel (4) of Figure 14. A comparison with counterfactual 1a reveals a reduction of the annual *net real rate of return to private physical capital* due to the combined estate tax reforms of 0.11%-points. The reduction is even bigger (0.19%-points) in comparison with counterfactual 1b. A key element of that counterfactual is a lower capital income tax rate, which would allow for a stronger increase in the net (after-tax) rate of return.

The combination of estate tax reforms since 1980 has nevertheless benefitted *aggregate private consumption expenditures* of U.S. households. Panel (8) of Figure 14 shows that, in the long run, C_t is around 2% higher in the baseline simulation than in counterfactual 1a, where we assume that all extra tax revenues are used for unproductive government consumption $C_{G,t}$. If these were used to lower $\bar{\tau}_{k,t}$, as in counterfactual 1b, the positive effects on aggregate private consumption expenditures C_t would be much smaller.

Panel (6) of Figure 14 shows that the aggregate *yearly flow of pre-tax bequests* (in percent of K_t) is barely affected by the combined estate tax reforms. Compared to the counterfactuals 1a and 1b, we even find that the flow of pre-tax bequests (in percent of K_t) is slightly lower in the baseline. Aggregate pre-tax wealth and capital, and the aggregate flow of pre-tax bequests, all appear to be relatively insensitive to considerable reductions in the estate tax. This also explains why we find strong effects on aggregate estate tax revenues: considerably lower estate taxation does not lead to a strong increase in aggregate pre-tax bequests. Whereas there are no (positive) effects on aggregate pre-tax bequests, we do find strong positive effects of the estate tax reform on aggregate inter-vivos transfers, at least when we compare the baseline with counterfactuals 1a and 1b. In the baseline simulation, where estates and inter-vivos transfers are jointly taxed at low rates, the *yearly flow of inter-vivos transfers* (in percent of K_t) is more than one-third higher than in counterfactuals 1a and 1b, where both are jointly taxed at high rates.

Interestingly, the insensitivity of aggregate pre-tax bequests and pre-tax wealth with respect to the estate tax is *robust to the tax treatment of inter-vivos transfers*. A comparison of counterfactuals 1a and 1b with 2a and 2b in panel (6) of Figure 14 shows that, whether inter-vivos transfers are taxed (1a and 1b) or untaxed (2a and 2b) hardly affects aggregate pre-tax bequests and aggregate pre-tax wealth. For inter-vivos transfers themselves in panel (5), their tax treatment matters much more. In the long run, we find them to be about twice as high when they are untaxed. For most other variables, not taxing inter-vivos transfers implies better performance, see for example higher per capita GDP, labor, entrepreneurship, and consumption expenditures. But here also, the effects are very small.

6.3 Key behavioral responses by (future) donors and (future) recipients of bequests

In this section, we discuss the behavioral responses by U.S. households in greater detail. In particular, we focus on several important heterogeneities in the response in consumption, labor supply, wealth and inter-vivos transfers. We observe these heterogeneities both over the lifecycle and across the earnings (capacity) distribution. The first explanation for these heterogeneities is the relatively high initial exemption, both in the baseline and in the counterfactuals. Only households with taxable bequests that exceed the initial exemption are directly affected by the estate tax. Other households are only indirectly affected, through adjustments in factor prices, and trough possible income effects of ancestors. Second, the estate tax affects (future) donors and (future) recipients of taxable bequests differently. The third explanation behind heterogeneities is that the effective marginal and effective average estate tax rates affect the pre-tax bequests of wealthy donors in opposite directions, and that the relative effects of these two tax rates are a function of the size of taxable bequests, as explained in Section 4.9.1. The fourth explanation is that the effects of the estate tax on inter-vivos transfers are different from those on pre-tax bequests, see Section 4.9.2. The final explanation behind the heterogeneous effects of estate taxation is that the bequest motive becomes more important at older age. For households in period $s = 6$, who face a mortality rate equal to unity in our model, the effects of estate taxation are more outspoken. By contrast, bequests are relatively unimportant for younger households, given the relatively high survival rates in periods of life $s = 4{,}5$. Other motives behind wealth may then dominate the bequest motive. This was also highlighted by Dynan et al. (2002, 2004). As a result, the estate tax only mildly affects the bequest decisions.[66]. Due to space constraints, we include figures showing the behavioral effects in Appendices K to N.

In the discussion below, we focus on the effects of the reduction of estate taxes with inter-vivos transfers being taxed jointly with bequests, i.e., our *baseline simulation compared to counterfactuals 1a and 1b*.[67]

As to *inter-vivos transfers*, we find that the wealthiest donors respond to lower estate taxation by (considerably) increasing their inter-vivos transfers, as suggested by Section 4.8.2. As a result, and because the average estate tax rates are now lower, the children of the wealthy receive considerably higher inter-vivos transfers and after-tax bequests in the baseline. This will positively affect their consumption, savings, and wealth, especially at older age, leading to direct positive effects on aggregate bequests, aggregate wealth, and aggregate capital. Because the children increase their consumption, they also provide more inter-vivos transfers to their respective children (the grandchildren of the wealthy), and so on. Thus, even though the estate tax reforms since 1980 have directly affected only a relatively small group of

[66] Every dollar of wealth then serves two purposes at the same time: it will be absorbed by future consumption or future inter-vivos transfers in case the household survives into period $s + 1$, or it will turn into a bequest in case of death at the end of model period s.

[67] In line with our earlier findings at the end of the previous section, these effects are robust to the tax treatment of inter-vivos transfers. A different tax treatment would only seriously affect the size of inter-vivos transfers themselves. They rise when they remain untaxed, but this seems to have relevant implications almost only for the behavior of the very wealthy. Comparing the behavioral effects in Appendices L and K (Baseline versus Counterfactuals 1a and 1b respectively) with those in Appendices M and N (Baseline versus Counterfactuals 2a and 2b respectively) allows studying the partial effects of adding inter-vivos transfers to the taxable estate, given the high estate taxation of 1977-79.

households, this trickle-down mechanism of inter-vivos transfers explains why aggregate inter-vivos transfers are permanently higher in the baseline.

With only few exceptions, *consumption* in the baseline simulation is higher over the entire cross-section. This shows that the benefits from lower estate taxation trickle down the distribution of earnings (capacity) and age groups, through higher inter-vivos transfers and after-tax bequests received, and that these positive lifetime income effects dominate the negative effect of a lower interest rate on consumption. There are two groups of households, however, who do not consume more. The first group are the households with the highest earnings capacity. As a donor of taxable inter-vivos transfers and bequests, they directly respond to the lower estate taxation by consuming less, to enable higher inter-vivos transfers during periods of life $s = 4,5,6$. The second group are the elderly with the lowest earnings capacity. Given that their ancestors also have relatively low earnings capacity, on average, they are not (or only weakly, via, for instance, their great-grandparents) affected by the estate tax. They respond mainly to changes in factor prices. They consume more when young, but only at the expense of lower old-age consumption. Overall, we find that households in the middle of the earnings distribution benefit the most in terms of consumption. They directly benefit from (considerably) higher inter-vivos transfers and after-tax bequests received, and they will smooth this additional consumption over their own and their children's lifecycle. The behavioral response by workers and entrepreneurs are similar.

As to *labor supply*, we find that the estate tax reforms have increased hours worked by the most productive workers and entrepreneurs. This positive response is mainly driven by their desire to increase inter-vivos transfers in response to lower estate taxation. The positive effects on hours worked by the most productive households do not translate into positive responses in aggregate ordinary labor L_t and entrepreneurship E_t, however, as shown in Section 6.2. This is because the (grand)children of the wealthy, who have lower earnings capacity than their wealthy (grand)parents, work less. Anticipating higher future received inter-vivos transfers and after-tax bequests, they consume more, work less, and accumulate less own wealth when young, ceteris paribus. The households who benefit the most in terms of consumption, those in the middle of the earnings distribution, are also those who reduce their hours worked the most. There are two groups of households who work more: those at the bottom of the distribution (who consume less at older age, mainly because of the interest rate effect), and the most productive households (who consume less and plan higher inter-vivos transfers). Both groups of households work more, especially in the second half of their careers, and they retire later. The central finding regarding labor supply is that the behavioral response is typically inversely related to the response in consumption in active periods of life $s = 2, \ldots, 5$. This follows from the fact that leisure is a normal good. The behavioral effects of estate taxation on the labor supply of (future) recipients of bequests were highlighted before by, for instance, Kindermann et al. (2020).

It also follows that *wages per unit of effective labor or entrepreneurship* are higher in the baseline (insofar as K_t is higher). As shown by Equations 4a and 4b, the marginal productivities of labor and entrepreneurship are positive functions of the aggregate private physical capital stock. Only those groups of households who work considerably more earn a lower wage per unit of effective labor in the baseline.

We now turn to a final key aspect of the behavioral response by households: the response in optimal *pre-tax bequests of wealthy donors*. We find that pre-tax final wealth (bequests) of the wealthiest workers and entrepreneurs are lower in the baseline simulation compared to the counterfactual, even though the effective estate tax burden is considerably lower. Negative effects on the pre-tax bequests of wealthy donors are mainly found late in life. Especially in the final period of life, wealthy households substitute inter-vivos transfers for own consumption and bequests. This is consistent with our analyses in Sections 4.9.1 and 4.9.2. Earlier in life, we find somewhat more positive effects on bequests. This is unsurprising: the pre-tax wealth and bequests of future wealthy donors respond more positively to lower estate taxation because they plan higher inter-vivos transfers later in life in the baseline, which requires additional wealth. In these periods, lifecycle motives (future inter-vivos transfers) thus dominate the bequest motive, as explained in the first paragraph of this section. This is also the first explanation why aggregate pre-tax bequests do not respond positively to considerably lower estate taxation: positive effects on pre-tax wealth in earlier periods of life are offset by more negative effects in the final period(s) of life. The second explanation is that the baseline simulation is characterized by a substantial increase in the lifetime exemption. The reduction in the effective average estate tax rate is therefore relatively strong, and more negative effects on pre-tax bequests may occur. The third reason is that the children and the grandchildren of the wealthy (who may also report high taxable bequests) accumulate less own wealth when young. We show the behavioral effects in the baseline simulation relative to counterfactuals 1a and 1b in Appendices K and L respectively.

6.4 Aggregate distributional effects of the U.S. federal estate tax reforms since 1980

Tables 6a and 6b show the evolution over time of the Gini coefficient of cross-sectional net household wealth, and the cross-sectional net household wealth shares of the bottom 50%, top 10% and top 1% in our baseline simulation and in the different counterfactual simulations, before estate taxes (Table 6a) and after estate taxes (Table 6b).

Table 6b shows that *the estate tax reforms since 1980 have considerably contributed to after-tax wealth inequality and concentration*. In the long run, the top 10% and top 1% wealth shares are around 6%-points and 5%-points higher, on average, in the baseline simulation than in the counterfactuals where we keep the estate tax parameters constant at their 1977-79 levels from 1980 onwards. The Gini coefficient is around 3.5%-points higher and the share of the bottom 50% is slightly lower in our baseline simulation. These effects also apply in the transition towards the long-run equilibrium, but show up mainly from 2010, when the lifetime exemption was considerably raised.

Whereas the effects on after-tax wealth inequality are relatively large, *the effects on pre-tax wealth inequality are relatively small*, as shown by Table 6a. We even find that the top 1% share in pre-tax wealth is slightly lower in the baseline simulation than in counterfactuals 1a and 1b. The top 10% wealth share and the Gini coefficient, by contrast, are always higher in the baseline than in the different counterfactuals. All these results are consistent with our results in Sections 6.2 and 6.3. First, as explained, pre-tax bequests and pre-tax wealth are overall relatively insensitive to changes in the estate tax system. The resulting pre-tax inequality and concentration measures are therefore also only mildly affected. Second, the effects of lower estate taxation on pre-tax bequests and wealth are typically (more) negative at the top of the wealth distribution. The results from Table 6a are therefore intuitive: the top 1% share in pre-tax wealth is slightly lower in the baseline simulation than in the different counterfactuals because the effective estate tax rates are much lower in the baseline.[68]

Table 6a: Evolution of aggregate cross-sectional net wealth inequality and concentration: baseline versus counterfactuals: **pre-tax wealth**

		1950	1965	1980	1995	2010	2025	2040	2055	Long run
Wealth Gini	Baseline	0,782	0,744	0,687	0,713	0,754	0,802	0,821	0,831	0,836
	Counterfactual 1a	0,780	0,742	0,680	0,704	0,745	0,791	0,812	0,821	0,828
	Counterfactual 1b	0,780	0,742	0,679	0,701	0,741	0,787	0,807	0,817	0,824
	Counterfactual 2a	0,781	0,744	0,685	0,706	0,747	0,792	0,810	0,819	0,824
	Counterfactual 2b	0,781	0,743	0,683	0,703	0,744	0,789	0,807	0,817	0,822
Bottom 50% wealth share	Baseline	0,019	0,039	0,069	0,050	0,030	0,018	0,018	0,017	0,017
	Counterfactual 1a	0,019	0,039	0,073	0,054	0,034	0,021	0,020	0,019	0,018
	Counterfactual 1b	0,019	0,040	0,074	0,056	0,035	0,023	0,022	0,020	0,020
	Counterfactual 2a	0,019	0,039	0,070	0,051	0,033	0,020	0,020	0,019	0,018
	Counterfactual 2b	0,019	0,039	0,072	0,054	0,034	0,021	0,020	0,019	0,019
Top 10% wealth share	Baseline	0,639	0,601	0,546	0,555	0,604	0,673	0,710	0,729	0,739
	Counterfactual 1a	0,643	0,599	0,540	0,546	0,589	0,656	0,693	0,711	0,726
	Counterfactual 1b	0,642	0,599	0,538	0,543	0,584	0,651	0,688	0,706	0,721
	Counterfactual 2a	0,645	0,601	0,546	0,546	0,591	0,658	0,687	0,712	0,719
	Counterfactual 2b	0,644	0,601	0,544	0,544	0,588	0,653	0,683	0,706	0,716
TOP 1% wealth share	Baseline	0,225	0,214	0,173	0,159	0,240	0,271	0,297	0,307	0,328
	Counterfactual 1a	0,223	0,209	0,171	0,157	0,236	0,274	0,302	0,311	0,333
	Counterfactual 1b	0,223	0,209	0,170	0,156	0,232	0,270	0,298	0,307	0,329
	Counterfactual 2a	0,224	0,211	0,189	0,159	0,235	0,271	0,292	0,300	0,319
	Counterfactual 2b	0,224	0,211	0,187	0,158	0,233	0,268	0,290	0,298	0,317

Table 6b: Evolution of aggregate cross-sectional net wealth inequality and concentration: baseline versus counterfactuals: **after-tax wealth**

		1950	1965	1980	1995	2010	2025	2040	2055	Long run
Wealth Gini	Baseline	0,776	0,732	0,674	0,701	0,752	0,800	0,818	0,828	0,832
	Counterfactual 1a	0,774	0,730	0,663	0,688	0,723	0,766	0,784	0,792	0,798
	Counterfactual 1b	0,774	0,730	0,661	0,685	0,719	0,762	0,780	0,788	0,793
	Counterfactual 2a	0,774	0,732	0,668	0,691	0,729	0,772	0,789	0,797	0,802
	Counterfactual 2b	0,774	0,731	0,666	0,689	0,726	0,769	0,786	0,795	0,800
Bottom 50% wealth share	Baseline	0,019	0,041	0,072	0,052	0,030	0,018	0,018	0,017	0,017
	Counterfactual 1a	0,020	0,041	0,078	0,057	0,037	0,024	0,023	0,022	0,022
	Counterfactual 1b	0,020	0,042	0,079	0,059	0,039	0,026	0,025	0,024	0,024
	Counterfactual 2a	0,020	0,041	0,075	0,054	0,036	0,023	0,022	0,021	0,021
	Counterfactual 2b	0,020	0,041	0,076	0,057	0,037	0,024	0,023	0,022	0,022
Top 10% wealth share	Baseline	0,629	0,581	0,526	0,537	0,601	0,670	0,705	0,724	0,733
	Counterfactual 1a	0,632	0,579	0,512	0,519	0,550	0,610	0,644	0,659	0,672
	Counterfactual 1b	0,631	0,579	0,510	0,516	0,545	0,605	0,638	0,653	0,667
	Counterfactual 2a	0,634	0,581	0,518	0,521	0,558	0,621	0,648	0,673	0,678
	Counterfactual 2b	0,634	0,581	0,516	0,519	0,555	0,616	0,644	0,666	0,675
TOP 1% wealth share	Baseline	0,209	0,179	0,147	0,137	0,234	0,263	0,286	0,292	0,312
	Counterfactual 1a	0,212	0,177	0,145	0,136	0,190	0,213	0,236	0,242	0,261
	Counterfactual 1b	0,212	0,177	0,144	0,136	0,189	0,211	0,234	0,240	0,258
	Counterfactual 2a	0,213	0,179	0,150	0,140	0,202	0,238	0,249	0,255	0,266
	Counterfactual 2b	0,213	0,179	0,149	0,140	0,201	0,237	0,248	0,254	0,264

[68] When we include inter-vivos transfers in our measure of wealth, we find similar results as in Tables 6a and 6b, see Appendix O.

7. CONCLUSIONS

This paper studies the effects of the drastic changes in the U.S. federal estate tax system since 1980. These changes include a gradual but strong increase of the individual lifetime exemption, a reduction in the top marginal tax rates, and a gradual removal of the intermediate tax brackets. Furthermore, we consider in our simulations the fact that since 1976 inter-vivos transfers and bequests are jointly taxed.

To do so, we construct a dynamic general equilibrium model for the United States, featuring firms, a fiscal government, and six overlapping generations of households with heterogeneous abilities connected via bequests and inter-vivos transfers. Our baseline simulation incorporates not only the true historical evolution of the U.S. federal estate tax system, but also different sets of other time-varying parameters such as demographic change and 'skill-biased' technological change. The model performs quite well in generating realistic evolutions over time for several key macroeconomic variables including per capita economic growth, the net household wealth to GDP ratio, the (equilibrium) real interest rate, labor supply and wealth inequality and concentration. It also generates realistic summary statistics regarding the estate tax system, and fairly realistic cross-sectional age-consumption and age-wealth profiles.

By performing different counterfactual simulations with respect to the exogenous variables underlying the estate tax system, we show that the combination of estate tax reforms since 1980 has not generated the desired positive effects on labor supply, private capital accumulation, and economic activity. We find strong positive effects on inter-vivos transfers, both at the top and in the middle of the distribution, but no large positive effects on pre-tax bequests, pre-tax wealth, and private physical capital. The most productive workers and entrepreneurs work somewhat more, only because they wish to provide higher inter-vivos transfers. However, we find no large positive effects on aggregate labor and aggregate entrepreneurship, nor on aggregate per capita economic growth and output. When we use the additional estate tax revenues in a counterfactual to lower the capital income tax rate, the (small) positive effects on aggregate per capita output and aggregate private physical capital even disappear.

The key underlying result from our simulations is that the pre-tax bequests and pre-tax wealth of wealthy donors are relatively insensitive to considerably lower estate taxation. At the top of the wealth distribution, and for the oldest donors, we even find that the size of pre-tax bequests is affected negatively by the combination of estate tax reforms (tax cuts) since 1980. This result is in contrast with the common view in the economic literature that, in case of an after-tax bequest motive, lower estate taxation generally leads to a (considerable) increase in pre-tax bequests and pre-tax wealth of wealthy donors, and in aggregate pre-tax wealth and capital. Our results are nevertheless in line with a minority of papers that also (explicitly or implicitly) allow for more negative (or neutral) effects of lower estate taxation on (aggregate) pre-tax bequests and wealth (of wealthy donors), see Gale and Perozek (2000a), Heer (2001), De Nardi and Yang (2016) and Bastani and Waldenström (2020). The first explanation for the lack of strong positive effects on the pre-tax bequests of wealthy donors in our model is that the effective marginal estate tax rate and the effective average estate tax rate affect the pre-tax wealth of wealthy donors in opposite directions. The second explanation is that a higher lifetime exemption leads to a lower effective average estate tax, pushing down optimal pre-tax bequests of wealthy donors. The third explanation is that inter-vivos transfers typically respond positively to lower estate taxation, implying that wealthy donors substitute inter-vivos transfers for own consumption and bequests. The fourth explanation is that lifecycle motives (future consumption and inter-vivos transfers) behind wealth accumulation dominate the bequest motive. In addition to these relatively weak (or negative) effects on wealthy donors, we also find reduced savings by (future) recipients of taxable estates. Because the estate tax reforms lead to higher after-tax bequests and given that wealthy households provide higher inter-vivos transfers, the children and grandchildren of the wealthy face important positive lifetime income effects. As a result, they work less, consume more, and accumulate less own wealth when young.

The weak relationship between the estate tax and aggregate pre-tax bequests and wealth is robust to the assumptions made with respect to the tax treatment of inter-vivos transfers. Even if inter-vivos transfers are no longer taxed, the aggregate stocks of pre-tax wealth and capital remain relatively insensitive to (considerably) lower estate taxation.

Whereas the aggregate effects on labor, pre-tax bequests, wealth and capital, and per capita economic growth and output are all small, we find that the U.S. federal estate tax reforms since 1980 have also contributed considerably to rising after-tax wealth inequality and concentration, and somewhat to the secular decline in the equilibrium real interest rate. According to our simulations, the top 10% and top 1% after-tax net household wealth shares are around 6%-points and 5%-points higher in the baseline compared to our counterfactual simulations where all estate tax parameters remain constant at their 1977-79 levels. The yearly equilibrium real interest rate (net real rate of return to private physical capital) is between 0.11 and 0.19%-points lower in the baseline than in the counterfactuals in the long run.

Given the weak effects on aggregate pre-tax bequests, we also find that the foregone estate tax revenues from the combination of estate tax reforms (tax cuts) since 1980 are large, and amount to 1.15% of GDP in the long run. Together with the considerable decline in estate tax rates over time, the combination of the following factors explains why we find such large foregone revenues: the projected increase in the wealth-to-GDP ratio, the projected rise in wealth inequality and concentration (leading to an increase in the overall level of taxable estates relative to GDP), and the projected increase in inter-vivos transfers (which are included in the taxable estate since 1980 in our simulations).

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On the macroeconomic and distributional effects of federal estate tax reforms in the United States

APPENDIX (A to O)

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Appendix A. Permutation matrix of earnings capacity T

We take the lifecycle profile of earnings capacities from Altig et al. (2001). Les us denote by $s = 2, \ldots, 5$ the active periods of a household. Let us denote by $h_{s,i}$ the effective earnings capacity of household i in period of life s. There are twelve distinct levels of earnings capacity. The first and final group represent the bottom 2% and top 2% of earners respectively. Group two and eleven both represent the remaining 8% of the top and bottom decile respectively and the eight groups in between all constitute 10% of the population.

In our simulations, in every historical period t exactly 100 new households are born, 50 of them will become workers, indexed by $i = 1, \ldots, 50$, and 50 of them will become entrepreneurs, also indexed by $i = 1, \ldots, 50$. The index i denotes the rank of a (newborn) household in the earnings capacity distribution and is therefore informative about the earnings capacity of household i. The size of a cohort born in historical period t is N_1^t, see Section 4.1 of the main text. The total weight of the 50 newborn workers in the total cohort size N_1^t is 91%. The total weight of the 50 entrepreneurs is 9%. Each index value for i represents 2 per cent of the earnings capacity distribution. Each worker i thus represents 1.82% of the cohort, whereas each entrepreneur i has a weight of 0.18% in the cohort.

The households (workers and entrepreneurs) with earnings capacity index $i = 1$ represent the top 2 per cent of earnings capacity. Households $i = 2, \ldots, 5$ represent the remainder of the top 10 per cent and they all have the same earnings capacity. Households $i = 6, \ldots, 10$ are endowed with the third highest level of earnings capacity, and so on. Households (workers and entrepreneurs) $i = 50$ has the lowest level of earnings capacity and represents the bottom 2 per cent of the earnings capacity distribution. In this way, the distribution of $h_{s,i}$ is consistent with Altig et al. (2001). The distribution of earnings capacities in the first active period of life, i.e., $h_{2,i}$, is shown in Table A1.[69]

Table A1: The distribution of earnings capacities in period of life $s = 2$.

household i =	earnings level	earnings level
1	21,60	TOP 10
2 to 5	10,17	
6 to 10	7,34	High
11 to 15	6,15	
15 to 20	5,33	
21 to 25	4,57	Medium
26 to 30	3,98	
31 to 35	3,38	
36 to 40	2,83	Bottom
41 to 45	2,21	
46 to 49	1,49	
50	1,00	

[69] These values correspond with the values shown in Figure 5 in Section 4.3 of the main text, for the age category 20-29.

Let us denote by j the index of the earnings capacity of the parents of household i. $h_{s,j}$ then denotes the earnings capacity of the parents' j in their respective period of life $s = 2, \dots, 5$. The distributions of $h_{s,i}$ and $h_{s,j}$ are equal.

Before allocating children i to parents j, we first construct broader categories of households based on earnings capacity. The first group consists of the top 10 per cent of households in terms of earnings capacity i, i.e., $i = 1, \dots, 5$. We then further subdivide the bottom 90 per cent of households into three equally large groups of 30 per cent each, i.e., $i = 6, \dots, 20$, $i = 21, \dots, 35$, and $i = 36, \dots, 50$. Before allocating each newborn household i to one of the parents j, we first determine the underlying transition probabilities related to the different groups of households, which we summarize in the following probability matrix:

		Parents j				
		j = 1 to 5	**j = 6 to 20**	**j = 21 to 35**	**j = 36 to 50**	
Children i	**i = 1 to 5**	2	2	1	0	5
	i = 6 to 20	2	7	4	2	15
	i = 21 to 35	1	4	6	4	15
	i = 36 to 50	0	2	4	9	15
		5	15	15	15	

Each cell in the probability matrix indicates how many households i within each broad group (rows) are born in the corresponding group of parents j (columns). For instance, the value top left indicates that from the five parents' households j two of them will give birth to children with earnings capacity i in the same category. The probability matrix shows that the earnings capacity of the children positively depends on the parents' earnings capacity, on average. The higher the earnings capacity of the parents j, the higher the probability of giving birth to children with relatively high earnings capacity. The matrix also shows that the earnings mobility at the top and at the bottom of the distribution is somewhat lower than in the middle of the distribution, as in reality. These probabilities generate a stable distribution of earnings capacities (at the start of the career) and a correlation between the parents' and children's log family income of 0.60 for children who enter the labor market in 1980-94, consistent with the empirical findings of Solon (1992), see Section 4.3 of the main text.

The above probability matrix indicates the probabilities with respect to the transmission of earnings capacity, but not *which* household i will be allocated to *which* parents' household j. The permutation matrix T below shows the combination of parents and children that we have drawn from the probability matrix presented earlier. The permutation matrix T is consistent with the probability matrix described earlier. The number of ones in each block of matrix T corresponds with the numbers shown in the above probability matrix. The permutation matrix T is constant over time.

The permutation matrix T:

		Parents j																																																	
		Top 10					High															Medium															Bottom														
Children i		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Top 10	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
High	6	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	14	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	19	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Medium	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	23	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	24	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	30	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bottom	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	40	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The permutation matrix not only governs the transmission of earnings capacity from parents to children, it also determines the flow of inter-vivos transfers and bequests from parents to children. For instance, household $i = 30$ is born in the parents' household $j = 8$ and the former will thus receive (non-negative) inter-vivos transfers and bequests from the latter.

Another way of presenting the permutation matrix T is by showing the combinations of children i and parents j with their corresponding levels of earnings capacity.

The permutation matrix T (presentation with corresponding earnings levels) [70]

children			parents		
group	**earnings level i**	**i**	**j**	**earnings level j**	**group**
TOP 10	21,6	1	3	10,17	TOP 10
TOP 10	10,17	2	4	10,17	TOP 10
TOP 10	10,17	3	9	7,34	H
TOP 10	10,17	4	30	3,98	M
TOP 10	10,17	5	16	5,33	H
H	7,34	6	7	7,34	H
H	7,34	7	20	5,33	H
H	7,34	8	1	21,60	TOP 10
H	7,34	9	2	10,17	TOP 10
H	7,34	10	34	3,38	M
H	6,15	11	22	4,57	M
H	6,15	12	11	6,15	H
H	6,15	13	10	7,34	H
H	6,15	14	12	6,15	H
H	6,15	15	29	3,98	M
H	5,33	16	17	5,33	H
H	5,33	17	42	2,21	B
H	5,33	18	24	4,57	M
H	5,33	19	6	7,34	H
H	5,33	20	48	1,49	B
M	4,57	21	31	3,38	M
M	4,57	22	47	1,49	B
M	4,57	23	5	10,17	TOP 10
M	4,57	24	14	6,15	H
M	4,57	25	18	5,33	H
M	3,98	26	23	4,57	M
M	3,98	27	15	6,15	H
M	3,98	28	43	2,21	B
M	3,98	29	26	3,98	M
M	3,98	30	8	7,34	H
M	3,38	31	32	3,38	M
M	3,38	32	28	3,98	M
M	3,38	33	40	2,83	B
M	3,38	34	49	1,49	B
M	3,38	35	33	3,38	M
B	2,83	36	25	4,57	M
B	2,83	37	21	4,57	M
B	2,83	38	46	1,49	B
B	2,83	39	50	1,00	B
B	2,83	40	13	6,15	H
B	2,21	41	19	5,33	H
B	2,21	42	27	3,98	M
B	2,21	43	45	2,21	B
B	2,21	44	36	2,83	B
B	2,21	45	41	2,21	B
B	1,49	46	38	2,83	B
B	1,49	47	37	2,83	B
B	1,49	48	44	2,21	B
B	1,49	49	39	2,83	B
B	1	50	35	3,38	M

[70] The different earnings levels are taken from Altig et al. (2001) and were normalized to 1 for the lowest earnings capacity level $i = 50$.

The transmission of earnings capacity is exogenous: parents cannot deliberately invest in their children's earnings capacity. Earnings capacity captures both nature and nurture and we do not attempt to disentangle the two. We keep the permutation matrix T constant over time to avoid exogenous variation in the flow of transfers and bequests from parents to children. Both in our baseline simulation and in the different counterfactuals we apply the same permutation matrix. As a robustness check, we have experimented with alternative permutation matrices (consistent with the same probability matrix), as well as alternative permutation matrices drawn from an alternative probability matrix. The exact earnings transmission process does not affect our results.

Appendix B. Progressive public pension system

As explained in Section 4.6.3 of the main text, $\bar{p}_t$ denotes the average net public pension replacement rate in historical period t, whose evolution we show in Table 2 of the main text. The public pension system is progressive. Let us denote by p_{t+4,i,m_j} the effective replacement rate of household i born in period t in their respective retirement period $t+4$. We calculate p_{t+4,i,m_j} as follows:

$$p_{t+4,i,m_j} = \bar{p}_{t+4}\left(\frac{\sum_{s=2}^{5} ninc_{s,i,m_j}^{t}}{\overline{ninc}^{t}}\right)^{\varrho}$$

where $\sum_{s=2}^{5} ninc_{s,i,m_j}^{t}$ are career-long labor earnings of household i born in period t and $\overline{ninc}^{t}$ is the average total labor earnings over the same periods of the cohort that was born in the same historical period t. The negative parameter $-1 < \varrho < 0$ indicates that the public pension system is progressive. If average labor income over the entire career exceeds the respective cohort average, the effective net replacement rate will be below the average replacement rate $\bar{p}_{t+4}$. We calculate the progressivity parameter of the pension system from the OECD's Pensions at a Glance 2011 to 2019 and obtain $\varrho = -0.443$. We also set an upper bound to the yearly pension payments equal to per capita GDP, as in reality today. The progressivity of the public pension system is one of the explanations why savings rates increase with (lifetime) income, see Huggett (1996).

Appendix C. Leisure in the fifth model period and the endogenous retirement decision

To allow for an endogenous retirement decision, we model l^t_{5,i,m_j} as a CES composite of the leisure time enjoyed prior to retirement, $R^t_{5,i,m_j}\left(1-\tilde{n}^t_{5,i,m_j}\right)$, and after retirement, $\left(1-R^t_{5,i,m_j}\right)$, as in Buyse et al. (2017):[71]

$$l^t_{5,i,m_j} = \Gamma\left[\mu\left(R^t_{5,i,m_j}\left(1-\tilde{n}^t_{5,i,m_j}\right)\right)^{1-\frac{1}{\zeta}} + (1-\mu)\left(1-R^t_{5,i,m_j}\right)^{1-\frac{1}{\zeta}}\right]^{\frac{\zeta-1}{\zeta}}$$

Therein, the choice variable R^t_{5,i,m_j} indicates the fraction of period $s=5$ that the household is still on the labor market, and $\tilde{n}^t_{5,i,m_j}$ is labor supplied within this fraction R^t_{5,i,m_j}. We set μ, the relative weight of the two types of leisure during period five, equal to 0.5. In this way, the leisure time enjoyed prior to retirement $R^t_{5,i,m_j}\left(1-\tilde{n}^t_{5,i,m_j}\right)$ and the leisure time into retirement $1-R^t_{5,i,m_j}$ contribute in the same way to utilty. The scaling factor Γ is then set equal to 2. This guarantees that total leisure time in the fifth period l^t_{5,i,m_j} contributes in the same way to utility as leisure time in other model periods, see Section 4.7.2 of the main text. We impose a value of 4 for the elasticity of substitution between the two types of leisure, ζ. This high elasticity is required to match the considerable decline in the effective retirement age observed in the United States in the second half of the 20th century, see Figure 11 in Section 5.2.2 of the main text.

[71] If l^t_{5,i,m_j} were linear in the two types of leisure, then both R^t_{5,i,m_j} and $\tilde{n}^t_{5,i,m_j}$ would be undetermined.

Appendix D. The intergenerational transmission of wealth via W^t_{s,i,m_j}

As defined in Section 4.8.3 of the main text, W^t_{s,i,m_j} in periods $s = 2, 3, 4, 5$ represents the wealth received by household i born in period t from the parents' household j. In this paragraph we will link W^t_{s,i,m_j} to the decision variables of the parents j. As explained before, $m_j \in \{4,5,6\}$ indicates whether the parent's household j passes away after their respective fourth, fifth or sixth period of life $s_j = s + 2$. The index m_j is therefore informative about the path of wealth received from household j over the lifecycle of household i, and is therefore a characterizing index of household i.

In $s = 2$ of household i the parents j are still alive, as $s_j = 4$. Therefore, we may drop the subscript m_j in $W^t_{2,i}$, as shown on the right-hand-side of the second budget Equation (14b) in Section 4.8.3 of the main text. During the second period of life $s = 2$, household i receives a non-negative inter-vivos transfer from their parents, with certainty:

$$W^t_{2,i} = Z^{t-2}_{4,j}$$

Therein, $Z^{t-2}_{4,j}$ is the inter-vivos transfer per adult equivalent provided by household j during period of life $s_j = 4$, see Sections 4.7.3 and 4.8.3 of the main text.

At the end of the fourth period of life $s_j = 4$, the parents j face a positive mortality rate $1 - \pi^{t-2}_5$. As a result, a fraction $1 - \pi^{t-2}_5$ of households i will no longer receive an inter-vivos transfer during model period $s = 3$, but a bequest. These households i will from then on carry the index $m_j = 4$. The bequest equals the invested after estate tax stock of wealth of the parents' household j from the end of their respective model period $s_j = 4$, with the bequest being divided equally between the siblings of household i. The total after estate tax bequest at the end of the parents' previous period $s_j = 4$ is given by $B^{t-2}_{4,j} = \left(1 - \bar{\tau}^{t-2}_{b,4,j}\right)\Omega^{t-2}_{4,j}$, with $\bar{\tau}^{t-2}_{b,4,j}$ the effective average estate tax rate paid on the bequests left by household j at the end of $s_j = 4$. The remaining fraction π^{t-2}_5 of households i, indexed by $m_j \neq 4$, see their parents survive and will again receive a non-negative inter-vivos transfer during model period $s = 3$. The wealth received by household i during model period $s = 3$, i.e., W^t_{3,i,m_j}, in the two states regarding the parents' mortality is:

$$W^t_{3,i,m_j} = \begin{cases} \dfrac{(1 + r^n_{t+2})\, B^{t-2}_{4,j}}{(1 + n_t)(1 + n_{t-1})} & if\ m_j = 4 \\ Z^{t-2}_{5,j} & else \end{cases}$$

In the fourth period of life $s = 4$, the fraction $1 - \pi^{t-2}_5$ of households i will no longer receive anything from the parents since these households i have already received a bequest. Of those parents who have just survived into their respective fifth period of life $s_j = 5$, a fraction $1 - \pi^{t-2}_6/\pi^{t-2}_5$ passes away before the start of their sixth period of life $s_j = 6$. The same fraction $1 - \pi^{t-2}_6/\pi^{t-2}_5$ of households i, indexed by $m_j = 5$, will therefore receive the invested after estate tax stock of wealth of the parents' household j from the end of their respective model period 5, with the bequest being divided equally between the siblings of household i and with

$B_{5,j}^{t-2} = \left(1 - \bar{\tau}_{b,5,j}^{t-2}\right)\Omega_{5,j}^{t-2}$. These household i will therefore no longer receive an inter-vivos transfer. The remaining fraction π_6^{t-2}/π_5^{t-2} of households i in period $s = 4$, indexed by $m_j = 6$, see their parents survive and will again receive a non-negative inter-vivos transfer during period $s = 4$. Formally:

$$W_{4,i,m_j}^{t} = \begin{cases} 0 & if\ m_j = 4 \\ \dfrac{(1 + r_{t+3}^{n})\, B_{5,j}^{t-2}}{(1 + n_t)(1 + n_{t-1})} & if\ m_j = 5 \\ Z_{6,j}^{t-2} & if\ m_j = 6 \end{cases}$$

Right before the start of household i's fifth period of life, $s = 5$, the remaining fraction of parents' households j also passes away, as they have now reached their maximum age of ninety. These households i, indexed by $m_j = 6$, will now receive the invested after estate tax stock of wealth of the parents' household j from the end of their respective model period 6, i.e., $B_{6,j}^{t-2} = \left(1 - \bar{\tau}_{b,6,i}^{t-2}\right)\Omega_{6,j}^{t-2}$. All other households i no longer receive anything since their parents have already passed away long before. Formally:

$$W_{5,i,m_j}^{t} = \begin{cases} 0 & if\ m_j = 4 \\ 0 & if\ m_j = 5 \\ \dfrac{(1 + r_{t+4}^{n})\, B_{6,j}^{t-2}}{(1 + n_t)(1 + n_{t-1})} & if\ m_j = 6 \end{cases}$$

Appendix E. The derivation of optimal consumption over the lifecycle

The optimality conditions for consumption per adult equivalent during model periods $s = 2,3$ take the form of standard (expected) Euler equations, see Equations (15a) to (15c) in Section 4.9.1 of the main text.

From the fourth model period onwards, household i faces own mortality risk and will derive utility from the stock of after-tax bequests $B^t_{s,i,m_j} = \left(1 - \bar{\tau}^t_{b,s,i,m_j}\right) \Omega^t_{s,i,m_j}$ at the time of death, at $s = 4$, $s = 5$ or $s = 6$. From model period $s = 4$ onwards, optimality therefore requires that the marginal utility of consuming one dollar today must be equal to the expected marginal utility of saving one dollar, knowing that this dollar will turn into a bequest in the event of death. By taking *the total derivative of* U^t_i *with respect to* c^t_{4,i,m_j} (see Equation 15 of the main text) subject to the budget constraints in the fourth and fifth period of life, i.e., Equations (14d) and (14e) of the main text:

$$\frac{dU^t_i}{dc^t_{4,i,m_j}} = 0$$

$\Leftrightarrow$

$$\frac{\partial U^t_{4,i,m_j}}{\partial c^t_{4,i,m_j}} + \pi^t_5 \beta \frac{\partial U^t_{5,i,m_j}}{\partial c^t_{5,i,m_j}} \frac{\partial c^t_{5,i,m_j}}{\partial \Omega^t_{4,i,m_j}} \frac{\partial \Omega^t_{4,i,m_j}}{\partial c^t_{4,i,m_j}} + (1 - \pi^t_5) \frac{\partial \Phi^t_{4,i,m_j}}{\partial B^t_{4,i,m_j}} \frac{\partial B^t_{4,i,m_j}}{\partial \Omega^t_{4,i,m_j}} \frac{\partial \Omega^t_{4,i,m_j}}{\partial c^t_{4,i,m_j}} = 0$$

$\Leftrightarrow$

$${c^t_{4,i,m_j}}^{-\rho} - \pi^t_5 \beta {c^t_{5,i,m_j}}^{-\rho} (1 + r^n_{t+4}) - (1 - \pi^t_5) b {B^t_{s,i,m_j}}^{-\omega} \left(1 - \tau^t_{b,4,i,m_j}\right) (1 + \bar{\tau}_c) = 0$$

After rearranging, we immediately obtain Equation (15d) of the main text. In the second derivation step, U^t_{4,i,m_j} and U^t_{5,i,m_j} are the instantaneous utility functions (in consumption and leisure) in periods of life $s = 4,5$, and Φ^t_{4,i,m_j} is the instantaneous utility from after-tax bequests B^t_{4,i,m_j} at the end of the fourth model period, as defined in Section 4.7.2 of the main text. The factor $1 - \tau^t_{b,4,i,m_j}$ appears after taking the derivative of B^t_{4,i,m_j} with respect to Ω^t_{4,i,m_j}. We thereby start from $B^t_{4,i,m_j} = \left(1 - \bar{\tau}^t_{b,4,i,m_j}\right) \Omega^t_{4,i,m_j}$ and knowing that $\bar{\tau}^t_{b,4,i,m_j}$ is also a direct function of Ω^t_{4,i,m_j}, see Equation (6) of the main text:

$$B^t_{4,i,m_j} = \left(1 - \bar{\tau}^t_{b,4,i,m_j}\right) \Omega^t_{4,i,m_j}$$

Using Equation (6) for $s = 4$ of the main text, namely:

$$\bar{\tau}^t_{b,4,i,m_j} = \frac{1}{\Omega^t_{4,i,m_j}/2} \sum_{q=1}^{\bar{q}_t} \left[\tau_{q,t+3} - \tau_{q-1,t+3}\right] * max\left\{0, \left[\breve{\Omega}^t_{4,i,m_j}/2 - BR_{q,t+3}\right]\right\}$$

we can write B^t_{4,i,m_j} as a function of Ω^t_{4,i,m_j} and parameters only:

$$B_{4,i,m_j}^{t}=\left(1-\frac{1}{\Omega_{4,i,m_j}^{t}/2}\sum_{q=1}^{\bar{q}_t}\left[\tau_{q,t+3}-\tau_{q-1,t+3}\right]*max\left\{0,\left[\breve{\Omega}_{4,i,m_j}^{t}/2-BR_{q,t+3}\right]\right\}\right)\Omega_{4,i,m_j}^{t}$$

Which we can simplify to:

$$B_{4,i,m_j}^{t}=\Omega_{4,i,m_j}^{t}-2\sum_{q=1}^{\bar{q}_t}\left[\tau_{q,t+3}-\tau_{q-1,t+3}\right]*max\left\{0,\left[\breve{\Omega}_{4,i,m_j}^{t}/2-BR_{q,t+3}\right]\right\}$$

Therein, $\sum_{q=1}^{\bar{q}_t}\left[\tau_{q,t+3}-\tau_{q-1,t+3}\right]*max\left\{0,\left[\breve{\Omega}_{4,i,m_j}^{t}/2-BR_{q,t+3}\right]\right\}$ are the total estate taxes due per spouse of household i at the end of the fourth model period. This amount is then multiplied by a factor two. The second term on the right-hand-side reflects the household i's total estate taxes due at the end of the fourth model period, i.e., the difference between pre-tax bequests Ω_{4,i,m_j}^{t} and after-tax bequests B_{4,i,m_j}^{t} at the household level.

Given that the derivative of $\breve{\Omega}_{4,i,m_j}^{t}$ with respect to Ω_{4,i,m_j}^{t} is equal to 1, see Equation (5) of the main text, the derivative of B_{4,i,m_j}^{t} with respect to Ω_{4,i,m_j}^{t} becomes:[72]

$$\frac{\partial B_{4,i,m_j}^{t}}{\partial \Omega_{4,i,m_j}^{t}}=\frac{\partial\left[\Omega_{4,i,m_j}^{t}-2\sum_{q=1}^{\bar{q}_t}\left[\tau_{q,t+3}-\tau_{q-1,t+3}\right]*max\left\{0,\left[\breve{\Omega}_{4,i,m_j}^{t}/2-BR_{q,t+3}\right]\right\}\right]}{\partial \Omega_{4,i,m_j}^{t}}$$

$\Leftrightarrow$

$$\frac{\partial B_{4,i,m_j}^{t}}{\partial \Omega_{4,i,m_j}^{t}}=1-\tau_{b,4,i,m_j}^{t}$$

[72] Note that the effective marginal tax rate of a household, given by Equation (7) of the main text, is a piecewise linear function of $\breve{\Omega}_{s,i,m_j}^{t}$, and the derivative of B_{s,i,m_j}^{t} with respect to Ω_{s,i,m_j}^{t} is undetermined at the different brackets $BR_{q,t}$ for $q=1,\ldots,\bar{q}$. We therefore linearize the effective marginal estate tax around $BR_{q,t}$ by interpolation. For each household with a $\breve{\Omega}_{s,i,m_j}^{t}$ below but relatively close to $BR_{q,t}$ we construct an interval around $BR_{q,t}$. We then calculate the effective marginal estate tax rate τ_{b,s,i,m_j}^{t} as the change in total estate taxes due over that interval divided by the length of the interval. The effective marginal estate tax rate of a household with a $\breve{\Omega}_{s,i,m_j}^{t}$ below but relatively close to $BR_{q,t}$ are then a linear combination of $\tau_{q-1,t}$ and $\tau_{q,t}$.

Likewise, we can obtain optimal fifth period consumption per adult equivalent of household i, i.e. c_{5,i,m_j}^t, by taking *the total derivative of* U_i^t *with respect to* c_{5,i,m_j}^t subject to the budget constraints in the fifth and sixth period of life, Equations (14e) and (14f) of the main text:

$$\frac{dU_i^t}{dc_{5,i,m_j}^t} = 0$$

⇔

$$\frac{\partial U_{5,i,m_j}^t}{\partial c_{5,i,m_j}^t} + \frac{\pi_6^t}{\pi_5^t}\beta\frac{\partial U_{6,i,m_j}^t}{\partial c_{6,i,m_j}^t}\frac{\partial c_{6,i,m_j}^t}{\partial \Omega_{5,i,m_j}^t}\frac{\partial \Omega_{5,i,m_j}^t}{\partial c_{5,i,m_j}^t} + \left(1-\frac{\pi_6^t}{\pi_5^t}\right)\frac{\partial \Phi_{5,i,m_j}^t}{\partial B_{5,i,m_j}^t}\frac{\partial B_{5,i,m_j}^t}{\partial \Omega_{5,i,m_j}^t}\frac{\partial \Omega_{5,i,m_j}^t}{\partial c_{5,i,m_j}^t} = 0$$

⇔

$$c_{5,i,m_j}^t{}^{-\rho} - \frac{\pi_6^t}{\pi_5^t}\beta c_{6,i,m_j}^t{}^{-\rho}(1+r_{t+5}^n) - \left(1-\frac{\pi_6^t}{\pi_5^t}\right)bB_{5,i,m_j}^t{}^{-\omega}\left(1-\tau_{b,5,i,m_j}^t\right)(1+\bar{\tau}_c) = 0$$

After rearranging, we immediately obtain Equation (15e) of the main text. In the second step, U_{5,i,m_j}^t and U_{6,i,m_j}^t are the instantaneous utility functions (in consumption and leisure) in periods of life $s = 5,6$ respectively, and Φ_{5,i,m_j}^t is the instantaneous utility from after-tax bequests B_{5,i,m_j}^t at the end of the fifth model period, as defined in Section 4.7.2 of the main text. As in period of life $s = 4$, the factor $1-\tau_{b,5,i,m_j}^t$ appears after taking the derivative of B_{5,i,m_j}^t with respect to Ω_{5,i,m_j}^t, and substituting Equation (6) for $s = 5$ of the main text:

$$\bar{\tau}_{b,5,i,m_j}^t = \frac{1}{\Omega_{5,i,m_j}^t/2}\sum_{q=1}^{\bar{q}_t}\left[\tau_{q,t+4} - \tau_{q-1,t+4}\right] * max\left\{0, \left[\breve{\Omega}_{5,i,m_j}^t/2 - BR_{q,t+4}\right]\right\}$$

Such that we can write B_{5,i,m_j}^t as a function of Ω_{5,i,m_j}^t and parameters only, after simplifying:

$$B_{5,i,m_j}^t = \Omega_{5,i,m_j}^t - 2\sum_{q=1}^{\bar{q}_t}\left[\tau_{q,t+4} - \tau_{q-1,t+4}\right] * max\left\{0, \left[\breve{\Omega}_{5,i,m_j}^t/2 - BR_{q,t+4}\right]\right\}$$

The factor $1-\tau_{b,5,i,m_j}^t$ is simply the derivative of B_{5,i,m_j}^t with respect to Ω_{5,i,m_j}^t:[73]

$$\frac{\partial B_{5,i,m_j}^t}{\partial \Omega_{5,i,m_j}^t} = \frac{\partial\left[\Omega_{5,i,m_j}^t - 2\sum_{q=1}^{\bar{q}_t}\left[\tau_{q,t+4} - \tau_{q-1,t+4}\right] * max\left\{0, \left[\breve{\Omega}_{5,i,m_j}^t/2 - BR_{q,t+4}\right]\right\}\right]}{\partial \Omega_{5,i,m_j}^t}$$

⇔

$$\frac{\partial B_{5,i,m_j}^t}{\partial \Omega_{5,i,m_j}^t} = 1 - \tau_{b,5,i,m_j}^t$$

[73] See footnote 4.

Likewise, we can obtain optimal sixth period consumption per adult equivalent of household i by taking *the total derivative of* U_i^t *with respect to* c_{6,i,m_j}^t subject to the budget constraint in the sixth period of life, Equation (14f) of the main text:

$$\frac{dU_i^t}{dc_{6,i,m_j}^t} = 0$$

⇔

$$\frac{\partial U_{6,i,m_j}^t}{\partial c_{6,i,m_j}^t} + \frac{\partial \Phi_{6,i,m_j}^t}{\partial B_{6,i,m_j}^t} \frac{\partial B_{6,i,m_j}^t}{\partial \Omega_{6,i,m_j}^t} \frac{\partial \Omega_{6,i,m_j}^t}{\partial c_{6,i,m_j}^t} = 0$$

⇔

$${c_{6,i,m_j}^t}^{-\rho} - b{B_{6,i,m_j}^t}^{-\omega} \left(1 - \tau_{b,6,i,m_j}^t\right) (1 + \bar{\tau}_c) = 0$$

After rearranging, we immediately obtain Equation (15f) of the main text. This equation is like the optimality conditions during model periods $s = 4{,}5$, albeit with a mortality rate equal to one and a survival rate equal to zero. U_{6,i,m_j}^t is the instantaneous utility function (in consumption and leisure) in period of life $s = 6$, and Φ_{6,i,m_j}^t is the instantaneous utility from after-tax bequests B_{6,i,m_j}^t at the end of the sixth model period, as defined in Section 4.7.2 of the main text.

The factor $1 - \tau_{b,6,i,m_j}^t$ appears when taking the derivative of B_{6,i,m_j}^t with respect to Ω_{6,i,m_j}^t, after having substituted Equation (6) for $s = 6$ of the main text.

$$\bar{\tau}_{b,6,i,m_j}^t = \frac{1}{\Omega_{6,i,m_j}^t/2} \sum_{q=1}^{\bar{q}_t} \left[\tau_{q,t+5} - \tau_{q-1,t+5}\right] * max\left\{0, \left[\breve{\Omega}_{6,i,m_j}^t/2 - BR_{q,t+5}\right]\right\}$$

Such that we can write B_{6,i,m_j}^t as a function of Ω_{6,i,m_j}^t and parameters only, after simplifying:

$$B_{6,i,m_j}^t = \Omega_{6,i,m_j}^t - 2 \sum_{q=1}^{\bar{q}_t} \left[\tau_{q,t+5} - \tau_{q-1,t+5}\right] * max\left\{0, \left[\breve{\Omega}_{6,i,m_j}^t/2 - BR_{q,t+5}\right]\right\}$$

The factor $1 - \tau_{b,6,i,m_j}^t$ is simply the derivative of B_{6,i,m_j}^t with respect to Ω_{6,i,m_j}^t:[74]

$$\frac{\partial B_{6,i,m_j}^t}{\partial \Omega_{6,i,m_j}^t} = \frac{\partial \left[\Omega_{6,i,m_j}^t - 2 \sum_{q=1}^{\bar{q}_t} \left[\tau_{q,t+5} - \tau_{q-1,t+5}\right] * max\left\{0, \left[\breve{\Omega}_{6,i,m_j}^t/2 - BR_{q,t+5}\right]\right\}\right]}{\partial \Omega_{6,i,m_j}^t}$$

⇔

$$\frac{\partial B_{6,i,m_j}^t}{\partial \Omega_{6,i,m_j}^t} = 1 - \tau_{b,6,i,m_j}^t$$

[74] See footnote 4.

Appendix F. The derivation of optimal inter-vivos transfers

From the fourth model period onwards, household i starts to behave altruistically towards the children k. The *optimal inter-vivos transfer of household* i *in the fourth model period,* Z_{4,i,m_j}^t, is the one that equates the marginal utility of own consumption per adult equivalent in period $s = 4$, c_{4,i,m_j}^t, with the marginal utility of the children's consumption per adult equivalent c_{2,k,m_i}^{t+2} in their respective period $s_k = 2$, evaluated through $U_{4,i,m_j}^t\left(c_{2,k,m_i}^{t+2}\right)$:

$$\frac{dU_i^t}{dZ_{4,i,m_j}^t} = 0$$

⇔

$$\frac{\partial U_{4,i,m_j}^t}{\partial c_{4,i,m_j}^t}\frac{\partial c_{4,i,m_j}^t}{\partial Z_{4,i,m_j}^t} + \frac{\partial U_{4,i,m_j}^t}{\partial c_{2,k,m_i}^{t+2}}\frac{dc_{2,k,m_i}^{t+2}}{dZ_{4,i,m_j}^t} = 0$$

⇔

$${c_{4,i,m_j}^t}^{-\rho}\frac{-N_1^{t+2}}{N_3^t(1+\bar{\tau}_c)} + z{c_{2,k,m_i}^{t+2}}^{-\rho}\frac{dc_{2,k,m_i}^{t+2}}{dZ_{4,i,m_j}^t} = 0$$

After rearranging:

$$c_{2,k,m_i}^{t+2} = \left[z\frac{dc_{2,k,m_i}^{t+2}}{dZ_{4,i,m_j}^t}\frac{N_3^t(1+\bar{\tau}_c)}{N_1^{t+2}}\right]^{1/\rho} c_{4,i,m_j}^t$$

We derive $dc_{2,k,m_i}^{t+2}/dZ_{4,i,m_j}^t$ below.

Using the second budget constraint of the children, we can substitute c_{2,k,m_i}^{t+2}:

$$\frac{ninc_{2,k,m_i}^{t+2} + W_{2,k,m_i}^{t+2} - \Omega_{2,k,m_i}^{t+2}}{(1+\bar{\tau}_c)} = \left[z\frac{dc_{2,k,m_i}^{t+2}}{dZ_{4,i,m_j}^t}\frac{N_3^t(1+\bar{\tau}_c)}{N_1^{t+2}}\right]^{1/\rho} c_{4,i,m_j}^t$$

Therein, $W_{2,k,m_i}^{t+2} = Z_{4,i,m_j}^t$, see Appendix D, such that the first-order condition for Z_{4,i,m_j}^t becomes:

$$\frac{Z_{4,i,m_j}^t}{(1+\bar{\tau}_c)} = \left[z\frac{dc_{2,k,m_i}^{t+2}}{dZ_{4,i,m_j}^t}\frac{N_3^t(1+\bar{\tau}_c)}{N_1^{t+2}}\right]^{1/\rho} c_{4,i,m_j}^t - \frac{ninc_{2,k,m_i}^{t+2} - \Omega_{2,k,m_i}^{t+2}}{(1+\bar{\tau}_c)}$$

We now further derive $dc_{2,k,m_i}^{t+2}/dZ_{4,i,m_j}^t$, which consists of different parts. First, there is the direct positive effect of Z_{4,i,m_j}^t on c_{2,k,m_i}^{t+2} via W_{2,k,m_i}^{t+2} in the second budget equation of the children. Second, if Z_{4,i,m_j}^t exceeds the current allowance for inter-vivos transfers, see Section 4.6.2 of the main text, each additional dollar of Z_{4,i,m_j}^t will increase the future taxable estate of household i, $\breve{\Omega}^t_{s,i,m_j}$, see Equation (5) of the main text. This in turn pushes up the effective average estate tax $\bar{\tau}^t_{b,s,i,m_j}$ of household i, see Equation (6), and hence reduces the after-tax bequests B^t_{s,i,m_j} left to the children k. Since households are rational and forward looking, they will take into account both the direct positive effect of Z^t_{4,i,m_j} on c^{t+2}_{2,k,m_i} as well as the indirect negative effect of Z^t_{4,i,m_j} on c^{t+2}_{2,k,m_i} via the lower expected future stock of bequest. The total derivative of c^{t+2}_{2,k,m_i} with respect to Z^t_{4,i,m_j} therefore becomes:

$$\begin{aligned}\frac{dc^{t+2}_{2,k,m_i}}{dZ^t_{4,i,m_j}} = & \frac{\partial c^{t+2}_{2,k,m_i}}{\partial Z^t_{4,i,m_j}} \\ & + \frac{\partial c^{t+2}_{2,k,m_i}}{\partial W^{t+2}_{3,k,4}} \frac{\partial W^{t+2}_{3,k,4}}{\partial B^t_{4,i,m_j}} \frac{dB^t_{4,i,m_j}}{d\breve{\Omega}^t_{4,i,m_j}} \frac{\partial \breve{\Omega}^t_{4,i,m_j}}{\partial Z^t_{4,i,m_j}} \\ & + \frac{\partial c^{t+2}_{2,k,m_i}}{\partial W^{t+2}_{4,k,5}} \frac{\partial W^{t+2}_{4,k,5}}{\partial B^t_{5,i,m_j}} \frac{dB^t_{5,i,m_j}}{d\breve{\Omega}^t_{5,i,m_j}} \frac{\partial \breve{\Omega}^t_{5,i,m_j}}{\partial Z^t_{4,i,m_j}} \\ & + \frac{\partial c^{t+2}_{2,k,m_i}}{\partial W^{t+2}_{5,k,6}} \frac{\partial W^{t+2}_{5,k,6}}{\partial B^t_{6,i,m_j}} \frac{dB^t_{6,i,m_j}}{d\breve{\Omega}^t_{6,i,m_j}} \frac{\partial \breve{\Omega}^t_{6,i,m_j}}{\partial Z^t_{4,i,m_j}}\end{aligned}$$

The final three terms on the right-hand-side capture the present value of the expected utility loss of increasing Z^t_{4,i,m_j} with one dollar, caused by the lower after-tax bequests received by the children k. Therein, $\partial c^{t+2}_{2,k,m_i}/\partial W^{t+2}_{3,k,4}$, $\partial c^{t+2}_{2,k,m_i}/\partial W^{t+2}_{4,k,5}$ and $\partial c^{t+2}_{2,k,m_i}/\partial W^{t+2}_{5,k,6}$ capture the income effects on c^{t+2}_{2,k,m_i} via $W^{t+2}_{s_k,k,m_i}$ in case household i passes away at the end of their fourth ($s = 4$), fifth ($s = 5$) or sixth ($s = 6$) model period respectively. The probabilities associated with these three mutually exclusive events are given by $1 - \pi^t_5$, $\pi^t_5 - \pi^t_6$ and π^t_6 respectively. Using the budget constraints of the children k, the equations for $W^{t+2}_{s_k,i,m_i}$ for $s_k = 3,4,5$ (see Appendix D), the equations for B^t_{s,i,m_j} for $s = 4,5,6$, and Equations (5) and (6) of the main text gives:

$\frac{\partial c^{t+2}_{2,k,m_i}}{\partial Z^t_{4,i,m_j}} = \frac{1}{(1+\bar{\tau}_c)}$, using (14b) for the children k;

$\frac{\partial c^{t+2}_{2,k,m_i}}{\partial W^{t+2}_{3,k,4}} = \frac{1-\pi^t_5}{(1+\bar{\tau}_c)(1+r^n_{t+4})}$, using (14b) and (14c) for the children k;

$\frac{\partial c^{t+2}_{2,k,m_i}}{\partial W^{t+2}_{4,k,5}} = \frac{\pi^t_5-\pi^t_6}{(1+\bar{\tau}_c)(1+r^n_{t+4})(1+r^n_{t+5})}$, using (14b) to (14d) for the children k;

$\frac{\partial c^{t+2}_{2,k,m_i}}{\partial W^{t+2}_{5,k,6}} = \frac{\pi^t_6}{(1+\bar{\tau}_c)(1+r^n_{t+4})(1+r^n_{t+5})(1+r^n_{t+6})}$, using (14b) to (14e) for the children k;

$\frac{\partial W^{t+2}_{3,k,4}}{\partial B^t_{4,i,m_j}} = \frac{(1+r^n_{t+4})}{(1+n_{t+2})(1+n_{t+1})}$, see Appendix D;

$$\frac{\partial W_{4,k,5}^{t+2}}{\partial B_{5,i,m_j}^{t}} = \frac{(1+r_{t+5}^{n})}{(1+n_{t+2})(1+n_{t+1})}, \text{ see Appendix D;}$$

$$\frac{\partial W_{5,k,6}^{t+2}}{\partial B_{6,i,m_j}^{t}} = \frac{(1+r_{t+6}^{n})}{(1+n_{t+2})(1+n_{t+1})}, \text{ see Appendix D;}$$

Using $B_{s,i,m_j}^{t} = \left(1-\bar{\tau}_{b,s,i,m_j}^{t}\right)\Omega_{s,i,m_j}^{t}$ and Equation (6) of the main text, we know that:

$$\frac{dB_{s,i,m_j}^{t}}{d\breve{\Omega}_{s,i,m_j}^{t}} = \frac{\partial B_{s,i,m_j}^{t}}{\partial \bar{\tau}_{b,s,i,m_j}^{t}} \frac{\partial \bar{\tau}_{b,s,i,m_j}^{t}}{\partial \breve{\Omega}_{s,i,m_j}^{t}} = -\Omega_{s,i,m_j}^{t} \frac{\tau_{b,s,i,m_j}^{t}}{\Omega_{s,i,m_j}^{t}} = -\tau_{b,s,i,m_j}^{t}, \text{ for } s = 4,5,6.$$

Using Equation (5) of the main text, and using $\tilde{Z}_{s,i,m_j}^{t} = \frac{N_1^{t+2}}{N_3^{t}} Z_{s,i,m_j}^{t}$:

$$\frac{\partial \breve{\Omega}_{s,i,m_j}^{t}}{\partial Z_{s,i,m_j}^{t}} = IV_{t+3} \frac{N_1^{t+2}}{N_3^{t}}, \text{ for } s = 4,5,6.$$

The total derivative of c_{2,k,m_i}^{t+2} with respect to Z_{4,i,m_j}^{t} therefore becomes:

$$\frac{dc_{2,k,m_i}^{t+2}}{dZ_{4,i,m_j}^{t}} = \frac{1}{(1+\bar{\tau}_c)}\left(1 - IV_{t+3}\left[\frac{(1-\pi_5^t)}{1}\tau_{b,4,i,m_j}^{t} + \frac{(\pi_5^t-\pi_6^t)}{(1+r_{t+4}^{n})}\tau_{b,5,i,m_j}^{t} + \frac{\pi_6^t}{(1+r_{t+4}^{n})(1+r_{t+5}^{n})}\tau_{b,6,i,m_j}^{t}\right]\right)$$

Substituting this into the first-order condition for the optimal Z_{4,i,m_j}^{t} gives:

$$\frac{Z_{4,i,m_j}^{t}}{(1+\bar{\tau}_c)} = \left[z\left(1 - IV_{t+3}\left[\frac{(1-\pi_5^t)}{1}\tau_{b,4,i,m_j}^{t} + \frac{(\pi_5^t-\pi_6^t)}{(1+r_{t+4}^{n})}\tau_{b,5,i,m_j}^{t} + \frac{\pi_6^t}{(1+r_{t+4}^{n})(1+r_{t+5}^{n})}\tau_{b,6,i,m_j}^{t}\right]\right)\frac{N_3^t}{N_1^{t+2}}\right]^{1/\rho} c_{4,i,m_j}^{t} - \frac{ninc_{2,k,m_i}^{t+2} - \Omega_{2,k,m_i}^{t+2}}{(1+\bar{\tau}_c)}.$$

From 1980 onwards, $IV_{t+3} = 1$, hence taxable inter-vivos transfers will be added to the taxable estate at death. Before 1980, inter-vivos transfers are untaxed in our model ($IV_{t+3} = 0$), see Section 4.6.2 of the main text, and the first-order condition simplifies to:

$$\frac{Z_{4,i,m_j}^{t}}{(1+\bar{\tau}_c)} = \left[z\frac{N_3^t}{N_1^{t+2}}\right]^{1/\rho} c_{4,i,m_j}^{t} - \frac{ninc_{2,k,m_i}^{t+2} - \Omega_{2,k,m_i}^{t+2}}{(1+\bar{\tau}_c)}.$$

The *optimal inter-vivos transfer of household* i *in the fifth model period,* Z^t_{5,i,m_j}, is the one that equates the marginal utility of own consumption per adult equivalent c^t_{5,i,m_j}, with the marginal utility of the children's consumption per adult equivalent $c^{t+2}_{3,k,5}$ in their respective period $s_k = 3$, evaluated through $U^t_{5,i,m_j}\left(c^{t+2}_{3,k,5}\right)$:

$$\frac{dU^t_i}{dZ^t_{5,i,m_j}} = 0$$

⇔

$$\frac{\partial U^t_{5,i,m_j}}{\partial c^t_{5,i,m_j}} \frac{\partial c^t_{5,i,m_j}}{\partial Z^t_{5,i,m_j}} + \frac{\partial U^t_{5,i,m_j}}{\partial c^{t+2}_{3,k,5}} \frac{dc^{t+2}_{3,k,5}}{dZ^t_{5,i,m_j}} = 0$$

⇔

$${c^t_{5,i,m_j}}^{-\rho} \frac{-N^{t+2}_1}{N^t_3(1+\bar{\tau}_c)} + z{c^{t+2}_{3,k,5}}^{-\rho} \frac{dc^{t+2}_{3,k,5}}{dZ^t_{5,i,m_j}} = 0$$

After rearranging:

$$c^{t+2}_{3,k,5} = \left[z \frac{dc^{t+2}_{3,k,5}}{dZ^t_{5,i,m_j}} \frac{N^t_3(1+\bar{\tau}_c)}{N^{t+2}_1}\right]^{1/\rho} c^t_{5,i,m_j}$$

We derive $dc^{t+2}_{3,k,5}/dZ^t_{5,i,m_j}$ below.

Using the budget constraint of the children in model period $s_k = 3$:

$$\frac{ninc^{t+2}_{3,k,5} + (1+r^n_{t+4})\Omega^{t+2}_{2,k} + W^{t+2}_{3,k,5} - \Omega^{t+2}_{3,k,5}}{(1+\bar{\tau}_c)\left(1+eq\frac{N^{t+4}_1}{N^{t+2}_3}\right)} = \left[z \frac{dc^{t+2}_{3,k,5}}{dZ^t_{5,i,m_j}} \frac{N^t_3(1+\bar{\tau}_c)}{N^{t+2}_1}\right]^{1/\rho} c^t_{5,i,m_j}$$

Therein, $W^{t+2}_{3,k,5} = Z^t_{5,i,m_j}$, see Appendix D, such that the first-order condition for Z^t_{5,i,m_j} becomes:

$$\frac{Z^t_{5,i,m_j}}{(1+\bar{\tau}_c)\left(1+eq\frac{N^{t+4}_1}{N^{t+2}_3}\right)} = \left[z \frac{dc^{t+2}_{3,k,5}}{dZ^t_{5,i,m_j}} \frac{N^t_3(1+\bar{\tau}_c)}{N^{t+2}_1}\right]^{1/\rho} c^t_{5,i,m_j} - \frac{ninc^{t+2}_{3,k,5} + (1+r^n_{t+4})\Omega^{t+2}_{2,k} - \Omega^{t+2}_{3,k,5}}{(1+\bar{\tau}_c)\left(1+eq\frac{N^{t+4}_1}{N^{t+2}_3}\right)}$$

We will now derive $dc_{3,k,5}^{t+2}/dZ_{5,i,m_j}^t$, which also consists of different parts. Using the same reasoning as for $dc_{2,k,m_i}^{t+2}/dZ_{4,i,m_j}^t$, we obtain:

$$\frac{dc_{3,k,5}^{t+2}}{dZ_{5,i,m_j}^t} = \frac{\partial c_{3,k,5}^{t+2}}{\partial Z_{5,i,m_j}^t} + \frac{\partial c_{3,k,5}^{t+2}}{\partial W_{4,k,5}^{t+2}} \frac{\partial W_{4,k,5}^{t+2}}{\partial B_{5,i,m_j}^t} \frac{dB_{5,i,m_j}^t}{d\breve{\Omega}_{5,i,m_j}^t} \frac{\partial \breve{\Omega}_{5,i,m_j}^t}{\partial Z_{5,i,m_j}^t} + \frac{\partial c_{3,k,5}^{t+2}}{\partial W_{5,k,6}^{t+2}} \frac{\partial W_{5,k,6}^{t+2}}{\partial B_{6,i,m_j}^t} \frac{dB_{6,i,m_j}^t}{d\breve{\Omega}_{6,i,m_j}^t} \frac{\partial \breve{\Omega}_{6,i,m_j}^t}{\partial Z_{4,i,m_j}^t}$$

⇔

$$\frac{dc_{3,k,5}^{t+2}}{dZ_{5,i,m_j}^t} = \frac{1}{(1+\bar{\tau}_c)\left(1+eq\frac{N_1^{t+4}}{N_3^{t+2}}\right)}\left(1 - IV_{t+4}\left[\left(1-\frac{\pi_6^t}{\pi_5^t}\right)\tau_{b,5,i,m_j}^t + \frac{\pi_6^t/\pi_5^t}{(1+r_{t+5}^n)}\tau_{b,6,i,m_j}^t\right]\right)$$

Substituting this into the first-order condition for Z_{5,i,m_j}^t gives us, after rearranging:

$$\frac{Z_{5,i,m_j}^t}{(1+\bar{\tau}_c)} = \left[z\left(1 - IV_{t+4}\left[\left(1-\frac{\pi_6^t}{\pi_5^t}\right)\tau_{b,5,i,m_j}^t + \frac{\pi_6^t/\pi_5^t}{(1+r_{t+5}^n)}\tau_{b,6,i,m_j}^t\right]\right)\frac{N_3^t}{N_1^{t+2}}\right]^{1/\rho} \left(1+eq\frac{N_1^{t+4}}{N_3^{t+2}}\right)^{1-1/\rho} c_{5,i,m_j}^t - \frac{ninc_{3,k,5}^{t+2} + (1+r_{t+4}^n)\Omega_{2,k}^{t+2} - \Omega_{3,k,5}^{t+2}}{(1+\bar{\tau}_c)}$$

From 1980 onwards, $IV_{t+4} = 1$, and taxable inter-vivos transfers will be added to the taxable estate at death. Before 1980, inter-vivos transfers are untaxed in our model ($IV_{t+4} = 0$), see Section 4.6.2 of the main text, and the first-order condition simplifies to:

$$\frac{Z_{5,i,m_j}^t}{(1+\bar{\tau}_c)} = \left[z\frac{N_3^t}{N_1^{t+2}}\right]^{1/\rho} \left(1+eq\frac{N_1^{t+4}}{N_3^{t+2}}\right)^{1-1/\rho} c_{5,i,m_j}^t - \frac{ninc_{3,k,5}^{t+2} + (1+r_{t+4}^n)\Omega_{2,k}^{t+2} - \Omega_{3,k,5}^{t+2}}{(1+\bar{\tau}_c)}$$

The *optimal inter-vivos transfer of household i in the sixth model period, Z_{6,i,m_j}^t*, is the one that equates the marginal utility of own consumption per adult equivalent c_{6,i,m_j}^t, with the marginal utility of the children's consumption per adult equivalent $c_{4,k,6}^{t+2}$ in their respective period $s_k = 4$, evaluated through $U_{6,i,m_j}^t\left(c_{4,k,6}^{t+2}\right)$:

$$\frac{dU_i^t}{dZ_{6,i,m_j}^t} = 0$$

⇔

$$\frac{\partial U_{6,i,m_j}^t}{\partial c_{6,i,m_j}^t}\frac{\partial c_{6,i,m_j}^t}{\partial Z_{6,i,m_j}^t} + \frac{\partial U_{6,i,m_j}^t}{\partial c_{4,k,6}^{t+2}}\frac{dc_{4,k,6}^{t+2}}{dZ_{6,i,m_j}^t} = 0$$

⇔

$${c_{6,i,m_j}^t}^{-\rho}\frac{-N_1^{t+2}}{N_3^t(1+\bar{\tau}_c)} + z{c_{4,k,6}^{t+2}}^{-\rho}\frac{dc_{4,k,6}^{t+2}}{dZ_{6,i,m_j}^t} = 0$$

After rearranging:

$$c_{4,k,6}^{t+2} = \left[z\frac{dc_{4,k,6}^{t+2}}{dZ_{6,i,m_j}^t}\frac{N_3^t(1+\bar{\tau}_c)}{N_1^{t+2}}\right]^{1/\rho} c_{6,i,m_j}^t$$

We derive $dc_{4,k,6}^{t+2}/dZ_{6,i,m_j}^t$ below.

Using the budget constraint of the children in model period $s_k = 4$:

$$\frac{ninc_{4,k,6}^{t+2} + (1+r_{t+5}^n)\Omega_{3,k,5}^{t+2} + W_{4,k,6}^{t+2} - \Omega_{4,k,6}^{t+2} - \frac{N_1^{t+4}}{N_3^{t+2}}Z_{4,k,6}^{t+2}}{(1+\bar{\tau}_c)} = \left[z\frac{dc_{4,k,6}^{t+2}}{dZ_{6,i,m_j}^t}\frac{N_3^t(1+\bar{\tau}_c)}{N_1^{t+2}}\right]^{1/\rho} c_{6,i,m_j}^t$$

Therein, $W_{4,k,6}^{t+2} = Z_{6,i,m_j}^t$, see Appendix D, such that we can write the first-order condition for Z_{6,i,m_j}^t as:

$$\frac{Z_{6,i,m_j}^t}{(1+\bar{\tau}_c)} = \left[z\frac{dc_{4,k,6}^{t+2}}{dZ_{6,i,m_j}^t}\frac{N_3^t(1+\bar{\tau}_c)}{N_1^{t+2}}\right]^{1/\rho} c_{6,i,m_j}^t - \frac{ninc_{4,k,6}^{t+2} + (1+r_{t+5}^n)\Omega_{3,k,5}^{t+2} - \Omega_{4,k,6}^{t+2} - \frac{N_1^{t+4}}{N_3^{t+2}}Z_{4,k,6}^{t+2}}{(1+\bar{\tau}_c)}$$

We now derive $dc_{4,k,6}^{t+2}/dZ_{6,i,m_j}^{t}$, which also consists of different parts. Using the same reasoning as for $dc_{2,k,m_i}^{t+2}/dZ_{4,i,m_j}^{t}$ and $dc_{3,k,5}^{t+2}/dZ_{5,i,m_j}^{t}$, we obtain:

$$\frac{dc_{4,k,6}^{t+2}}{dZ_{6,i,m_j}^{t}} = \frac{\partial c_{4,k,6}^{t+2}}{\partial Z_{6,i,m_j}^{t}} + \frac{\partial c_{4,k,6}^{t+2}}{\partial W_{5,k,6}^{t+2}} \frac{\partial W_{5,k,6}^{t+2}}{\partial B_{6,i,m_j}^{t}} \frac{dB_{6,i,m_j}^{t}}{d\breve{\Omega}_{6,i,m_j}^{t}} \frac{\partial \breve{\Omega}_{6,i,m_j}^{t}}{\partial Z_{6,i,m_j}^{t}}$$

⇔

$$\frac{dc_{4,k,6}^{t+2}}{dZ_{6,i,m_j}^{t}} = \frac{1}{(1+\bar{\tau}_c)}\left(1 - IV_{t+5}\tau_{b,6,i,m_j}^{t}\right)$$

Substituting this into the first-order condition for Z_{6,i,m_j}^{t} gives:

$$\frac{Z_{6,i,m_j}^{t}}{(1+\bar{\tau}_c)} = \left[z\left(1 - IV_{t+5}\tau_{b,6,i,m_j}^{t}\right)\frac{N_3^t}{N_1^{t+2}}\right]^{1/\rho} c_{6,i,m_j}^{t} - \frac{ninc_{4,k,6}^{t+2} + (1+r_{t+5}^{n})\Omega_{3,k,5}^{t+2} - \Omega_{4,k,6}^{t+2} - \frac{N_1^{t+4}}{N_3^{t+2}} Z_{4,k,6}^{t+2}}{(1+\bar{\tau}_c)}$$

From 1980 onwards, $IV_{t+5} = 1$, and taxable inter-vivos transfers will be added to the taxable estate at death. Before 1980, inter-vivos transfers are untaxed ($IV_{t+5} = 0$) and the first-order condition simplifies to:

$$\frac{Z_{6,i,m_j}^{t}}{(1+\bar{\tau}_c)} = \left[z\frac{N_3^t}{N_1^{t+2}}\right]^{1/\rho} c_{6,i,m_j}^{t} - \frac{ninc_{4,k,6}^{t+2} + (1+r_{t+5}^{n})\Omega_{3,k,5}^{t+2} - \Omega_{4,k,6}^{t+2} - \frac{N_1^{t+4}}{N_3^{t+2}} Z_{4,k,6}^{t+2}}{(1+\bar{\tau}_c)}$$

Appendix G. Optimal labor supply over the lifecycle and the optimal retirement age

In the first ($s = 1$) and final ($s = 6$) period of life, leisure is equal to one by construction. In between, households face a dynamic consumption-leisure trade-off, see Section 4.7.1 of the main text. In each of the active periods $s = 2, \dots, 5$, the marginal instantaneous utility of the last unit of leisure must equate its marginal disutility, evaluated in terms of (expected) consumption losses. Formally, for $s = 2, \dots, 4$:

$$\frac{dU_i^t}{dl_{s,i,m_j}^t} = 0$$

⇔

$$\frac{\partial U_{s,i,m_j}^t}{\partial l_{s,i,m_j}^t} + \frac{\partial U_{s,i,m_j}^t}{\partial c_{s,i,m_j}^t}\frac{\partial c_{s,i,m_j}^t}{\partial l_{s,i,m_j}^t} + \beta^{5-s}\frac{\pi_5^t}{\pi_s^t}\mathbb{E}\left[\frac{\partial U_{5,i,m_j}^t}{\partial c_{5,i,m_j}^t}\frac{\partial c_{5,i,m_j}^t}{\partial pen_{5,i,m_j}^t}\frac{\partial pen_{5,i,m_j}^t}{\partial l_{s,i,m_j}^t}\right]$$
$$+\beta^{6-s}\frac{\pi_6^t}{\pi_s^t}\mathbb{E}\left[\frac{\partial U_{6,i,m_j}^t}{\partial c_{6,i,m_j}^t}\frac{\partial c_{6,i,m_j}^t}{\partial pen_{6,i,m_j}^t}\frac{\partial pen_{6,i,m_j}^t}{\partial l_{s,i,m_j}^t}\right] = 0$$

The second term is the instantaneous utility loss in terms of consumption in period s of increasing leisure in the same period with one unit ($\partial c_{s,i,m_j}^t / \partial l_{s,i,m_j}^t < 0$). The last two terms capture the indirect utility loss in terms of consumption in periods five and six, as more leisure today also implies lower accumulated labor earnings over the career and hence a lower pension ($\partial pen_{5,i,m_j}^t / \partial l_{s,i,m_j}^t < 0$, $\partial pen_{6,i,m_j}^t / \partial l_{s,i,m_j}^t < 0$), see Section 4.8.2 of the main text. Expectations are taken with respect to the future values of W_{s,i,m_j}^t, which ultimately depend on the mortality of the parents, captured by $m_j \in \{4,5,6\}$.

In period five, when the household is between 60 and 74, the household decides when to leave the labor market. As explained in Section 4.7.1, and in Appendix C, we model l_{5,i,m_j}^t as a CES-composite of the leisure time enjoyed when still active on the labor market, $R_{5,i,m_j}^t\left(1 - \tilde{n}_{5,i,m_j}^t\right)$, and the leisure time enjoyed after retirement, $\left(1 - R_{5,i,m_j}^t\right)$. Both $\tilde{n}_{5,i,m_j}^t$ and R_{5,i,m_j}^t are decision variables, and l_{5,i,m_j}^t follows. The optimality conditions for $\tilde{n}_{5,i,m_j}^t$ and R_{5,i,m_j}^t are:

$$\frac{dU_i^t}{d\tilde{n}_{5,i,m_j}^t} = 0$$

⇔

$$\frac{\partial U_{5,i,m_j}^t}{\partial l_{5,i,m_j}^t}\frac{\partial l_{5,i,m_j}^t}{\partial \tilde{n}_{5,i,m_j}^t} + \frac{\partial U_{5,i,m_j}^t}{\partial c_{5,i,m_j}^t}\frac{\partial c_{5,i,m_j}^t}{\partial \tilde{n}_{5,i,m_j}^t} + \frac{\partial U_{5,i,m_j}^t}{\partial c_{5,i,m_j}^t}\frac{\partial c_{5,i,m_j}^t}{\partial pen_{5,i,m_j}^t}\frac{\partial pen_{5,i,m_j}^t}{\partial \tilde{n}_{5,i,m_j}^t}$$
$$+\beta\frac{\pi_6^t}{\pi_5^t}\frac{\partial U_{6,i,m_j}^t}{\partial c_{6,i,m_j}^t}\frac{\partial c_{6,i,m_j}^t}{\partial pen_{6,i,m_j}^t}\frac{\partial pen_{6,i,m_j}^t}{\partial \tilde{n}_{5,i,m_j}^t} = 0$$

and

$$\frac{dU_i^t}{dR_{5,i,m_j}^t} = 0$$

⇔

$$\frac{\partial U_{5,i,m_j}^t}{\partial l_{5,i,m_j}^t}\frac{\partial l_{5,i,m_j}^t}{\partial R_{5,i,m_j}^t} + \frac{\partial U_{5,i,m_j}^t}{\partial c_{5,i,m_j}^t}\frac{\partial c_{5,i,m_j}^t}{\partial R_{5,i,m_j}^t} + \frac{\partial U_{5,i,m_j}^t}{\partial c_{5,i,m_j}^t}\frac{\partial c_{5,i,m_j}^t}{\partial pen_{5,i,m_j}^t}\frac{\partial pen_{5,i,m_j}^t}{\partial R_{5,i,m_j}^t} + \beta\frac{\pi_6^t}{\pi_5^t}\frac{\partial U_{6,i,m_j}^t}{\partial c_{6,i,m_j}^t}\frac{\partial c_{6,i,m_j}^t}{\partial pen_{6,i,m_j}^t}\frac{\partial pen_{6,i,m_j}^t}{\partial R_{5,i,m_j}^t} = 0$$

There is no uncertainty anymore in model period five, as the parents have already passed away by the time household i reaches its fifth model period. Again, also the indirect effects of working more or longer on future consumption through higher pension payments are taken into account (the pension and hence future consumption are increasing in $\tilde{n}_{5,i,m_j}^t$ and in R_{5,i,m_j}^t). Given that $\tilde{n}_{5,i,m_j}^t$ and R_{5,i,m_j}^t are decision variables in period five, they will affect c_{5,i,m_j}^t both directly via the current labor income, and indirectly via pen_{s,i,m_j}^t.

The optimal leisure-labor choice and the optimal retirement age are not direct functions of the estate tax. However, the marginal effects of leisure and labor are always evaluated in terms of (future) consumption wins and losses. Consumption, however, is directly affected by the estate tax, see Section 4.9.1 of the main text and Appendix E. Leisure, labor and the retirement age will therefore be affected only indirectly by changes in the estate tax system.

Appendix H. Aggregate variables and aggregate equilibrium

The population in historical period t consists of the cohorts born in period $t, t-1, \ldots, t-5$, in general: $t-s+1$, for $s = 1, \ldots, 6$. We normalize the size of the youngest cohort born in historical period 1890-1904: $N_1^{1890-1904} = 1$. N_s^{t-s+1} then denotes the relative size of a cohort in period of life s during historical period t that was born in historical period $t-s+1$. Let π_5^{t-4} and π_6^{t-5}, i.e., the fraction of households still alive in model periods $s = 5{,}6$ during historical period t, also be captured by N_s^{t-5+1} and N_s^{t-6+1} respectively. Of all households i alive in each cohort N_s^{t-s+1}, 9% are entrepreneurs and the remaining 91% are workers. We use the superscript L to denote a (decision) variable of (a group of) workers and the superscript E to denote a (decision) variable of (a group of) entrepreneurs. We sum the behavior of all households (workers and entrepreneurs) over the different model periods $s = 1, \ldots, 6$, over all the earnings capacity levels i, and over all possible values for $m_j \in \{4,5,6\}$.

Aggregate effective entrepreneurship supplied by the households that represent the bottom 30% in terms of earnings capacity 'bottom' is:

$$E_{B,t} = \sum_{s=2}^{5} \sum_{i=70\%}^{i=100\%} N_s^{t-s+1} 0.09 f(h_{s,i}) \left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,E} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,E} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,E} \right]$$

Aggregate effective entrepreneurship supplied by the households that represent the next 30% in terms of earnings capacity 'middle' is:

$$E_{M,t} = \sum_{s=2}^{5} \sum_{i=40\%}^{i=70\%} N_s^{t-s+1} 0.09 f(h_{s,i}) \left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,E} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,E} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,E} \right]$$

Aggregate effective entrepreneurship supplied by the households that represent the next 30% in terms of earnings capacity 'high' is

$$E_{H,t} = \sum_{s=2}^{5} \sum_{i=10\%}^{i=40\%} N_s^{t-s+1} 0.09 f(h_{s,i}) \left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,E} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,E} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,E} \right]$$

Aggregate effective entrepreneurship supplied by the households that represent the top two per cent in terms of earnings capacity 'top 2' is:

$$E_{T2,t} = \sum_{s=2}^{5} \sum_{i=0}^{i=2\%} N_s^{t-s+1} 0.09 f(h_{s,i}) \left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,E} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,E} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,E} \right]$$

Aggregate effective entrepreneurship supplied by the households that represent the remainder of the top 10 per cent in terms of earnings capacity 'top 10' is:

$$E_{T10,t} = \sum_{s=2}^{5} \sum_{i=2\%}^{i=10\%} N_s^{t-s+1} 0.09 f(h_{s,i}) \left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,E} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,E} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,E} \right]$$

These five intermediate levels of entrepreneurship $E_{\theta,t}$ are then combined in the CES composite to form aggregate effective entrepreneurship E_t, see Equation (1b) in Section 4.4 of the main text.

Considering that entrepreneurs also supply a certain amount of ordinary labor, see Section 4.8.1 of the main text, the aggregate effective ordinary labor supplied by all households (entrepreneurs and workers) representing the top two per cent in terms of earnings capacity 'top 2' is:

$$L_{T2,t} = \sum_{s=2}^{5} N_s^{t-s+1} 0.09 \sum_{i=0}^{i=2\%} \lambda h_{s,i}\left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,E} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,E} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,E}\right]$$
$$+ \sum_{s=2}^{5} N_s^{t-s+1} 0.91 \sum_{i=0}^{i=2\%} h_{s,i}\left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,L} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,L} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,L}\right]$$

Aggregate effective entrepreneurship supplied by the households that represent the remainder of the top 10 per cent in terms of earnings capacity 'top 10' is:

$$L_{T10,t} = \sum_{s=2}^{5} N_s^{t-s+1} 0.09 \sum_{i=2\%}^{i=10\%} \lambda h_{s,i}\left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,E} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,E} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,E}\right]$$
$$+ \sum_{s=2}^{5} N_s^{t-s+1} 0.91 \sum_{i=2\%}^{i=10\%} h_{s,i}\left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,L} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,L} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,L}\right]$$

Aggregate effective entrepreneurship supplied by the households that represent the remainder of the top 40 per cent in terms of earnings capacity 'high' is:

$$L_{H,t} = \sum_{s=2}^{5} N_s^{t-s+1} 0.09 \sum_{i=10\%}^{i=40\%} \lambda h_{s,i}\left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,E} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,E} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,E}\right]$$
$$+ \sum_{s=2}^{5} N_s^{t-s+1} 0.91 \sum_{i=10\%}^{i=40\%} h_{s,i}\left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,L} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,L} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,L}\right]$$

Aggregate effective entrepreneurship supplied by the households that represent the remainder of the middle group in terms of earnings capacity 'middle' is:

$$L_{M,t} = \sum_{s=2}^{5} N_s^{t-s+1} 0.09 \sum_{i=40\%}^{i=70\%} \lambda h_{s,i}\left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,E} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,E} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,E}\right]$$
$$+ \sum_{s=2}^{5} N_s^{t-s+1} 0.91 \sum_{i=40\%}^{i=70\%} h_{s,i}\left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,L} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,L} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,L}\right]$$

Aggregate effective entrepreneurship supplied by the households that represent the bottom 30% in terms of earnings capacity 'bottom' is:

$$L_{B,t} = \sum_{s=2}^{5} N_s^{t-s+1} 0.09 \sum_{i=70\%}^{i=100\%} \lambda h_{s,i}\left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,E} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,E} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,E}\right]$$
$$+ \sum_{s=2}^{5} N_s^{t-s+1} 0.91 \sum_{i=70\%}^{i=100\%} h_{s,i}\left[(1-\pi_5^{t-s-1})\, n_{s,i,4}^{t-s+1,L} + (\pi_5^{t-s-1} - \pi_6^{t-s-1})\, n_{s,i,5}^{t-s+1,L} + \pi_6^{t-s-1}\, n_{s,i,6}^{t-s+1,L}\right]$$

These five intermediate levels of ordinary labor $L_{\theta,t}$ are then combined in a CES composite to form aggregate effective ordinary labor L_t, see Equation (1a) in Section 4.4 of the main text.

Aggregate pension payments to all retired households i during historical period t are:

$$P_t = \sum_{s=5}^{6} N_s^{t-s+1} 0.09 \sum_{i}\left[(1-\pi_5^{t-s-1}) pen_{s,i,4}^{t-s+1,E} + (\pi_5^{t-s-1} - \pi_6^{t-s-1}) pen_{s,i,5}^{t-s+1,E} + \pi_6^{t-s-1} pen_{s,i,6}^{t-s+1,E}\right]$$
$$+ \sum_{s=5}^{6} N_s^{t-s+1} 0.91 \sum_{i}\left[(1-\pi_5^{t-s-1}) pen_{s,i,4}^{t-s+1,L} + (\pi_5^{t-s-1} - \pi_6^{t-s-1}) pen_{s,i,5}^{t-s+1,L} + \pi_6^{t-s-1} pen_{s,i,6}^{t-s+1,L}\right]$$

where $pen_{5,i,m_j}^{t-4,E}$, $pen_{6,i,m_j}^{t-5,E}$, $pen_{5,i,m_j}^{t-4,L}$ and $pen_{6,i,m_j}^{t-5,L}$ are the pension payments received by retired entrepreneurs and workers born in historical periods $t-4$ and $t-5$ during period of life $s=5$ and $s=6$.

Aggregate (pre-tax) consumption expenditures in historical period t are given by:

$$C_t = \sum_{s=1}^{6} N_s^{t-s+1} 0.09 \sum_{i}\left[\left(1-\pi_5^{t-s-1}\right) c_{s,i,4}^{t-s+1,E} + \left(\pi_5^{t-s-1} - \pi_6^{t-s-1}\right) c_{s,i,5}^{t-s+1,E} + \pi_6^{t-s-1} c_{s,i,6}^{t-s+1,E}\right]$$
$$+ \sum_{s=1}^{6} N_s^{t-s+1} 0.91 \sum_{i}\left[\left(1-\pi_5^{t-s-1}\right) c_{s,i,4}^{t-s+1,L} + \left(\pi_5^{t-s-1} - \pi_6^{t-s-1}\right) c_{s,i,5}^{t-s+1,L} + \pi_6^{t-s-1} c_{s,i,6}^{t-s+1,L}\right]$$

And aggregate inter-vivos transfers in period t are given by:

$$Z_t = \sum_{s=1}^{6} N_s^{t-s+1} 0.09 \sum_{i}\left[\left(1-\pi_5^{t-s-1}\right) \tilde{Z}_{s,i,4}^{t-s+1,E} + \left(\pi_5^{t-s-1} - \pi_6^{t-s-1}\right) \tilde{Z}_{s,i,5}^{t-s+1,E} + \pi_6^{t-s-1} \tilde{Z}_{s,i,6}^{t-s+1,E}\right]$$
$$+ \sum_{s=1}^{6} N_s^{t-s+1} 0.91 \sum_{i}\left[\left(1-\pi_5^{t-s-1}\right) \tilde{Z}_{s,i,4}^{t-s+1,L} + \left(\pi_5^{t-s-1} - \pi_6^{t-s-1}\right) \tilde{Z}_{s,i,5}^{t-s+1,L} + \pi_6^{t-s-1} \tilde{Z}_{s,i,6}^{t-s+1,L}\right]$$

Therein, $\tilde{Z}_{s,i,m_j}^{t}$ are the total expenditures on inter-vivos transfers by household i in period of life s, which equal inter-vivos transfers per adult equivalent child, Z_{s,i,m_j}^{t}, multiplied by the number of children, see budget equations (14d) to (14f) of the main text.

The estate tax revenues in period t, denoted by $T_{b,t}$, depend on the aggregate stock of pre-tax bequests at the end of period $t-1$, or equivalently, the aggregate stocks of pre-tax wealth of all households that have passed away the night before reaching the historical period t. The fractions of households that have just passed away at the end of their periods of life $s = 4{,}5{,}6$ are given by $1-\pi_5^{t-4}$, $\pi_5^{t-5}-\pi_6^{t-5}$ and π_6^{t-6} respectively. $T_{b,t}$ becomes:

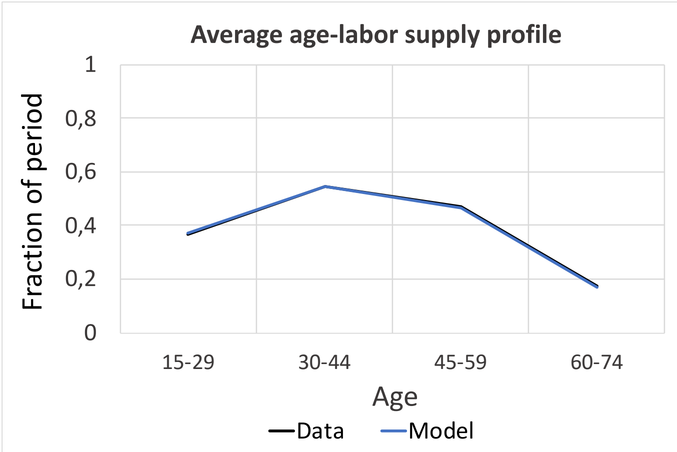
$$
\begin{aligned}
T_{b,t} &= N_s^{t-4} 0.09 \sum_i \left[\left(1-\pi_5^{t-6}\right) \bar{\tau}_{b,4,i,4}^{t-4,E} \Omega_{4,i,4}^{t-4,E} + \left(\pi_5^{t-6}-\pi_6^{t-6}\right) \bar{\tau}_{b,4,i,5}^{t-4,E} \Omega_{4,i,5}^{t-4,E} + \pi_6^{t-6} \bar{\tau}_{b,4,i,6}^{t-4,E} \Omega_{4,i,6}^{t-4,E} \right] \\
&+ N_s^{t-4} 0.91 \sum_i \left[\left(1-\pi_5^{t-6}\right) \bar{\tau}_{b,4,i,4}^{t-4,L} \Omega_{4,i,4}^{t-4,L} + \left(\pi_5^{t-6}-\pi_6^{t-6}\right) \bar{\tau}_{b,4,i,5}^{t-4,L} \Omega_{4,i,5}^{t-4,L} + \pi_6^{t-6} \bar{\tau}_{b,4,i,6}^{t-4,L} \Omega_{4,i,6}^{t-4,L} \right] \\
&+ N_s^{t-5} 0.09 \sum_i \left[\left(1-\pi_5^{t-7}\right) \bar{\tau}_{b,5,i,4}^{t-5,E} \Omega_{5,i,4}^{t-5,E} + \left(\pi_5^{t-7}-\pi_6^{t-7}\right) \bar{\tau}_{b,5,i,5}^{t-5,E} \Omega_{5,i,5}^{t-5,E} + \pi_6^{t-7} \bar{\tau}_{b,5,i,6}^{t-5,E} \Omega_{5,i,6}^{t-5,E} \right] \\
&+ N_s^{t-5} 0.91 \sum_i \left[\left(1-\pi_5^{t-7}\right) \bar{\tau}_{b,5,i,4}^{t-5,L} \Omega_{5,i,4}^{t-5,L} + \left(\pi_5^{t-7}-\pi_6^{t-7}\right) \bar{\tau}_{b,5,i,5}^{t-5,L} \Omega_{5,i,5}^{t-5,L} + \pi_6^{t-7} \bar{\tau}_{b,5,i,6}^{t-5,L} \Omega_{5,i,6}^{t-5,L} \right] \\
&+ N_s^{t-6} 0.09 \sum_i \left[\left(1-\pi_5^{t-8}\right) \bar{\tau}_{b,6,i,4}^{t-6,E} \Omega_{6,i,4}^{t-6,E} + \left(\pi_5^{t-8}-\pi_6^{t-8}\right) \bar{\tau}_{b,6,i,5}^{t-6,E} \Omega_{6,i,5}^{t-6,E} + \pi_6^{t-8} \bar{\tau}_{b,6,i,6}^{t-6,E} \Omega_{6,i,6}^{t-5,E} \right] \\
&+ N_s^{t-6} 0.91 \sum_i \left[\left(1-\pi_5^{t-8}\right) \bar{\tau}_{b,6,i,4}^{t-6,L} \Omega_{6,i,4}^{t-6,L} + \left(\pi_5^{t-8}-\pi_6^{t-8}\right) \bar{\tau}_{b,6,i,5}^{t-6,L} \Omega_{6,i,5}^{t-6,L} + \pi_6^{t-8} \bar{\tau}_{b,6,i,6}^{t-6,L} \Omega_{6,i,6}^{t-5,L} \right]
\end{aligned}
$$

Therein, $\bar{\tau}_{b,s,i,m_j}^{t-s,E}$ and $\bar{\tau}_{b,s,i,m_j}^{t-s,L}$ for $s = 4{,}5{,}6$ are the effective average estate tax rates calculated on the taxable estate of the households i (worker and entrepreneur respectively) born in periods $t-s$ with parents morality m_j that have passed away at the end of the historical period $t-1$, see Equation (6) of the main text.

Appendix I. Other cross-sectional lifecycle profiles

We set the utility weights on leisure, v_s for $s = 2, \ldots, 5$ to match the true shape of the *cross-sectional profile of hours worked* (1980-94) of McGrattan and Rogerson (2004). The profile represents both the extensive and intensive margin of labor supply. We argue that having a realistic average profile of labor supply helps to obtain realistic cross-sectional profiles of consumption and wealth, see Section 5.2.1 of the main text.

Figure I1: Cross-sectional lifecycle profile of labor supply: model versus data

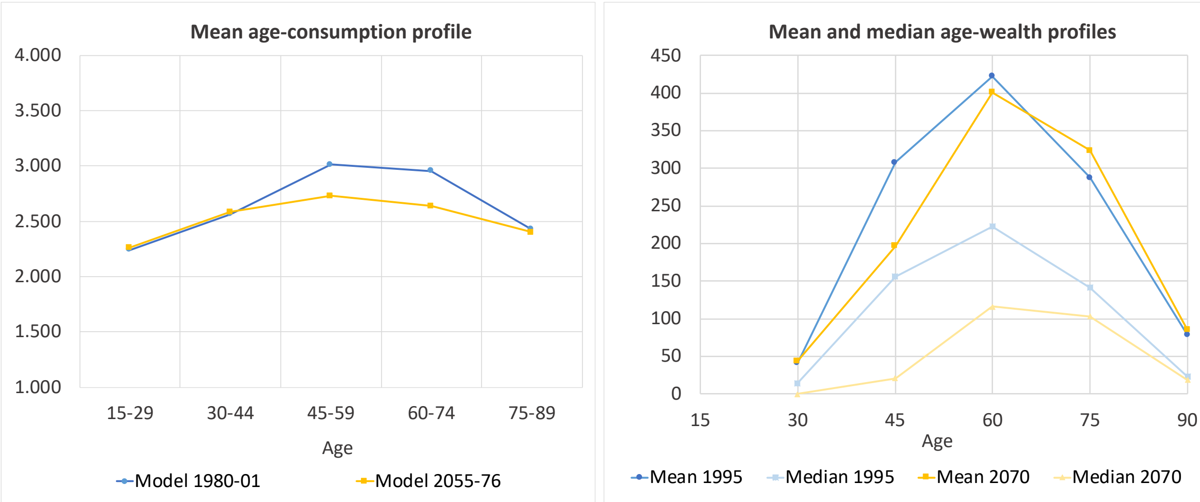


Note: Data are taken from McGrattan and Rogerson (2004), which concern the period 1980-94. The lifecycle profile is cross-sectional: the points in the Figure I1 concern different cohorts. We normalize the profile of McGrattan and Rogerson to obtain fractions of periods, as in our model. Active households in our model work half of their available time on average over the period 1950-2019: $\bar{n} = 0.50$. The average level of v_s is thus chosen to obtain $\bar{n} = 0.50$. v_s for $s = 2, \ldots, 5$ are then calibrated to obtain the desired shape of the profile.

Evolution over time of the simulated cross-sectional profiles consumption and wealth. As explained in Section 5.2.1 of the main text, we compare our simulated cross-sectional profiles of consumption (1984-2001) and wealth (1995) with their respective empirical counterparts. To give an indication about how these profiles of consumption and wealth evolve over time in our model, we now also show the respective profiles exactly 75 years later in our simulation.

In Figure I2, the blue lines correspond with those of Figure 10 of the main text: these are again the simulated cross-sectional profiles of consumption expenditures per adult equivalent in 1980-2001 and net wealth in 1995 respectively. The yellow profiles are also taken from our baseline simulation but exactly 75 years later: the cross-sectional lifecycle profile of consumption expenditures per adult equivalent in 2055-2076 (normalized in the same way as the blue profile) and for net wealth in 2070.

Figure I2: Simulated lifecycle profiles of consumption expenditures and wealth: evolutions over time

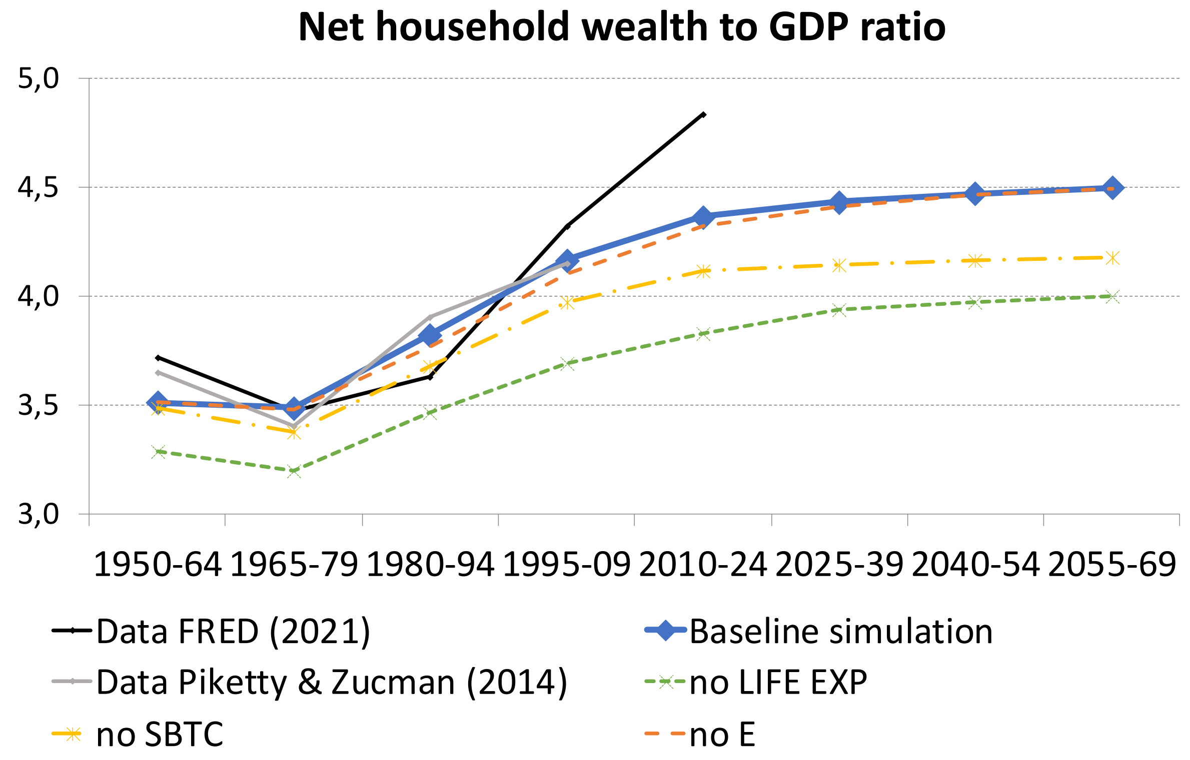


Note: The blue profiles are the simulated profiles that were also present in Figure 10 of the main text. The yellow profiles are the same profiles, but exactly 75 years later: they are calculated in the same way as the blue profiles. For a more detailed description, see Section 5.2.1 of the main text.

As shown by the left panel, the mean cross-sectional profile of consumption expenditures per adult equivalent is relatively stable over time. The main explanation is that rising life expectancy and the decline in the equilibrium real interest rate (see Section 5.2.2. of the main text) affect the slope of the consumption profile in opposite directions over time. We do find a considerable effect of demographic change and other factors on the lifecycle profiles of wealth, as shown by the right panel of Figure I2. The yellow graph shows that in 2070, compared to 1995, wealth accumulation occurs later in life. The first explanation is that, on average, households inherit much later in life in 2070 than in 1995. Whereas for a household born in 1905-19 the unconditional probabilities to pass away at ages 60, 75 and 90, i.e., $1 - \pi_5^t$, $\pi_5^t - \pi_6^t$ and π_6^t, were 0.38, 0.32 and 0.30 respectively, these numbers are 0.17, 0.23 and 0.60 for a household born exactly 75 years later. Other explanations are that the main reasons for the high median profile in 1995 (the projected decline in the real interest rate and the projected decline in median wages, see Section 5.2.1 of the main text) no longer apply in 2070.

Appendix J. Simulated evolutions of the net household wealth to GDP ratio and wealth concentration: a decomposition

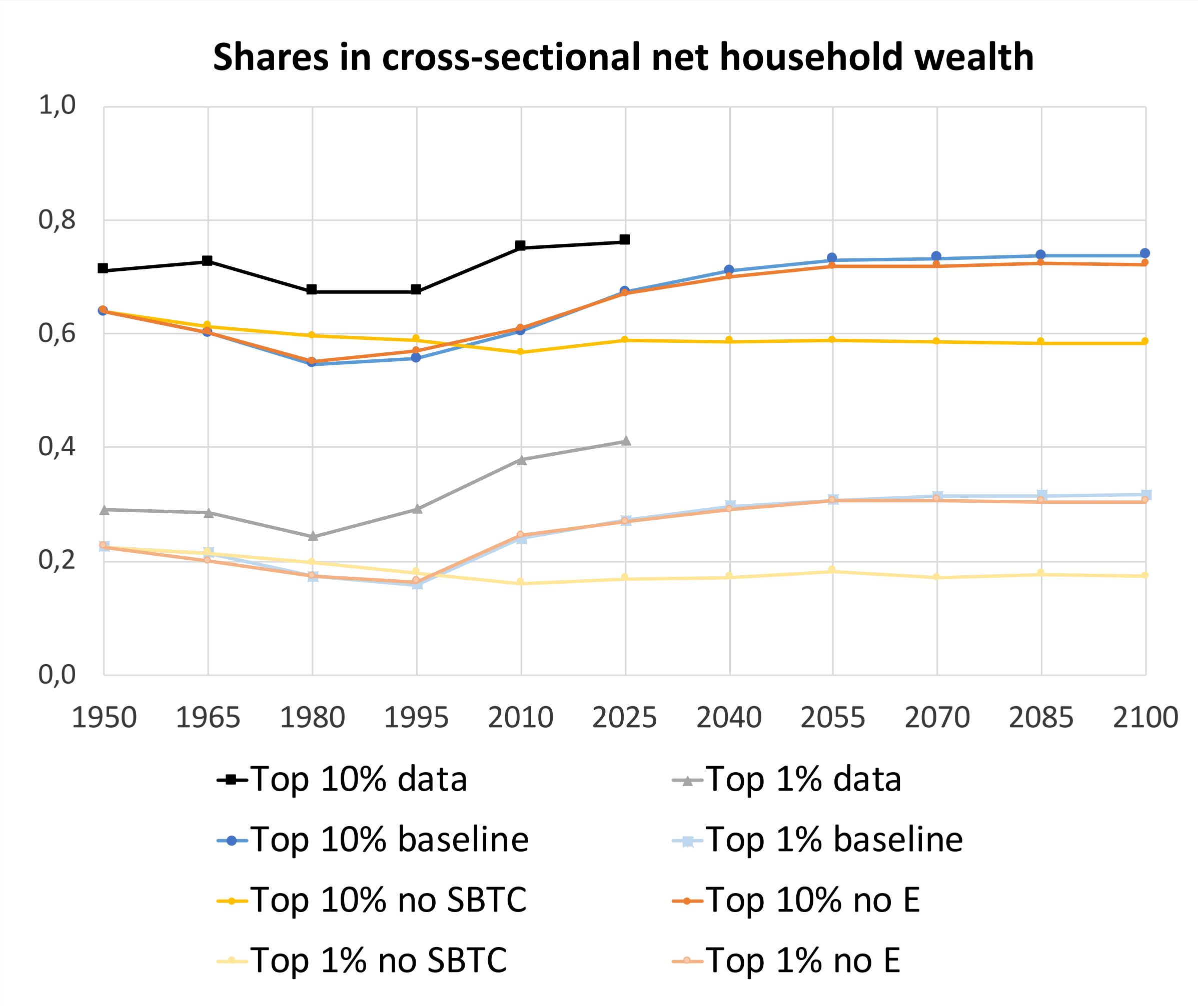
Figure J1: Evolution of the net household wealth to GDP ratio: baseline versus alternative simulations 'no SBTC', 'no E', 'no LIFE EXP.'



Sources of actual data: Net household wealth to GDP ratio: Federal Reserve Bank of St. Louis (2021) and Piketty and Zucman (2014).

In Figure J1 we decompose the simulated evolution of the net household wealth to GDP in our model. The blue line in Figure J1 corresponds with our baseline simulation, also shown in Figure 11 of the main text. The yellow line is the net household wealth to GDP ratio from a counterfactual simulation where we switch off all 'skill-biased' technological change 'no SBTC': the five input shares $\eta_{T_2,t}$, $\eta_{T_{10},t}$, $\eta_{H,t}$, $\eta_{M,t}$ and $\eta_{B,t}$ all remain at their 1965-79 levels, from 1980 onwards. The orange line represents the counterfactual simulation where we assume that ξ_t, the share of aggregate labor income $(1-\alpha_t)$ entitled to entrepreneurial activity, remains at its historically low level of 1980-94, from 1995 onwards, 'no E'. The green line is the simulated net household wealth to GDP ratio from another counterfactual where we assume that the unconditional survival probabilities π_5^t and π_6^t remain at their 1905 levels, from 1905 onwards, 'no LIFE EXP'. Figure J1 shows that the simulated increase in the wealth to GDP ratio is almost entirely explained by rising life expectancy combined with 'skill-biased' technological change. Both factors have a similar impact on the long-run level of the wealth-to-GDP ratio. The main reasons why 'skill-biased' technological change leads to a higher wealth-to-GDP ratio are that bequests are a luxury good, and that inter-vivos transfers are compensatory. The higher income and wealth concentration, the higher mean pre-tax bequests at age 90, and the higher future planned inter-vivos transfers. Both require more wealth accumulation earlier in life.

Figure J2: Evolution of wealth concentration: baseline versus counterfactuals ‘no SBTC’ and ‘no E’



Sources: Saez and Zucman (2016) and extrapolated from 2010 onwards based on the evolution of the shares of net personal wealth in World Inequality Database (2021).

In Figure J2 we decompose the simulated increase in wealth concentration over time. The blue lines are the simulated evolutions of the cross-sectional net household wealth shares of the top 10% and top 1%, taken from our baseline simulation, as shown in Figure 12 of the main text. The yellow lines are the respective top 10% and top 1% shares from a counterfactual simulation where we switch off all ‘skill-biased’ technological change ‘no SBTC’: the five input shares $\eta_{T_2,t}$, $\eta_{T_{10},t}$, $\eta_{H,t}$, $\eta_{M,t}$ and $\eta_{B,t}$ all remain at their 1965-79 levels, from 1980 onwards. Similarly, the orange lines represent the counterfactual simulation where we assume that ξ_t, the share of aggregate labor income $(1-\alpha_t)$ entitled to entrepreneurial activity, remains at its historically low level of 1980-94, from 1995 onwards, ‘no E’. The combination of ‘skill-biased’ technological change and the increased remuneration of entrepreneurs at the expense of workers can explain virtually the entire increase in wealth concentration in our model. Even though rising life expectancy is a key driver of the rising wealth-to-GDP ratio over time, it does not substantially affect wealth concentration in the long run.

Appendix K. Effects of changes in the U.S. federal estate tax system since 1980 relative to counterfactual 1a (bequests and transfers jointly taxed – extra tax revenues in the counterfactual absorbed by higher $C_{g,t}$)

Table K1: Transitional effects of changes in the estate tax system since 1980 on **key macroeconomic variables**: baseline simulation relative to counterfactual 1a

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long Run
% estates taxed (%-pt. diff.)	-0,27%	0,00%	-9,39%	-9,47%	-12,95%	-12,38%	-11,54%	-10,17%
Average estate tax paid (%-pt. diff.)	0,85%	-0,12%	-5,14%	-10,06%	-9,47%	-8,16%	5,36%	3,26%
Yearly extra estate tax revenues, % of GDP (%-pt. diff.)	-0,02%	0,00%	-0,11%	-0,11%	-0,52%	-0,74%	-0,98%	-1,12%
Yearly per capita GDP growth (%-pt. diff.)	0,00%	0,00%	0,01%	0,02%	0,00%	0,01%	0,01%	0,00%
Per capita GDP level (% diff.)	0,07%	0,11%	0,19%	0,47%	0,51%	0,69%	0,84%	1,02%
Yearly r (%-pt. diff.)	-0,01%	-0,01%	-0,01%	-0,03%	-0,04%	-0,07%	-0,09%	-0,11%
K = Ω (% diff.)	0,30%	0,33%	1,03%	1,55%	2,47%	3,02%	3,55%	3,69%
K/GDP (%-pt. diff.)	0,81%	0,76%	3,21%	4,54%	8,60%	10,38%	12,23%	12,14%
yearly flow of inter-vivos transfers/stock of K (%-pt. dif	0,00%	-0,01%	0,05%	0,06%	0,10%	0,14%	0,15%	0,17%
yearly flow of pre-tax bequests/stock of K (%-pt. diff.)	0,00%	0,00%	0,01%	0,00%	0,01%	0,00%	-0,03%	-0,03%
Aggregate consumption C (% diff.)	0,06%	0,05%	0,12%	0,29%	0,81%	1,30%	1,71%	2,19%
Aggregate ordinary labor L (% diff.)	0,01%	0,04%	0,16%	0,33%	0,18%	0,05%	0,02%	-0,03%
L_B (% diff.)	0,01%	0,01%	-0,02%	0,04%	0,11%	0,13%	0,14%	0,10%
L_M (% diff.)	-0,03%	-0,05%	-0,16%	-0,14%	-0,19%	-0,40%	-0,69%	-1,20%
L_H (% diff.)	-0,04%	-0,05%	-0,21%	-0,34%	-0,74%	-1,12%	-1,23%	-1,11%
L_{T10} (% diff.)	0,20%	0,27%	0,05%	0,15%	0,14%	0,19%	0,17%	-0,15%
L_{T2} (% diff.)	0,00%	0,18%	1,59%	2,19%	2,09%	2,23%	2,47%	2,74%
w^L_B (% diff.)	0,05%	0,10%	0,15%	0,34%	0,38%	0,59%	0,74%	0,96%
w^L_M (% diff.)	0,09%	0,14%	0,25%	0,47%	0,59%	0,95%	1,30%	1,85%
w^L_H (% diff.)	0,09%	0,14%	0,29%	0,61%	0,97%	1,45%	1,68%	1,79%
w^L_{T10} (% diff.)	-0,08%	-0,09%	0,11%	0,26%	0,36%	0,55%	0,71%	1,14%
w^L_{T2} (% diff.)	0,07%	-0,03%	-0,99%	-1,19%	-1,03%	-0,90%	-0,92%	-0,91%
Aggregate entrepreneurship E (% diff.)	-0,01%	0,09%	-0,13%	-0,24%	-0,56%	-0,65%	-0,62%	-0,43%
E_B (% diff.)	0,00%	-0,06%	-0,37%	-0,43%	-0,49%	-0,48%	-0,40%	-0,17%
E_M (% diff.)	-0,15%	-0,18%	-0,47%	-0,87%	-1,49%	-2,12%	-2,23%	-2,48%
E_H (% diff.)	-0,03%	0,04%	-0,09%	-0,22%	-0,72%	-1,05%	-1,20%	-1,08%
E_{T10} (% diff.)	-0,01%	0,18%	0,48%	0,66%	0,33%	0,20%	0,05%	-0,20%
E_{T2} (% diff.)	0,30%	0,61%	-0,36%	-0,46%	-0,49%	0,06%	0,48%	1,31%
w^E_B (% diff.)	0,07%	0,13%	0,48%	0,84%	1,02%	1,21%	1,30%	1,27%
w^E_M (% diff.)	0,18%	0,21%	0,56%	1,14%	1,70%	2,33%	2,54%	2,83%
w^E_H (% diff.)	0,09%	0,05%	0,29%	0,69%	1,18%	1,61%	1,85%	1,89%
w^E_{T10} (% diff.)	0,08%	-0,04%	-0,11%	0,08%	0,45%	0,75%	0,99%	1,29%
w^E_{T2} (% diff.)	-0,14%	-0,34%	0,48%	0,86%	1,02%	0,85%	0,69%	0,24%

Note: Table K1 shows the difference in percentage (points) between the baseline simulation where we impose the true historical evolution of the U.S. federal estate tax system versus the counterfactual simulation where we keep the estate tax parameters constant from 1980 onwards, see Table 5 of the main text. A plus (green) indicates that the respective outcome variable is higher in the baseline simulation than in the counterfactual. A minus (orange) indicates a decline compared to the counterfactual.

Note: $L_{\theta,t}$ and $E_{\theta,t}$ for $\theta \in \{T_2, T_{10}, H, M, B\}$ are the five intermediate levels of effective ordinary labor and entrepreneurship respectively, defined in Section 4.4 of the main text, and further specified in Appendix H. $w^L_{\theta,t}$ and $w^E_{\theta,t}$ are the wage rates per unit of effective labor/entrepreneurship, as defined in Section 4.5.1 of the main text. For instance, $L_{T_2,t}$ (and $E_{T_2,t}$) aggregates the effective ordinary labor (and entrepreneurship) supplied by all households (workers and entrepreneurs) representing the top 2% in terms of earnings capacity, summed over all active periods $s = 2, \dots, 5$ and over all m_j. Variables with a subscript T_{10} indicate the respective aggregate variables related to the remainder of the top 10% of households in terms of earnings capacity. A subscript H indicates aggregate variables concerning the remainder of the top 40% of households in terms of earnings capacity, excluding the top 10%. A subscript M indicates aggregate variables concerning the remainder of the top 70% of households, excluding the top 40%. The subscript B indicates the aggregate variables concerning the bottom 30% of households in terms of earnings capacity.

Note: The long run coincides with the 2160-74 period.

Table K2: Transitional effects of changes in the estate tax system since 1980 on **inter-vivos transfers provided by workers and entrepreneurs**: baseline simulation relative to counterfactual 1a

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
Z^L_4 (% diff.)	-0,14%	-4,17%	17,39%	11,19%	14,02%	15,24%	15,62%	15,49%
Z^L_5 (% diff.)	0,01%	0,00%	0,00%	0,01%	100,00%	100,00%	97,64%	96,98%
Z^L_6 (% diff.)	0,01%	0,01%	-0,01%	0,00%	98,30%	36,35%	24,91%	28,85%
Z^E_4 (% diff.)	0,10%	-1,87%	16,46%	14,77%	17,77%	18,72%	18,94%	18,63%
Z^E_5 (% diff.)	0,01%	75,82%	9,61%	81,67%	83,61%	95,39%	97,96%	95,71%
Z^E_6 (% diff.)	1,55%	11,11%	-16,91%	80,09%	73,02%	37,12%	34,31%	35,56%
Z_4/C_4 (%-pt. diff.)	-0,03%	-0,16%	0,48%	0,46%	0,52%	0,41%	0,39%	0,33%
Z_5/C_5 (%-pt. diff.)	0,00%	0,01%	0,00%	0,01%	0,12%	0,24%	0,37%	0,39%
Z_6/C_6 (%-pt. diff.)	0,00%	0,01%	0,01%	0,06%	0,31%	0,38%	0,31%	0,53%
Ω_6/C_6 (%-pt. diff.)	0,06%	0,13%	0,56%	1,28%	1,08%	-0,82%	-1,22%	-0,83%
$Z^L_{4,B}$ (% diff.)	-2,29%	0,10%	9,18%	-2,86%	-1,04%	-0,95%	0,92%	2,56%
$Z^L_{4,M}$ (% diff.)	-0,36%	-0,68%	0,06%	-0,98%	0,02%	3,98%	3,27%	1,60%
$Z^L_{4,H}$ (% diff.)	0,69%	-4,73%	8,28%	3,67%	9,28%	13,54%	15,34%	14,38%
$Z^L_{4,T10}$ (% diff.)	-4,62%	-84,53%	76,33%	18,19%	15,17%	13,84%	11,47%	14,68%
$Z^L_{4,T2}$ (% diff.)	-0,05%	-2,01%	20,19%	18,61%	20,05%	19,06%	18,82%	18,33%
$Z^L_{5,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{5,M}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{5,H}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	99,96%	88,90%	84,73%
$Z^L_{5,T10}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{5,T2}$ (% diff.)	0,28%	0,25%	0,22%	0,29%	100,00%	100,00%	100,00%	99,94%
$Z^L_{6,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{6,M}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	-8,15%	-8,33%	35,14%
$Z^L_{6,H}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	100,00%	-11,22%	32,49%	47,05%
$Z^L_{6,T10}$ (% diff.)	-0,01%	-0,01%	-0,01%	-0,01%	-0,01%	-100,00%	-100,00%	-1297,77%
$Z^L_{6,T2}$ (% diff.)	0,56%	0,62%	-0,34%	0,08%	100,00%	39,29%	24,96%	23,19%
$Z^E_{4,B}$ (% diff.)	-1,03%	-2,76%	6,15%	1,02%	1,61%	1,95%	0,71%	-0,50%
$Z^E_{4,M}$ (% diff.)	-0,72%	-6,26%	16,63%	11,30%	9,84%	20,12%	16,97%	13,07%
$Z^E_{4,H}$ (% diff.)	0,53%	-1,01%	13,71%	17,00%	24,59%	22,53%	24,34%	25,69%
$Z^E_{4,T10}$ (% diff.)	0,10%	-2,50%	50,66%	33,94%	33,58%	33,28%	30,90%	28,87%
$Z^E_{4,T2}$ (% diff.)	0,28%	-0,82%	15,59%	10,38%	12,44%	14,22%	14,48%	14,11%
$Z^E_{5,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^E_{5,M}$ (% diff.)	0,00%	0,00%	9,62%	-9,25%	-1,39%	-3,32%	-3,49%	6,65%
$Z^E_{5,H}$ (% diff.)	0,01%	17,36%	0,01%	99,95%	100,00%	99,99%	97,52%	92,70%
$Z^E_{5,T10}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^E_{5,T2}$ (% diff.)	0,24%	88,95%	0,39%	0,40%	-0,04%	100,00%	100,00%	100,00%
$Z^E_{6,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	-100,00%	18,82%	7,46%	-100,06%
$Z^E_{6,M}$ (% diff.)	0,00%	-1,47%	-0,82%	1,74%	-7,79%	-3,57%	-5,11%	-3,74%
$Z^E_{6,H}$ (% diff.)	2,12%	15,06%	34,91%	75,68%	39,65%	40,49%	43,21%	42,26%
$Z^E_{6,T10}$ (% diff.)	0,03%	0,04%	-0,01%	0,05%	99,99%	100,00%	100,00%	98,03%
$Z^E_{6,T2}$ (% diff.)	1,42%	10,02%	-100,00%	100,00%	100,00%	34,81%	30,86%	29,64%

Note: A plus (minus) again indicates that the respective value is higher (lower) in the baseline simulation than in the counterfactual simulation, see first note below Table K1.

Note: A superscript L indicates a (decision) variable of (a group of) workers and a superscript E a (decision) variable of (a group of) entrepreneurs. For instance, Z_4^L and Z_4^E aggregate all inter-vivos transfers provided in period of life $s = 4$ by all workers and all entrepreneurs respectively. Z_4^L/C_4^L and Z_4^E/C_4^E are the same variables but expressed as a fraction of their consumption. Z_{4,T_2}^L and Z_{4,T_2}^E are the aggregate inter-vivos transfers in period of life $s = 4$ provided by workers and entrepreneurs that belong to the top 2% in terms of earnings capacity.

Note: A "100%" indicates that the value is positive in the baseline simulation but zero in the counterfactual. This is because we calculate a percentage change as: (base-count)/base*100%.

Table K3: Transitional effects of changes in the estate tax system since 1980 on **consumption and wealth of workers**: baseline relative to counterfactual 1a:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$C^L_{2,B}$ (% diff.)	0,08%	0,26%	0,31%	0,42%	0,51%	0,79%	1,01%	1,23%
$C^L_{2,M}$ (% diff.)	0,33%	0,49%	1,48%	1,18%	1,79%	3,42%	4,01%	3,88%
$C^L_{2,H}$ (% diff.)	0,26%	0,58%	1,63%	2,76%	3,69%	3,94%	4,42%	4,34%
$C^L_{2,T10}$ (% diff.)	-0,52%	-0,23%	0,30%	0,44%	0,34%	0,49%	0,63%	1,00%
$C^L_{2,T2}$ (% diff.)	0,07%	-0,01%	-2,45%	-1,72%	-1,40%	-1,15%	-0,97%	-0,91%
$C^L_{3,B}$ (% diff.)	0,03%	0,06%	0,29%	0,37%	0,19%	0,42%	0,66%	0,85%
$C^L_{3,M}$ (% diff.)	0,15%	0,24%	0,49%	1,23%	1,38%	2,09%	3,71%	3,91%
$C^L_{3,H}$ (% diff.)	0,13%	0,17%	0,52%	1,41%	3,69%	4,47%	4,57%	4,63%
$C^L_{3,T10}$ (% diff.)	-0,59%	-0,62%	-0,28%	0,06%	0,54%	0,88%	1,12%	1,86%
$C^L_{3,T2}$ (% diff.)	0,39%	-0,65%	-3,21%	-2,69%	-2,16%	-2,14%	-2,05%	-1,99%
$C^L_{4,B}$ (% diff.)	0,01%	0,04%	0,12%	0,13%	0,17%	0,28%	0,49%	0,70%
$C^L_{4,M}$ (% diff.)	0,05%	0,11%	0,21%	0,27%	0,69%	1,30%	1,94%	4,73%
$C^L_{4,H}$ (% diff.)	0,14%	0,04%	0,11%	0,27%	1,07%	3,59%	4,06%	3,92%
$C^L_{4,T10}$ (% diff.)	-0,20%	-0,68%	-0,69%	-0,53%	-0,37%	-0,18%	-0,01%	0,84%
$C^L_{4,T2}$ (% diff.)	-0,05%	0,31%	-2,25%	-3,46%	-3,14%	-2,89%	-3,05%	-3,09%
$C^L_{5,B}$ (% diff.)	-0,07%	-0,05%	0,01%	0,00%	-0,11%	-0,03%	-0,18%	0,12%
$C^L_{5,M}$ (% diff.)	-0,04%	-0,01%	0,12%	0,09%	-0,05%	0,16%	0,62%	3,85%
$C^L_{5,H}$ (% diff.)	0,04%	0,07%	0,08%	0,09%	0,12%	0,67%	3,12%	3,33%
$C^L_{5,T10}$ (% diff.)	-0,14%	-0,44%	0,90%	0,33%	0,03%	-0,24%	-0,27%	0,39%
$C^L_{5,T2}$ (% diff.)	-0,16%	-0,16%	-1,37%	-5,64%	-3,67%	-3,67%	-4,52%	-5,05%
$C^L_{6,B}$ (% diff.)	-0,18%	-0,16%	-0,09%	-0,14%	-0,11%	-0,34%	-0,33%	-0,48%
$C^L_{6,M}$ (% diff.)	-0,13%	-0,13%	-0,07%	-0,09%	-0,19%	-0,58%	-0,47%	3,04%
$C^L_{6,H}$ (% diff.)	-0,12%	-0,04%	0,31%	0,08%	-0,07%	-0,41%	-0,05%	2,44%
$C^L_{6,T10}$ (% diff.)	-0,22%	-0,23%	1,85%	2,87%	2,04%	1,22%	0,52%	0,48%
$C^L_{6,T2}$ (% diff.)	1,92%	-0,51%	-2,90%	-6,68%	-5,36%	-3,41%	-3,21%	-5,63%
C^L_{2} (% diff.)	0,11%	0,33%	0,68%	1,17%	1,66%	2,16%	2,52%	2,55%
C^L_{3} (% diff.)	0,03%	-0,03%	-0,09%	0,48%	1,52%	2,05%	2,49%	2,69%
C^L_{4} (% diff.)	0,03%	-0,04%	-0,23%	-0,32%	0,09%	1,27%	1,61%	2,27%
C^L_{5} (% diff.)	-0,04%	-0,07%	0,08%	-0,46%	-0,42%	-0,25%	0,65%	1,46%
C^L_{6} (% diff.)	0,10%	-0,16%	0,14%	-0,14%	-0,31%	-0,55%	-0,52%	0,80%

$\Omega^L_{2,B}$ (% diff.)	-1,19%	-3,61%	-4,77%	-1,82%	-2,26%	-3,61%	-3,72%	-6,87%
$\Omega^L_{2,M}$ (% diff.)	-2,53%	-7,29%	5,65%	14,72%	21,72%	16,87%	16,56%	19,84%
$\Omega^L_{2,H}$ (% diff.)	-2,32%	-5,80%	-2,01%	1,68%	0,86%	-0,50%	-4,45%	-3,69%
$\Omega^L_{2,T10}$ (% diff.)	10,55%	0,93%	-3,24%	-13,35%	-100,00%	61,52%	77,32%	70,02%
$\Omega^L_{2,T2}$ (% diff.)	-11,59%	233,25%	21,97%	5,79%	4,68%	3,11%	1,28%	0,75%
$\Omega^L_{3,B}$ (% diff.)	-1,51%	-1,78%	-3,55%	-6,36%	-6,04%	-10,26%	-13,71%	-21,88%
$\Omega^L_{3,M}$ (% diff.)	-0,22%	-1,53%	-2,24%	-1,42%	4,43%	6,07%	17,18%	18,96%
$\Omega^L_{3,H}$ (% diff.)	-1,50%	-1,60%	-1,95%	-5,10%	4,59%	10,13%	9,38%	7,70%
$\Omega^L_{3,T10}$ (% diff.)	6,50%	4,41%	2,83%	1,68%	0,57%	-0,43%	-1,22%	0,89%
$\Omega^L_{3,T2}$ (% diff.)	-3,75%	24,94%	8,89%	7,61%	4,92%	4,32%	3,57%	2,74%
$\Omega^L_{4,B}$ (% diff.)	-0,54%	-0,57%	-1,63%	-3,40%	-6,93%	-7,14%	-9,18%	-10,85%
$\Omega^L_{4,M}$ (% diff.)	-0,25%	-0,05%	-0,65%	-1,63%	-2,04%	0,12%	1,35%	12,32%
$\Omega^L_{4,H}$ (% diff.)	0,32%	-0,01%	-0,63%	-1,01%	-0,72%	7,69%	8,55%	6,37%
$\Omega^L_{4,T10}$ (% diff.)	1,01%	4,67%	2,82%	1,83%	0,89%	0,45%	0,03%	0,86%
$\Omega^L_{4,T2}$ (% diff.)	0,14%	-3,22%	-2,79%	4,13%	3,51%	1,45%	1,10%	-0,06%
$\Omega^L_{5,B}$ (% diff.)	-0,24%	-0,33%	-0,78%	-2,28%	-4,59%	-6,39%	-6,78%	-8,89%
$\Omega^L_{5,M}$ (% diff.)	-0,11%	-0,12%	-0,05%	-0,84%	-2,18%	-2,20%	-0,70%	10,59%
$\Omega^L_{5,H}$ (% diff.)	0,08%	0,67%	0,44%	-0,13%	-0,38%	1,22%	10,78%	11,97%
$\Omega^L_{5,T10}$ (% diff.)	-0,17%	2,72%	4,91%	3,87%	2,79%	1,75%	1,22%	1,20%
$\Omega^L_{5,T2}$ (% diff.)	1,42%	0,61%	-0,35%	10,98%	7,23%	2,28%	0,67%	-1,28%
$\Omega^L_{6,B}$ (% diff.)	-0,37%	-0,32%	-0,19%	-0,30%	-0,29%	-0,79%	-0,79%	-1,16%
$\Omega^L_{6,M}$ (% diff.)	-0,27%	-0,27%	-0,14%	-0,13%	-0,30%	-1,09%	-0,78%	10,44%
$\Omega^L_{6,H}$ (% diff.)	-0,14%	0,08%	1,24%	0,41%	0,07%	-0,61%	0,67%	12,71%
$\Omega^L_{6,T10}$ (% diff.)	-0,44%	-0,46%	3,71%	5,69%	4,08%	2,45%	1,06%	1,06%
$\Omega^L_{6,T2}$ (% diff.)	2,43%	6,82%	10,52%	16,26%	18,02%	-4,37%	-10,30%	-17,16%
Ω^L_{2} (% diff.)	-0,84%	-4,27%	3,16%	4,45%	6,04%	3,93%	2,14%	2,44%
Ω^L_{3} (% diff.)	-0,28%	0,69%	1,02%	0,86%	3,61%	5,08%	5,17%	4,45%
Ω^L_{4} (% diff.)	0,26%	0,75%	-0,17%	0,74%	0,78%	3,00%	3,20%	3,25%
Ω^L_{5} (% diff.)	0,18%	0,89%	1,19%	3,52%	2,58%	1,28%	3,87%	4,67%
Ω^L_{6} (% diff.)	0,77%	2,05%	4,08%	5,79%	6,85%	-1,72%	-4,77%	-3,80%

For the interpretation of these numbers, see Tables K1 and K2.

Table K4: Transitional effects of changes in the estate tax system since 1980 on **consumption and wealth of entrepreneurs**: baseline relative to counterfactual 1a:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$C^E_{2,B}$ (% diff.)	0,34%	0,74%	2,14%	2,22%	2,22%	2,55%	2,33%	2,07%
$C^E_{2,M}$ (% diff.)	0,51%	1,16%	1,99%	4,35%	4,41%	5,92%	6,93%	7,24%
$C^E_{2,H}$ (% diff.)	-0,06%	0,32%	1,11%	1,33%	2,05%	2,64%	3,18%	3,19%
$C^E_{2,T10}$ (% diff.)	-0,16%	-0,77%	-0,15%	0,04%	0,36%	0,56%	0,78%	0,90%
$C^E_{2,T2}$ (% diff.)	-0,75%	-0,23%	0,63%	0,73%	0,60%	0,73%	0,81%	0,59%
$C^E_{3,B}$ (% diff.)	0,03%	0,15%	0,90%	1,67%	2,05%	1,84%	2,12%	1,71%
$C^E_{3,M}$ (% diff.)	0,31%	0,25%	0,96%	2,37%	4,59%	4,74%	5,76%	6,96%
$C^E_{3,H}$ (% diff.)	0,05%	-0,26%	0,13%	1,47%	2,52%	3,08%	3,60%	3,74%
$C^E_{3,T10}$ (% diff.)	0,39%	-0,31%	-0,86%	-0,15%	0,89%	1,00%	1,47%	1,92%
$C^E_{3,T2}$ (% diff.)	-0,72%	-0,84%	1,42%	0,80%	0,30%	-0,13%	-0,15%	-0,48%
$C^E_{4,B}$ (% diff.)	-0,02%	-0,07%	0,24%	0,83%	1,52%	1,61%	1,61%	1,34%
$C^E_{4,M}$ (% diff.)	0,28%	0,17%	0,16%	0,59%	2,81%	5,56%	5,01%	7,61%
$C^E_{4,H}$ (% diff.)	0,26%	-0,06%	-0,38%	-0,26%	1,07%	2,52%	3,04%	3,32%
$C^E_{4,T10}$ (% diff.)	0,11%	0,30%	-0,40%	-1,11%	-0,54%	0,24%	0,18%	0,96%
$C^E_{4,T2}$ (% diff.)	0,28%	-0,82%	-0,91%	1,17%	0,37%	-0,42%	-1,02%	-1,56%
$C^E_{5,B}$ (% diff.)	-0,09%	-0,10%	0,15%	0,35%	0,64%	0,97%	0,96%	0,48%
$C^E_{5,M}$ (% diff.)	0,62%	0,16%	0,46%	0,38%	0,79%	2,55%	5,07%	7,14%
$C^E_{5,H}$ (% diff.)	0,54%	0,09%	-1,24%	-1,55%	0,84%	1,60%	2,34%	3,19%
$C^E_{5,T10}$ (% diff.)	-0,29%	-0,14%	-0,75%	-2,21%	-0,44%	-0,30%	0,25%	0,58%
$C^E_{5,T2}$ (% diff.)	0,43%	0,35%	-0,82%	-0,56%	1,78%	1,13%	0,50%	-1,18%
$C^E_{6,B}$ (% diff.)	-0,18%	-0,18%	-0,16%	-0,05%	0,12%	0,06%	0,23%	-0,38%
$C^E_{6,M}$ (% diff.)	0,67%	0,55%	1,31%	1,31%	0,96%	0,55%	1,96%	6,55%
$C^E_{6,H}$ (% diff.)	0,37%	0,56%	-0,07%	-1,00%	0,19%	1,92%	2,24%	3,05%
$C^E_{6,T10}$ (% diff.)	0,41%	-1,36%	-4,01%	-6,66%	-0,51%	0,64%	0,54%	0,59%
$C^E_{6,T2}$ (% diff.)	-0,26%	1,31%	1,60%	-2,91%	-4,49%	2,85%	2,79%	0,11%
C^E_{2} (% diff.)	0,02%	0,29%	1,09%	1,68%	1,95%	2,53%	2,95%	2,97%
C^E_{3} (% diff.)	0,09%	-0,16%	0,40%	1,29%	2,25%	2,39%	2,89%	3,15%
C^E_{4} (% diff.)	0,21%	-0,02%	-0,25%	0,09%	1,09%	2,19%	2,13%	2,77%
C^E_{5} (% diff.)	0,34%	0,08%	-0,58%	-0,88%	0,73%	1,34%	2,11%	2,55%
C^E_{6} (% diff.)	0,31%	0,24%	-0,26%	-1,56%	-0,31%	1,36%	1,79%	2,49%

$\Omega^{L}_{2,B}$ (% diff.)	-1,45%	-5,31%	7,60%	8,36%	11,77%	13,24%	12,89%	15,71%
$\Omega^{L}_{2,M}$ (% diff.)	-0,66%	-4,96%	22,26%	20,57%	36,31%	20,51%	13,59%	5,73%
$\Omega^{L}_{2,H}$ (% diff.)	0,60%	-1,70%	-0,33%	6,73%	6,26%	6,45%	2,19%	1,80%
$\Omega^{L}_{2,T10}$ (% diff.)	0,86%	2,91%	6,63%	5,57%	1,46%	6,09%	3,30%	22,31%
$\Omega^{L}_{2,T2}$ (% diff.)	3,20%	344,69%	-100,00%	-5,10%	-0,35%	-2,24%	-3,78%	-4,38%
$\Omega^{E}_{3,B}$ (% diff.)	-0,27%	-1,13%	0,03%	5,45%	5,97%	5,50%	4,96%	5,99%
$\Omega^{E}_{3,M}$ (% diff.)	0,28%	-0,33%	-2,15%	0,07%	13,19%	11,96%	14,45%	10,13%
$\Omega^{E}_{3,H}$ (% diff.)	0,67%	2,24%	1,32%	-1,99%	8,19%	9,75%	10,23%	9,18%
$\Omega^{E}_{3,T10}$ (% diff.)	-0,26%	1,60%	4,94%	3,53%	7,40%	6,46%	6,45%	6,42%
$\Omega^{E}_{3,T2}$ (% diff.)	2,71%	4,43%	-5,71%	-2,24%	2,43%	2,81%	1,83%	0,68%
$\Omega^{E}_{4,B}$ (% diff.)	-0,23%	0,19%	0,52%	0,97%	2,78%	2,38%	1,01%	-1,15%
$\Omega^{E}_{4,M}$ (% diff.)	1,05%	1,22%	0,70%	0,20%	4,21%	10,86%	9,19%	11,41%
$\Omega^{E}_{4,H}$ (% diff.)	0,67%	0,93%	1,63%	2,66%	3,72%	7,84%	8,46%	7,79%
$\Omega^{E}_{4,T10}$ (% diff.)	1,76%	-0,31%	1,97%	4,55%	3,77%	5,25%	4,95%	5,16%
$\Omega^{E}_{4,T2}$ (% diff.)	-0,68%	4,47%	2,40%	-6,36%	-2,32%	1,24%	1,81%	0,26%
$\Omega^{E}_{5,B}$ (% diff.)	-0,17%	-0,27%	0,16%	0,53%	0,70%	1,24%	0,88%	-1,95%
$\Omega^{E}_{5,M}$ (% diff.)	0,93%	2,09%	2,58%	2,30%	1,73%	5,16%	11,07%	15,72%
$\Omega^{E}_{5,H}$ (% diff.)	1,02%	1,13%	2,96%	3,64%	6,67%	7,17%	9,22%	10,36%
$\Omega^{E}_{5,T10}$ (% diff.)	4,29%	3,69%	0,95%	8,12%	9,39%	7,43%	8,08%	9,00%
$\Omega^{E}_{5,T2}$ (% diff.)	-2,12%	-6,34%	8,77%	5,77%	-12,32%	-7,20%	-1,94%	-1,80%
$\Omega^{E}_{6,B}$ (% diff.)	-0,36%	-0,38%	-0,34%	0,13%	0,77%	0,76%	0,94%	-0,55%
$\Omega^{E}_{6,M}$ (% diff.)	2,33%	1,74%	3,48%	3,02%	3,24%	1,36%	5,46%	21,55%
$\Omega^{E}_{6,H}$ (% diff.)	0,63%	-0,89%	0,94%	5,39%	4,59%	7,21%	8,80%	13,47%
$\Omega^{E}_{6,T10}$ (% diff.)	0,66%	17,63%	19,74%	17,75%	24,83%	22,79%	16,93%	19,39%
$\Omega^{E}_{6,T2}$ (% diff.)	-0,60%	-13,76%	-9,84%	8,93%	-12,20%	-59,74%	-38,11%	-17,27%
Ω^{E}_{2} (% diff.)	0,35%	-1,95%	5,09%	6,85%	9,25%	5,39%	2,39%	1,18%
Ω^{E}_{3} (% diff.)	0,73%	1,50%	0,30%	-0,29%	6,50%	6,44%	6,20%	4,79%
Ω^{E}_{4} (% diff.)	0,69%	1,27%	1,58%	0,60%	1,86%	5,33%	5,28%	4,59%
Ω^{E}_{5} (% diff.)	0,86%	0,30%	3,56%	4,64%	1,22%	1,98%	5,15%	6,12%
Ω^{E}_{6} (% diff.)	0,23%	-0,60%	2,25%	8,82%	3,47%	-13,50%	-11,82%	-0,58%

For the interpretation of these numbers, see Tables K1 and K2.

Table K5: Transitional effects of changes in the estate tax system since 1980 on **the labor supply of workers**: baseline relative to counterfactual 1a:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$n^L_{2,B}$ (% diff.)	-0,01%	-0,04%	-0,04%	-0,02%	-0,03%	-0,08%	-0,12%	-0,14%
$n^L_{2,M}$ (% diff.)	-0,11%	-0,13%	-0,48%	-0,30%	-0,50%	-1,04%	-1,16%	-0,98%
$n^L_{2,H}$ (% diff.)	-0,10%	-0,24%	-0,67%	-0,97%	-1,19%	-1,17%	-1,27%	-1,23%
$n^L_{2,T10}$ (% diff.)	0,25%	0,08%	-0,13%	-0,15%	-0,05%	-0,06%	-0,08%	-0,14%
$n^L_{2,T2}$ (% diff.)	0,00%	0,01%	1,57%	0,81%	0,65%	0,51%	0,35%	0,30%
$n^L_{3,B}$ (% diff.)	0,00%	0,01%	-0,03%	-0,01%	0,08%	0,05%	0,01%	0,00%
$n^L_{3,M}$ (% diff.)	-0,04%	-0,05%	-0,09%	-0,31%	-0,35%	-0,54%	-1,07%	-1,00%
$n^L_{3,H}$ (% diff.)	-0,03%	-0,04%	-0,15%	-0,44%	-1,34%	-1,48%	-1,48%	-1,46%
$n^L_{3,T10}$ (% diff.)	0,27%	0,27%	0,19%	0,07%	-0,16%	-0,27%	-0,35%	-0,62%
$n^L_{3,T2}$ (% diff.)	-0,22%	0,56%	1,92%	1,42%	1,15%	1,20%	1,13%	1,08%
$n^L_{4,B}$ (% diff.)	0,02%	0,02%	0,02%	0,10%	0,08%	0,13%	0,08%	0,06%
$n^L_{4,M}$ (% diff.)	0,01%	-0,01%	0,01%	0,11%	-0,06%	-0,25%	-0,44%	-1,49%
$n^L_{4,H}$ (% diff.)	-0,03%	0,03%	0,07%	0,13%	-0,14%	-1,18%	-1,28%	-1,18%
$n^L_{4,T10}$ (% diff.)	0,10%	0,39%	0,55%	0,54%	0,46%	0,42%	0,38%	-0,02%
$n^L_{4,T2}$ (% diff.)	0,13%	-0,24%	1,36%	2,39%	2,31%	2,20%	2,31%	2,33%
$n^L_{5,B}$ (% diff.)	0,13%	0,17%	0,34%	1,82%	1,75%	1,24%	1,60%	1,24%
$n^L_{5,M}$ (% diff.)	0,15%	0,20%	0,55%	2,67%	3,12%	2,21%	1,89%	-0,67%
$n^L_{5,H}$ (% diff.)	0,14%	0,28%	0,34%	1,34%	2,55%	2,64%	2,08%	2,09%
$n^L_{5,T10}$ (% diff.)	0,21%	0,70%	-3,23%	-1,15%	0,63%	1,72%	2,02%	1,04%
$n^L_{5,T2}$ (% diff.)	1,45%	0,71%	1,71%	11,13%	10,57%	12,33%	16,02%	17,85%
$R^L_{5,B}$ (% diff.)	0,05%	0,09%	0,21%	0,84%	0,84%	0,76%	0,92%	0,66%
$R^L_{5,M}$ (% diff.)	0,05%	0,08%	0,29%	0,94%	1,21%	1,31%	1,30%	0,82%
$R^L_{5,H}$ (% diff.)	0,04%	0,10%	0,14%	0,45%	0,91%	1,16%	1,48%	1,43%
$R^L_{5,T10}$ (% diff.)	0,03%	0,11%	-0,63%	-0,28%	0,05%	0,32%	0,43%	0,28%
$R^L_{5,T2}$ (% diff.)	0,11%	0,08%	0,30%	1,97%	1,36%	1,44%	1,86%	2,11%
n^L_2 (% diff.)	-0,05%	-0,12%	-0,33%	-0,37%	-0,49%	-0,67%	-0,75%	-0,70%
n^L_3 (% diff.)	0,00%	0,01%	-0,04%	-0,20%	-0,45%	-0,56%	-0,74%	-0,74%
n^L_4 (% diff.)	0,01%	0,04%	0,09%	0,18%	0,04%	-0,30%	-0,40%	-0,72%
n^L_5 (% diff.)	0,15%	0,25%	0,19%	1,92%	2,51%	2,14%	2,04%	1,12%
R^L_5 (% diff.)	0,05%	0,09%	0,13%	0,61%	0,89%	1,02%	1,19%	0,97%

For the interpretation of these numbers, see Tables K1 and K2.

Table K6: Transitional effects of changes in the estate tax system since 1980 on **the labor supply of entrepreneurs**: baseline relative to counterfactual 1a:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$n^E_{2,B}$ (% diff.)	-0,11%	-0,24%	-0,73%	-0,69%	-0,61%	-0,67%	-0,54%	-0,41%
$n^E_{2,M}$ (% diff.)	-0,19%	-0,49%	-0,84%	-1,87%	-1,69%	-2,29%	-2,66%	-2,67%
$n^E_{2,H}$ (% diff.)	0,04%	-0,20%	-0,52%	-0,49%	-0,67%	-0,82%	-0,98%	-0,98%
$n^E_{2,T10}$ (% diff.)	0,14%	0,46%	0,09%	0,03%	-0,05%	-0,06%	-0,11%	-0,04%
$n^E_{2,T2}$ (% diff.)	0,60%	0,05%	-0,68%	-0,53%	-0,21%	-0,45%	-0,63%	-0,65%
$n^E_{3,B}$ (% diff.)	0,01%	-0,02%	-0,23%	-0,42%	-0,48%	-0,32%	-0,38%	-0,20%
$n^E_{3,M}$ (% diff.)	-0,11%	-0,10%	-0,43%	-0,95%	-1,81%	-1,71%	-2,12%	-2,57%
$n^E_{3,H}$ (% diff.)	0,02%	0,14%	-0,06%	-0,63%	-1,01%	-1,06%	-1,24%	-1,24%
$n^E_{3,T10}$ (% diff.)	-0,22%	0,22%	0,66%	0,17%	-0,42%	-0,36%	-0,60%	-0,76%
$n^E_{3,T2}$ (% diff.)	0,62%	0,68%	-1,34%	-0,50%	0,10%	0,44%	0,38%	0,47%
$n^E_{4,B}$ (% diff.)	0,06%	0,11%	0,09%	-0,08%	-0,38%	-0,25%	-0,24%	-0,11%
$n^E_{4,M}$ (% diff.)	-0,12%	-0,04%	0,07%	-0,02%	-1,16%	-2,48%	-2,00%	-2,77%
$n^E_{4,H}$ (% diff.)	-0,05%	0,07%	0,31%	0,45%	-0,21%	-0,81%	-0,89%	-0,81%
$n^E_{4,T10}$ (% diff.)	-0,06%	-0,32%	0,60%	1,25%	0,77%	0,27%	0,45%	-0,05%
$n^E_{4,T2}$ (% diff.)	-0,70%	1,13%	1,26%	-1,01%	0,04%	0,91%	1,53%	1,88%
$n^E_{5,B}$ (% diff.)	0,24%	0,45%	3,08%	3,75%	1,77%	-0,01%	0,58%	0,74%
$n^E_{5,M}$ (% diff.)	-0,28%	1,22%	-3,77%	5,61%	1,09%	-1,63%	-2,22%	-0,76%
$n^E_{5,H}$ (% diff.)	-0,66%	3,47%	13,55%	2,77%	-0,10%	-0,27%	-0,16%	0,69%
$n^E_{5,T10}$ (% diff.)	8,86%	30,01%	158,95%	30,15%	4,96%	2,88%	1,23%	0,68%
$n^E_{5,T2}$ (% diff.)	36,85%	26,86%	45,71%	4,89%	-8,30%	-6,88%	-3,42%	19,52%
$R^E_{5,B}$ (% diff.)	0,07%	0,14%	0,70%	1,02%	1,36%	0,84%	1,00%	0,78%
$R^E_{5,M}$ (% diff.)	0,00%	0,18%	0,22%	0,74%	1,04%	0,78%	1,15%	1,60%
$R^E_{5,H}$ (% diff.)	-0,06%	0,12%	0,10%	0,12%	0,13%	0,21%	0,35%	0,51%
$R^E_{5,T10}$ (% diff.)	0,19%	0,04%	-0,03%	0,41%	0,41%	0,42%	0,26%	0,21%
$R^E_{5,T2}$ (% diff.)	0,00%	0,00%	0,21%	0,45%	-0,71%	-0,44%	-0,15%	0,66%
n^E_2 (% diff.)	-0,06%	-0,25%	-0,65%	-0,94%	-0,92%	-1,16%	-1,29%	-1,24%
n^E_3 (% diff.)	-0,03%	0,03%	-0,20%	-0,60%	-1,02%	-0,94%	-1,15%	-1,23%
n^E_4 (% diff.)	-0,04%	0,04%	0,20%	0,17%	-0,48%	-1,02%	-0,88%	-1,07%
n^E_5 (% diff.)	0,00%	1,01%	3,86%	4,46%	1,12%	-0,46%	-0,44%	0,32%
R^E_5 (% diff.)	0,02%	0,13%	0,25%	0,51%	0,66%	0,53%	0,72%	0,87%

For the interpretation of these numbers, see Tables K1 and K2.

Appendix L. Effects of changes in the U.S. federal estate tax system since 1980 relative to counterfactual 1b (bequests and transfers jointly taxed – extra tax revenues in the counterfactual absorbed by a lower $\bar{\tau}_{k,t}$)

Table L1: Transitional effects of changes in the estate tax system since 1980 on **key macroeconomic variables**: baseline simulation relative to counterfactual 1b:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long Run
% estates taxed (%-pt. diff.)	-0,27%	0,00%	-9,39%	-9,47%	-12,95%	-12,46%	-11,73%	-10,55%
Average estate tax paid (%-pt. diff.)	0,87%	-0,11%	-5,13%	-10,00%	-9,40%	-7,90%	5,39%	1,64%
Yearly extra estate tax revenues, % of GDP (%-pt. diff.)	-0,02%	0,00%	-0,11%	-0,11%	-0,52%	-0,75%	-1,01%	-1,19%
Yearly per capita GDP growth (%-pt. diff.)	0,00%	0,00%	0,00%	0,01%	0,00%	0,00%	0,00%	0,00%
Per capita GDP level (% diff.)	0,02%	0,05%	0,11%	0,20%	0,20%	0,16%	0,11%	-0,04%
Yearly r (%-pt. diff.)	-0,01%	0,00%	-0,03%	-0,03%	-0,12%	-0,16%	-0,20%	-0,19%
K = Ω (% diff.)	0,11%	-0,06%	0,17%	0,00%	-0,18%	-0,58%	-0,80%	-1,40%
K/GDP (%-pt. diff.)	0,32%	-0,38%	0,26%	-0,86%	-1,64%	-3,25%	-4,10%	-6,11%
yearly flow of inter-vivos transfers/stock of K (%-pt. dif	0,00%	-0,01%	0,04%	0,06%	0,10%	0,15%	0,15%	0,18%
yearly flow of pre-tax bequests/stock of K (%-pt. diff.)	0,00%	0,00%	0,01%	0,01%	0,02%	0,01%	-0,02%	-0,03%
Aggregate consumption C (% diff.)	-0,02%	0,09%	0,06%	0,29%	0,34%	0,43%	0,42%	0,36%
Aggregate ordinary labor L (% diff.)	0,04%	0,02%	0,20%	0,28%	0,38%	0,37%	0,46%	0,52%
L_B (% diff.)	0,04%	0,01%	0,04%	0,07%	0,30%	0,36%	0,44%	0,54%
L_M (% diff.)	-0,01%	-0,06%	-0,10%	-0,12%	0,06%	-0,08%	-0,28%	-0,65%
L_H (% diff.)	-0,02%	-0,08%	-0,17%	-0,34%	-0,51%	-0,76%	-0,76%	-0,57%
L_{T10} (% diff.)	0,23%	0,24%	0,08%	0,08%	0,35%	0,53%	0,64%	0,37%
L_{T2} (% diff.)	0,03%	0,15%	1,54%	2,00%	2,18%	2,50%	2,94%	3,41%
w^L_B (% diff.)	-0,02%	0,04%	0,02%	0,07%	-0,13%	-0,21%	-0,34%	-0,58%
w^L_M (% diff.)	0,02%	0,09%	0,12%	0,20%	0,05%	0,10%	0,17%	0,25%
w^L_H (% diff.)	0,02%	0,10%	0,17%	0,35%	0,45%	0,57%	0,50%	0,19%
w^L_{T10} (% diff.)	-0,15%	-0,12%	-0,01%	0,06%	-0,16%	-0,33%	-0,48%	-0,46%
w^L_{T2} (% diff.)	-0,01%	-0,07%	-1,04%	-1,30%	-1,47%	-1,74%	-2,13%	-2,66%
Aggregate entrepreneurship E (% diff.)	0,03%	0,07%	-0,08%	-0,30%	-0,35%	-0,26%	-0,06%	0,35%
E_B (% diff.)	0,04%	-0,06%	-0,24%	-0,36%	-0,21%	-0,09%	0,10%	0,46%
E_M (% diff.)	-0,11%	-0,19%	-0,37%	-0,83%	-1,21%	-1,73%	-1,71%	-1,77%
E_H (% diff.)	0,02%	0,02%	-0,02%	-0,24%	-0,47%	-0,64%	-0,65%	-0,43%
E_{T10} (% diff.)	0,03%	0,15%	0,53%	0,59%	0,56%	0,60%	0,63%	0,57%
E_{T2} (% diff.)	0,31%	0,55%	-0,42%	-0,68%	-0,39%	0,38%	1,06%	2,33%
w^E_B (% diff.)	-0,01%	0,06%	0,30%	0,54%	0,45%	0,30%	0,06%	-0,48%
w^E_M (% diff.)	0,09%	0,16%	0,39%	0,87%	1,14%	1,42%	1,31%	1,07%
w^E_H (% diff.)	0,00%	0,01%	0,15%	0,46%	0,63%	0,68%	0,58%	0,15%
w^E_{T10} (% diff.)	-0,01%	-0,08%	-0,24%	-0,12%	-0,09%	-0,18%	-0,31%	-0,55%
w^E_{T2} (% diff.)	-0,21%	-0,36%	0,43%	0,77%	0,58%	-0,03%	-0,61%	-1,82%

For the interpretation of these numbers, see Table K1 in Appendix K.

Table L2: Transitional effects of changes in the estate tax system since 1980 on **inter-vivos transfers provided by workers and entrepreneurs**: baseline simulation relative to counterfactual 1b

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
Z^L_4 (% diff.)	-0,41%	-4,64%	16,03%	10,55%	12,67%	13,59%	13,62%	12,89%
Z^L_5 (% diff.)	0,01%	0,00%	0,00%	0,01%	100,00%	100,00%	97,38%	96,10%
Z^L_6 (% diff.)	0,01%	0,01%	-0,01%	0,00%	98,18%	34,93%	21,72%	24,74%
Z^E_4 (% diff.)	-0,11%	-2,06%	15,54%	13,98%	16,43%	17,06%	16,62%	16,28%
Z^E_5 (% diff.)	0,01%	74,86%	7,61%	80,43%	81,97%	95,11%	96,64%	95,21%
Z^E_6 (% diff.)	0,79%	10,72%	-18,15%	79,79%	72,59%	35,05%	32,01%	31,82%
Z_4/C_4 (%-pt. diff.)	-0,04%	-0,19%	0,43%	0,40%	0,46%	0,35%	0,33%	0,25%
Z_5/C_5 (%-pt. diff.)	0,00%	0,01%	0,00%	0,00%	0,12%	0,24%	0,37%	0,38%
Z_6/C_6 (%-pt. diff.)	0,00%	0,01%	0,01%	0,06%	0,30%	0,34%	0,25%	0,46%
Ω_6/C_6 (%-pt. diff.)	0,03%	0,12%	0,53%	1,24%	0,90%	-1,07%	-1,66%	-1,52%

$Z^L_{4,B}$ (% diff.)	-2,71%	0,11%	10,65%	-3,91%	-2,26%	-1,94%	0,28%	2,76%
$Z^L_{4,M}$ (% diff.)	-0,54%	-0,97%	-0,19%	-1,68%	-1,41%	2,57%	1,04%	-1,40%
$Z^L_{4,H}$ (% diff.)	0,28%	-5,82%	6,24%	2,89%	7,83%	12,11%	13,29%	11,12%
$Z^L_{4,T10}$ (% diff.)	-5,32%	-92,33%	75,66%	16,64%	12,39%	9,52%	7,59%	10,59%
$Z^L_{4,T2}$ (% diff.)	-0,15%	-1,99%	18,96%	18,40%	19,17%	17,78%	17,23%	16,43%
$Z^L_{5,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{5,M}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{5,H}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	99,96%	87,67%	82,98%
$Z^L_{5,T10}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{5,T2}$ (% diff.)	0,28%	0,26%	0,22%	0,28%	100,00%	100,00%	100,00%	99,26%
$Z^L_{6,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{6,M}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	-15,94%	-18,43%	32,00%
$Z^L_{6,H}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	-100,00%	-25,64%	12,47%	41,18%
$Z^L_{6,T10}$ (% diff.)	-0,01%	-0,01%	-0,01%	-0,01%	-0,01%	-100,00%	-100,00%	-1858,77%
$Z^L_{6,T2}$ (% diff.)	0,57%	0,62%	-0,35%	-0,03%	100,00%	38,60%	23,03%	20,49%

$Z^E_{4,B}$ (% diff.)	-1,44%	-3,61%	5,04%	-0,09%	-0,40%	-0,29%	-2,93%	-4,57%
$Z^E_{4,M}$ (% diff.)	-1,12%	-6,97%	16,17%	9,98%	8,64%	18,12%	13,93%	10,37%
$Z^E_{4,H}$ (% diff.)	0,30%	-1,12%	12,79%	16,50%	23,16%	20,78%	22,11%	23,40%
$Z^E_{4,T10}$ (% diff.)	-0,04%	-2,68%	50,07%	32,33%	31,00%	30,95%	27,40%	25,32%
$Z^E_{4,T2}$ (% diff.)	0,19%	-0,81%	14,51%	9,88%	11,62%	12,93%	12,63%	12,22%
$Z^E_{5,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^E_{5,M}$ (% diff.)	0,00%	0,00%	7,61%	-12,93%	-3,84%	-9,56%	-18,81%	-61,41%
$Z^E_{5,H}$ (% diff.)	0,01%	16,67%	0,01%	99,19%	98,52%	99,99%	95,28%	91,94%
$Z^E_{5,T10}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^E_{5,T2}$ (% diff.)	0,26%	87,93%	0,39%	0,40%	-0,04%	100,00%	100,00%	100,00%
$Z^E_{6,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	-100,00%	8,72%	-2,00%	-185,72%
$Z^E_{6,M}$ (% diff.)	0,00%	-2,59%	-1,49%	0,40%	-12,10%	-7,94%	-11,65%	-12,56%
$Z^E_{6,H}$ (% diff.)	0,66%	14,45%	33,98%	75,27%	39,04%	36,99%	38,45%	35,75%
$Z^E_{6,T10}$ (% diff.)	0,03%	0,04%	-0,01%	0,04%	99,99%	100,00%	100,00%	96,50%
$Z^E_{6,T2}$ (% diff.)	0,82%	9,71%	-100,00%	100,00%	100,00%	33,54%	29,40%	27,45%

For the interpretation of these numbers, see Table K2 in Appendix K.

Table L3: Transitional effects of changes in the estate tax system since 1980 on **consumption and wealth of workers**: baseline relative to counterfactual 1b:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$C^L_{2,B}$ (% diff.)	0,02%	0,37%	0,30%	0,42%	0,17%	0,22%	0,15%	-0,05%
$C^L_{2,M}$ (% diff.)	0,31%	0,68%	1,68%	1,07%	1,36%	2,73%	3,03%	2,47%
$C^L_{2,H}$ (% diff.)	0,25%	0,75%	1,82%	2,71%	3,30%	3,22%	3,42%	2,99%
$C^L_{2,T10}$ (% diff.)	-0,56%	-0,07%	0,50%	0,86%	0,18%	-0,08%	-0,34%	-0,31%
$C^L_{2,T2}$ (% diff.)	0,01%	-0,04%	-2,19%	-1,08%	-0,88%	-0,80%	-0,91%	-1,23%
$C^L_{3,B}$ (% diff.)	-0,05%	0,06%	0,24%	0,37%	-0,36%	-0,37%	-0,36%	-0,64%
$C^L_{3,M}$ (% diff.)	0,08%	0,29%	0,45%	1,40%	1,06%	1,49%	2,80%	2,54%
$C^L_{3,H}$ (% diff.)	0,06%	0,24%	0,46%	1,56%	3,63%	4,17%	3,99%	3,73%
$C^L_{3,T10}$ (% diff.)	-0,65%	-0,57%	-0,35%	0,22%	0,41%	0,64%	0,65%	1,07%
$C^L_{3,T2}$ (% diff.)	0,33%	-0,61%	-3,21%	-2,48%	-2,29%	-2,50%	-2,77%	-3,12%
$C^L_{4,B}$ (% diff.)	-0,09%	0,04%	-0,02%	0,06%	-0,32%	-0,51%	-0,57%	-0,87%
$C^L_{4,M}$ (% diff.)	-0,04%	0,11%	0,03%	0,18%	0,14%	0,51%	0,78%	3,09%
$C^L_{4,H}$ (% diff.)	0,05%	0,05%	-0,06%	0,17%	0,46%	2,68%	2,71%	2,23%
$C^L_{4,T10}$ (% diff.)	-0,29%	-0,67%	-0,88%	-0,64%	-0,99%	-1,19%	-1,30%	-0,75%
$C^L_{4,T2}$ (% diff.)	-0,15%	0,33%	-2,25%	-3,51%	-3,72%	-3,93%	-4,50%	-5,04%
$C^L_{5,B}$ (% diff.)	-0,17%	-0,07%	-0,19%	-0,13%	-0,76%	-0,95%	-1,65%	-1,95%
$C^L_{5,M}$ (% diff.)	-0,15%	-0,03%	-0,09%	-0,10%	-0,84%	-1,11%	-1,06%	1,54%
$C^L_{5,H}$ (% diff.)	-0,08%	0,05%	-0,12%	-0,11%	-0,71%	-0,75%	1,24%	0,88%
$C^L_{5,T10}$ (% diff.)	-0,26%	-0,45%	0,70%	0,11%	-0,84%	-1,72%	-2,33%	-1,98%
$C^L_{5,T2}$ (% diff.)	-0,28%	-0,20%	-1,53%	-5,69%	-4,51%	-5,14%	-6,63%	-7,86%
$C^L_{6,B}$ (% diff.)	-0,33%	-0,18%	-0,33%	-0,33%	-0,66%	-1,36%	-1,65%	-3,05%
$C^L_{6,M}$ (% diff.)	-0,29%	-0,16%	-0,31%	-0,33%	-1,00%	-2,09%	-2,54%	0,02%
$C^L_{6,H}$ (% diff.)	-0,28%	-0,10%	0,06%	-0,16%	-1,00%	-2,10%	-2,50%	-0,82%
$C^L_{6,T10}$ (% diff.)	-0,40%	-0,28%	1,60%	2,63%	1,07%	-0,54%	-2,04%	-2,72%
$C^L_{6,T2}$ (% diff.)	1,75%	-0,57%	-3,19%	-6,91%	-6,21%	-5,25%	-5,86%	-9,36%
C^L_{2} (% diff.)	0,08%	0,47%	0,87%	1,29%	1,44%	1,65%	1,71%	1,36%
C^L_{3} (% diff.)	-0,04%	0,02%	-0,14%	0,63%	1,34%	1,64%	1,79%	1,61%
C^L_{4} (% diff.)	-0,06%	-0,03%	-0,38%	-0,41%	-0,49%	0,36%	0,32%	0,59%
C^L_{5} (% diff.)	-0,16%	-0,09%	-0,12%	-0,64%	-1,23%	-1,60%	-1,19%	-0,95%
C^L_{6} (% diff.)	-0,06%	-0,20%	-0,11%	-0,38%	-1,17%	-2,15%	-2,80%	-2,38%

$\Omega^{L}_{2,B}$ (% diff.)	-1,56%	-5,98%	-7,84%	-3,39%	-4,21%	-7,87%	-8,73%	-15,63%
$\Omega^{L}_{2,M}$ (% diff.)	-3,27%	-9,45%	-2,27%	11,55%	17,13%	12,86%	12,69%	15,46%
$\Omega^{L}_{2,H}$ (% diff.)	-2,95%	-7,56%	-6,75%	-0,34%	-0,79%	-2,47%	-6,68%	-6,47%
$\Omega^{L}_{2,T10}$ (% diff.)	9,88%	-0,35%	-7,63%	-50,98%	-100,00%	100,00%	100,00%	-100,00%
$\Omega^{L}_{2,T2}$ (% diff.)	-27,58%	-21,93%	17,80%	-1,05%	-4,52%	-7,39%	-10,02%	-11,33%
$\Omega^{L}_{3,B}$ (% diff.)	-1,93%	-2,56%	-5,71%	-11,78%	-11,90%	-19,62%	-27,66%	-44,34%
$\Omega^{L}_{3,M}$ (% diff.)	-0,49%	-2,36%	-3,77%	-6,70%	-1,02%	-2,56%	8,80%	9,13%
$\Omega^{L}_{3,H}$ (% diff.)	-1,87%	-2,49%	-2,98%	-8,56%	0,01%	4,20%	2,21%	-0,97%
$\Omega^{L}_{3,T10}$ (% diff.)	6,23%	3,94%	2,02%	-0,71%	-4,69%	-6,47%	-7,77%	-5,79%
$\Omega^{L}_{3,T2}$ (% diff.)	-3,98%	22,12%	8,68%	6,09%	2,21%	0,71%	-0,70%	-2,24%
$\Omega^{L}_{4,B}$ (% diff.)	-0,72%	-1,01%	-2,62%	-6,77%	-14,52%	-15,69%	-19,84%	-23,87%
$\Omega^{L}_{4,M}$ (% diff.)	-0,38%	-0,29%	-1,48%	-3,59%	-7,08%	-5,22%	-5,33%	5,94%
$\Omega^{L}_{4,H}$ (% diff.)	0,19%	-0,19%	-1,09%	-2,10%	-3,66%	4,34%	4,49%	1,75%
$\Omega^{L}_{4,T10}$ (% diff.)	0,89%	4,56%	2,45%	1,15%	-1,17%	-2,78%	-3,78%	-3,21%
$\Omega^{L}_{4,T2}$ (% diff.)	0,03%	-3,61%	-2,81%	3,89%	1,97%	-1,00%	-2,15%	-4,08%
$\Omega^{L}_{5,B}$ (% diff.)	-0,38%	-0,58%	-1,53%	-4,71%	-10,49%	-15,32%	-16,25%	-20,15%
$\Omega^{L}_{5,M}$ (% diff.)	-0,26%	-0,22%	-0,59%	-2,42%	-5,94%	-8,47%	-7,16%	4,34%
$\Omega^{L}_{5,H}$ (% diff.)	-0,10%	0,62%	0,04%	-0,90%	-2,52%	-2,37%	6,93%	7,27%
$\Omega^{L}_{5,T10}$ (% diff.)	-0,35%	2,71%	4,63%	3,48%	1,39%	-0,64%	-2,02%	-2,59%
$\Omega^{L}_{5,T2}$ (% diff.)	1,24%	0,66%	-0,57%	10,82%	6,71%	0,40%	-2,12%	-4,97%
$\Omega^{L}_{6,B}$ (% diff.)	-0,68%	-0,38%	-0,67%	-0,69%	-1,45%	-2,95%	-3,61%	-6,62%
$\Omega^{L}_{6,M}$ (% diff.)	-0,59%	-0,34%	-0,63%	-0,61%	-1,97%	-4,19%	-5,03%	4,38%
$\Omega^{L}_{6,H}$ (% diff.)	-0,49%	-0,04%	0,73%	-0,09%	-1,80%	-4,04%	-4,29%	6,59%
$\Omega^{L}_{6,T10}$ (% diff.)	-0,80%	-0,57%	3,21%	5,23%	2,15%	-1,05%	-4,09%	-5,42%
$\Omega^{L}_{6,T2}$ (% diff.)	2,20%	6,75%	10,32%	15,93%	16,00%	-6,57%	-16,07%	-25,60%
Ω^{L}_{2} (% diff.)	-1,46%	-6,06%	-1,62%	-0,18%	0,75%	-2,16%	-4,00%	-4,94%
Ω^{L}_{3} (% diff.)	-0,60%	-0,12%	0,04%	-2,02%	-0,50%	-0,22%	-0,87%	-2,44%
Ω^{L}_{4} (% diff.)	0,13%	0,54%	-0,64%	-0,26%	-1,83%	-0,40%	-0,98%	-1,44%
Ω^{L}_{5} (% diff.)	0,01%	0,85%	0,81%	2,83%	0,88%	-1,75%	0,11%	0,18%
Ω^{L}_{6} (% diff.)	0,46%	1,95%	3,66%	5,35%	4,97%	-4,57%	-10,05%	-11,07%

For the interpretation of these numbers, see Tables K1 and K2 in Appendix K.

Table L4: Transitional effects of changes in the estate tax system since 1980 on **consumption and wealth of entrepreneurs**: baseline relative to counterfactual 1b:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$C^E_{2,B}$ (% diff.)	0,28%	0,85%	2,04%	2,20%	1,83%	1,85%	1,29%	0,56%
$C^E_{2,M}$ (% diff.)	0,44%	1,27%	1,97%	4,21%	4,00%	5,20%	5,93%	5,84%
$C^E_{2,H}$ (% diff.)	-0,11%	0,43%	1,13%	1,29%	1,69%	1,97%	2,16%	1,79%
$C^E_{2,T10}$ (% diff.)	-0,23%	-0,66%	-0,07%	0,23%	0,34%	0,28%	0,22%	-0,10%
$C^E_{2,T2}$ (% diff.)	-0,73%	-0,25%	0,81%	1,28%	1,14%	1,04%	0,74%	0,01%
$C^E_{3,B}$ (% diff.)	-0,05%	0,17%	0,78%	1,69%	1,54%	1,08%	1,01%	0,15%
$C^E_{3,M}$ (% diff.)	0,22%	0,26%	0,84%	2,49%	4,35%	4,35%	5,02%	5,83%
$C^E_{3,H}$ (% diff.)	-0,04%	-0,25%	0,01%	1,58%	2,35%	2,66%	2,87%	2,68%
$C^E_{3,T10}$ (% diff.)	0,30%	-0,31%	-0,98%	-0,05%	0,68%	0,58%	0,73%	0,77%
$C^E_{3,T2}$ (% diff.)	-0,79%	-0,75%	1,48%	0,94%	0,09%	-0,45%	-0,89%	-1,86%
$C^E_{4,B}$ (% diff.)	-0,13%	-0,08%	0,02%	0,68%	1,01%	0,53%	0,26%	-0,53%
$C^E_{4,M}$ (% diff.)	0,17%	0,16%	-0,07%	0,42%	2,20%	4,59%	3,64%	5,67%
$C^E_{4,H}$ (% diff.)	0,15%	-0,07%	-0,60%	-0,42%	0,42%	1,48%	1,66%	1,55%
$C^E_{4,T10}$ (% diff.)	0,01%	0,29%	-0,63%	-1,27%	-1,22%	-0,86%	-1,30%	-0,99%
$C^E_{4,T2}$ (% diff.)	0,19%	-0,81%	-1,05%	1,19%	-0,26%	-1,52%	-2,41%	-3,76%
$C^E_{5,B}$ (% diff.)	-0,21%	-0,14%	-0,08%	0,11%	-0,20%	-0,23%	-0,98%	-2,06%
$C^E_{5,M}$ (% diff.)	0,48%	0,12%	0,21%	0,11%	-0,11%	1,15%	3,15%	4,48%
$C^E_{5,H}$ (% diff.)	0,40%	0,05%	-1,49%	-1,83%	-0,08%	0,10%	0,25%	0,58%
$C^E_{5,T10}$ (% diff.)	-0,43%	-0,17%	-1,00%	-2,50%	-1,37%	-1,85%	-1,91%	-2,18%
$C^E_{5,T2}$ (% diff.)	0,29%	0,34%	-1,05%	-0,73%	1,08%	-0,35%	-1,62%	-4,21%
$C^E_{6,B}$ (% diff.)	-0,35%	-0,23%	-0,42%	-0,32%	-0,81%	-1,54%	-1,84%	-3,67%
$C^E_{6,M}$ (% diff.)	0,48%	0,48%	1,03%	1,03%	-0,05%	-1,19%	-0,46%	3,11%
$C^E_{6,H}$ (% diff.)	0,19%	0,49%	-0,35%	-1,31%	-0,87%	0,13%	-0,32%	-0,37%
$C^E_{6,T10}$ (% diff.)	0,22%	-1,45%	-4,29%	-6,99%	-1,61%	-1,25%	-2,19%	-3,11%
$C^E_{6,T2}$ (% diff.)	-0,44%	1,23%	1,34%	-3,23%	-5,53%	1,32%	0,16%	-3,76%
C^E_{2} (% diff.)	-0,03%	0,38%	1,13%	1,76%	1,79%	2,10%	2,19%	1,78%
C^E_{3} (% diff.)	0,00%	-0,15%	0,30%	1,40%	2,02%	1,96%	2,11%	1,96%
C^E_{4} (% diff.)	0,11%	-0,03%	-0,46%	-0,04%	0,46%	1,14%	0,74%	0,86%
C^E_{5} (% diff.)	0,20%	0,04%	-0,82%	-1,15%	-0,15%	-0,12%	0,05%	-0,17%
C^E_{6} (% diff.)	0,13%	0,17%	-0,54%	-1,86%	-1,35%	-0,38%	-0,73%	-1,04%

$\Omega^{L}_{2,B}$ (% diff.)	-1,75%	-6,18%	6,16%	5,58%	8,78%	8,95%	6,78%	10,80%
$\Omega^{L}_{2,M}$ (% diff.)	-0,79%	-5,58%	19,10%	18,38%	32,02%	16,71%	8,83%	0,05%
$\Omega^{L}_{2,H}$ (% diff.)	0,47%	-2,36%	-5,97%	3,26%	3,66%	2,78%	-0,99%	-1,38%
$\Omega^{L}_{2,T10}$ (% diff.)	0,80%	2,33%	-4,04%	-23,94%	-40,72%	-53,81%	-64,50%	-40,38%
$\Omega^{L}_{2,T2}$ (% diff.)	2,77%	50,95%	-100,00%	-14,11%	-9,06%	-11,49%	-12,86%	-14,12%
$\Omega^{E}_{3,B}$ (% diff.)	-0,49%	-1,41%	-1,02%	3,20%	1,18%	-1,61%	-3,10%	-4,07%
$\Omega^{E}_{3,M}$ (% diff.)	0,18%	-0,46%	-2,91%	-2,57%	9,73%	5,48%	7,43%	1,33%
$\Omega^{E}_{3,H}$ (% diff.)	0,61%	2,11%	0,71%	-4,23%	5,14%	5,87%	5,60%	3,85%
$\Omega^{E}_{3,T10}$ (% diff.)	-0,31%	1,54%	4,38%	1,74%	4,58%	2,32%	1,66%	0,81%
$\Omega^{E}_{3,T2}$ (% diff.)	2,66%	3,83%	-6,27%	-3,58%	0,21%	-0,87%	-2,27%	-3,88%
$\Omega^{E}_{4,B}$ (% diff.)	-0,40%	0,10%	-0,07%	-0,37%	-0,57%	-2,78%	-5,47%	-9,07%
$\Omega^{E}_{4,M}$ (% diff.)	0,91%	1,22%	0,29%	-0,62%	1,83%	7,79%	4,97%	6,41%
$\Omega^{E}_{4,H}$ (% diff.)	0,53%	0,95%	1,33%	2,05%	1,95%	5,33%	5,40%	4,17%
$\Omega^{E}_{4,T10}$ (% diff.)	1,62%	-0,26%	1,75%	4,12%	2,38%	3,15%	2,09%	1,68%
$\Omega^{E}_{4,T2}$ (% diff.)	-0,84%	4,49%	2,12%	-6,85%	-3,44%	-0,69%	-1,54%	-3,41%
$\Omega^{E}_{5,B}$ (% diff.)	-0,35%	-0,37%	-0,35%	-0,48%	-2,16%	-3,53%	-5,35%	-9,67%
$\Omega^{E}_{5,M}$ (% diff.)	0,73%	2,04%	2,20%	1,68%	-0,22%	1,94%	7,14%	10,79%
$\Omega^{E}_{5,H}$ (% diff.)	0,80%	1,09%	2,60%	3,29%	5,27%	4,99%	5,91%	6,47%
$\Omega^{E}_{5,T10}$ (% diff.)	4,07%	3,67%	0,60%	7,92%	8,47%	6,03%	6,09%	6,24%
$\Omega^{E}_{5,T2}$ (% diff.)	-2,39%	-6,36%	8,46%	5,58%	-13,52%	-8,40%	-3,93%	-4,88%
$\Omega^{E}_{6,B}$ (% diff.)	-0,71%	-0,49%	-0,89%	-0,42%	-1,14%	-2,56%	-3,38%	-7,45%
$\Omega^{E}_{6,M}$ (% diff.)	1,93%	1,59%	2,96%	2,48%	1,35%	-2,21%	0,62%	15,19%
$\Omega^{E}_{6,H}$ (% diff.)	0,26%	-1,03%	0,43%	4,85%	2,67%	3,74%	4,18%	6,62%
$\Omega^{E}_{6,T10}$ (% diff.)	0,34%	17,48%	19,30%	17,26%	23,54%	20,69%	14,58%	16,12%
$\Omega^{E}_{6,T2}$ (% diff.)	-1,00%	-13,91%	-10,33%	8,48%	-14,11%	-64,79%	-41,93%	-22,81%
Ω^{E}_{2} (% diff.)	0,18%	-2,60%	-0,57%	1,54%	2,85%	-2,12%	-5,39%	-7,03%
Ω^{E}_{3} (% diff.)	0,65%	1,32%	-0,36%	-2,23%	3,65%	2,24%	1,45%	-0,64%
Ω^{E}_{4} (% diff.)	0,54%	1,29%	1,26%	-0,02%	0,23%	2,91%	1,91%	0,69%
Ω^{E}_{5} (% diff.)	0,63%	0,26%	3,20%	4,28%	-0,17%	0,08%	2,35%	2,47%
Ω^{E}_{6} (% diff.)	-0,14%	-0,75%	1,76%	8,32%	1,70%	-17,23%	-15,65%	-6,19%

For the interpretation of these numbers, see Tables K1 and K2 in Appendix K.

Table L5: Transitional effects of changes in the estate tax system since 1980 on **the labor supply of workers**: baseline relative to counterfactual 1b:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$n^L_{2,B}$ (% diff.)	0,01%	-0,04%	0,00%	0,03%	0,09%	0,04%	0,04%	0,03%
$n^L_{2,M}$ (% diff.)	-0,10%	-0,17%	-0,50%	-0,21%	-0,35%	-0,86%	-0,94%	-0,73%
$n^L_{2,H}$ (% diff.)	-0,10%	-0,29%	-0,73%	-0,92%	-1,05%	-0,98%	-1,05%	-0,97%
$n^L_{2,T10}$ (% diff.)	0,25%	0,00%	-0,25%	-0,42%	-0,09%	0,00%	0,10%	0,07%
$n^L_{2,T2}$ (% diff.)	0,02%	0,02%	1,33%	0,22%	-0,03%	-0,25%	-0,38%	-0,41%
$n^L_{3,B}$ (% diff.)	0,02%	0,02%	0,02%	0,01%	0,28%	0,26%	0,22%	0,24%
$n^L_{3,M}$ (% diff.)	-0,02%	-0,05%	-0,03%	-0,34%	-0,23%	-0,39%	-0,87%	-0,76%
$n^L_{3,H}$ (% diff.)	-0,02%	-0,06%	-0,11%	-0,52%	-1,39%	-1,52%	-1,49%	-1,45%
$n^L_{3,T10}$ (% diff.)	0,29%	0,25%	0,23%	-0,04%	-0,21%	-0,40%	-0,46%	-0,71%
$n^L_{3,T2}$ (% diff.)	-0,22%	0,51%	1,90%	1,22%	1,05%	1,07%	1,07%	1,06%
$n^L_{4,B}$ (% diff.)	0,05%	0,02%	0,07%	0,14%	0,24%	0,38%	0,36%	0,40%
$n^L_{4,M}$ (% diff.)	0,04%	-0,02%	0,11%	0,17%	0,18%	0,01%	-0,09%	-1,05%
$n^L_{4,H}$ (% diff.)	0,00%	0,02%	0,16%	0,17%	0,13%	-0,84%	-0,79%	-0,67%
$n^L_{4,T10}$ (% diff.)	0,13%	0,37%	0,66%	0,58%	0,74%	0,82%	0,81%	0,43%
$n^L_{4,T2}$ (% diff.)	0,19%	-0,28%	1,33%	2,38%	2,59%	2,66%	2,92%	3,05%
$n^L_{5,B}$ (% diff.)	0,17%	0,17%	0,48%	1,35%	2,19%	1,50%	2,50%	3,13%
$n^L_{5,M}$ (% diff.)	0,22%	0,20%	0,84%	2,72%	4,66%	3,69%	3,52%	1,70%
$n^L_{5,H}$ (% diff.)	0,26%	0,28%	0,63%	1,61%	4,20%	4,89%	4,65%	4,77%
$n^L_{5,T10}$ (% diff.)	0,41%	0,70%	-2,79%	-0,60%	2,85%	4,40%	5,38%	4,31%
$n^L_{5,T2}$ (% diff.)	1,92%	0,76%	1,97%	11,10%	12,53%	15,94%	21,20%	24,20%
$R^L_{5,B}$ (% diff.)	0,06%	0,09%	0,22%	0,49%	0,64%	0,51%	0,95%	1,45%
$R^L_{5,M}$ (% diff.)	0,06%	0,08%	0,32%	0,82%	1,35%	1,55%	1,54%	1,53%
$R^L_{5,H}$ (% diff.)	0,07%	0,10%	0,20%	0,54%	1,25%	1,70%	2,04%	2,06%
$R^L_{5,T10}$ (% diff.)	0,06%	0,12%	-0,56%	-0,16%	0,39%	0,82%	1,08%	0,94%
$R^L_{5,T2}$ (% diff.)	0,15%	0,09%	0,35%	1,98%	1,62%	1,87%	2,46%	2,86%
n^L_2 (% diff.)	-0,04%	-0,15%	-0,36%	-0,34%	-0,38%	-0,53%	-0,57%	-0,48%
n^L_3 (% diff.)	0,01%	0,00%	0,01%	-0,23%	-0,37%	-0,47%	-0,62%	-0,59%
n^L_4 (% diff.)	0,04%	0,03%	0,17%	0,23%	0,26%	-0,01%	-0,03%	-0,30%
n^L_5 (% diff.)	0,23%	0,25%	0,44%	1,98%	3,86%	3,59%	3,88%	3,56%
R^L_5 (% diff.)	0,07%	0,09%	0,16%	0,57%	1,07%	1,29%	1,54%	1,67%

For the interpretation of these numbers, see Tables K1 and K2 in Appendix K.

Table L6: Transitional effects of changes in the estate tax system since 1980 on **the labor supply of entrepreneurs**: baseline relative to counterfactual 1b:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$n^E_{2,B}$ (% diff.)	-0,07%	-0,22%	-0,62%	-0,59%	-0,43%	-0,45%	-0,27%	-0,11%
$n^E_{2,M}$ (% diff.)	-0,17%	-0,52%	-0,79%	-1,77%	-1,55%	-2,08%	-2,41%	-2,38%
$n^E_{2,H}$ (% diff.)	0,05%	-0,26%	-0,55%	-0,49%	-0,59%	-0,69%	-0,77%	-0,71%
$n^E_{2,T10}$ (% diff.)	0,15%	0,39%	-0,01%	-0,18%	-0,27%	-0,29%	-0,30%	-0,16%
$n^E_{2,T2}$ (% diff.)	0,55%	0,05%	-0,94%	-1,24%	-1,15%	-1,43%	-1,49%	-1,45%
$n^E_{3,B}$ (% diff.)	0,04%	0,00%	-0,10%	-0,36%	-0,21%	-0,04%	-0,05%	0,15%
$n^E_{3,M}$ (% diff.)	-0,08%	-0,09%	-0,34%	-1,01%	-1,75%	-1,69%	-2,02%	-2,44%
$n^E_{3,H}$ (% diff.)	0,04%	0,13%	0,00%	-0,75%	-1,07%	-1,14%	-1,26%	-1,24%
$n^E_{3,T10}$ (% diff.)	-0,20%	0,21%	0,71%	0,03%	-0,48%	-0,45%	-0,62%	-0,74%
$n^E_{3,T2}$ (% diff.)	0,64%	0,57%	-1,44%	-0,69%	0,03%	0,21%	0,29%	0,52%
$n^E_{4,B}$ (% diff.)	0,10%	0,11%	0,27%	0,06%	-0,13%	0,26%	0,25%	0,43%
$n^E_{4,M}$ (% diff.)	-0,07%	-0,04%	0,26%	0,09%	-0,86%	-2,06%	-1,47%	-2,08%
$n^E_{4,H}$ (% diff.)	0,01%	0,06%	0,48%	0,52%	0,10%	-0,38%	-0,36%	-0,23%
$n^E_{4,T10}$ (% diff.)	0,01%	-0,34%	0,85%	1,32%	1,10%	0,76%	1,07%	0,68%
$n^E_{4,T2}$ (% diff.)	-0,62%	1,09%	1,39%	-1,10%	0,44%	1,53%	2,18%	2,91%
$n^E_{5,B}$ (% diff.)	0,35%	0,47%	3,69%	3,99%	3,19%	1,38%	2,79%	3,14%
$n^E_{5,M}$ (% diff.)	-0,11%	1,19%	-1,22%	6,37%	3,17%	0,21%	0,13%	2,25%
$n^E_{5,H}$ (% diff.)	-0,32%	3,50%	15,91%	3,76%	2,01%	2,18%	3,02%	3,81%
$n^E_{5,T10}$ (% diff.)	10,04%	30,22%	140,83%	32,54%	9,28%	6,65%	6,54%	6,43%
$n^E_{5,T2}$ (% diff.)	119,85%	49,18%	50,32%	5,51%	-5,79%	0,91%	13,30%	47,56%
$R^E_{5,B}$ (% diff.)	0,09%	0,14%	0,61%	0,85%	1,40%	0,97%	1,34%	1,72%
$R^E_{5,M}$ (% diff.)	0,03%	0,18%	0,17%	0,74%	1,28%	1,14%	1,58%	2,37%
$R^E_{5,H}$ (% diff.)	-0,03%	0,12%	0,11%	0,20%	0,43%	0,66%	0,91%	1,13%
$R^E_{5,T10}$ (% diff.)	0,21%	0,04%	-0,04%	0,46%	0,75%	0,91%	0,94%	1,01%
$R^E_{5,T2}$ (% diff.)	0,00%	0,00%	0,24%	0,51%	-0,50%	0,05%	0,56%	1,61%
n^E_2 (% diff.)	-0,04%	-0,28%	-0,62%	-0,91%	-0,82%	-1,02%	-1,08%	-0,99%
n^E_3 (% diff.)	0,00%	0,03%	-0,11%	-0,64%	-0,94%	-0,88%	-1,02%	-1,07%
n^E_4 (% diff.)	0,01%	0,04%	0,39%	0,27%	-0,19%	-0,56%	-0,36%	-0,45%
n^E_5 (% diff.)	0,19%	1,02%	4,80%	5,08%	3,04%	1,47%	2,25%	3,32%
R^E_5 (% diff.)	0,04%	0,13%	0,22%	0,51%	0,88%	0,88%	1,20%	1,63%

For the interpretation of these numbers, see Tables K1 and K2 in Appendix K.

Appendix M. Effects of changes in the U.S. federal estate tax system since 1980 relative to counterfactual 2a (bequests and transfers no longer taxed – extra tax revenues in the counterfactual absorbed by higher $C_{g,t}$)

Table M1: Transitional effects of changes in the estate tax system since 1980 on **key macroeconomic variables**: baseline simulation relative to counterfactual 2a:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long Run
% estates taxed (%-pt. diff.)	-0,27%	0,00%	-9,39%	-9,04%	-12,60%	-12,38%	-11,51%	-10,57%
Average estate tax paid (%-pt. diff.)	0,85%	-0,12%	-5,14%	-10,02%	-10,08%	-10,23%	-1,50%	-5,26%
Yearly extra estate tax revenues, % of GDP (%-pt. diff.)	-0,02%	0,00%	-0,12%	-0,09%	-0,45%	-0,59%	-0,62%	-0,56%
Yearly per capita GDP growth (%-pt. diff.)	0,00%	0,00%	-0,01%	0,01%	-0,01%	0,01%	0,01%	0,00%
Per capita GDP level (% diff.)	0,03%	0,03%	-0,05%	0,05%	-0,05%	0,10%	0,28%	0,45%
Yearly r (%-pt. diff.)	-0,01%	-0,01%	0,00%	-0,01%	-0,02%	-0,04%	-0,05%	-0,06%
K = Ω (% diff.)	0,14%	0,04%	0,29%	0,41%	1,04%	1,52%	1,90%	2,00%
K/GDP (%-pt. diff.)	0,38%	0,02%	1,31%	1,51%	4,76%	6,32%	7,26%	7,02%
yearly flow of inter-vivos transfers/stock of K (%-pt. dif	0,00%	0,00%	-0,08%	-0,02%	-0,05%	-0,07%	-0,07%	-0,08%
yearly flow of pre-tax bequests/stock of K (%-pt. diff.)	0,00%	0,00%	0,00%	0,02%	0,04%	0,03%	0,04%	0,08%
Aggregate consumption C (% diff.)	0,06%	0,04%	0,10%	0,10%	0,41%	0,68%	0,85%	1,00%
Aggregate ordinary labor L (% diff.)	0,01%	0,01%	-0,04%	0,04%	-0,11%	-0,17%	-0,11%	-0,10%
L_B (% diff.)	0,02%	0,02%	-0,01%	0,02%	0,03%	0,07%	0,10%	0,09%
L_M (% diff.)	-0,01%	-0,02%	-0,05%	-0,02%	-0,05%	-0,13%	-0,24%	-0,48%
L_H (% diff.)	-0,03%	-0,02%	-0,08%	-0,08%	-0,25%	-0,38%	-0,34%	-0,20%
L_{T10} (% diff.)	0,19%	0,21%	-0,05%	-0,03%	-0,12%	-0,08%	-0,04%	-0,19%
L_{T2} (% diff.)	-0,10%	-0,18%	0,06%	0,37%	0,02%	-0,03%	0,21%	0,39%
w^L_B (% diff.)	0,01%	0,02%	-0,03%	0,02%	-0,04%	0,10%	0,24%	0,42%
w^L_M (% diff.)	0,03%	0,04%	0,00%	0,05%	0,02%	0,24%	0,48%	0,81%
w^L_H (% diff.)	0,04%	0,05%	0,02%	0,09%	0,16%	0,41%	0,55%	0,62%
w^L_{T10} (% diff.)	-0,11%	-0,12%	-0,01%	0,06%	0,07%	0,20%	0,34%	0,61%
w^L_{T2} (% diff.)	0,09%	0,16%	-0,08%	-0,23%	-0,03%	0,17%	0,16%	0,21%
Aggregate entrepreneurship E (% diff.)	-0,19%	-0,11%	-0,52%	-0,69%	-1,04%	-1,09%	-1,02%	-0,75%
E_B (% diff.)	0,00%	-0,07%	-0,18%	-0,22%	-0,24%	-0,26%	-0,19%	0,01%
E_M (% diff.)	-0,10%	-0,07%	-0,04%	-0,13%	-0,58%	-0,88%	-0,72%	-0,56%
E_H (% diff.)	-0,05%	0,13%	0,24%	0,37%	0,26%	0,31%	0,37%	0,74%
E_{T10} (% diff.)	-0,11%	-0,07%	0,07%	0,19%	-0,27%	-0,45%	-0,55%	-0,60%
E_{T2} (% diff.)	-1,02%	-0,95%	-2,76%	-3,20%	-3,68%	-3,62%	-3,50%	-3,05%
w^E_B (% diff.)	0,08%	0,12%	0,23%	0,40%	0,43%	0,60%	0,72%	0,67%
w^E_M (% diff.)	0,16%	0,11%	0,13%	0,34%	0,67%	1,03%	1,08%	1,06%
w^E_H (% diff.)	0,12%	-0,02%	-0,07%	-0,01%	0,08%	0,21%	0,32%	0,16%
w^E_{T10} (% diff.)	0,16%	0,12%	0,06%	0,12%	0,45%	0,74%	0,96%	1,09%
w^E_{T2} (% diff.)	0,79%	0,73%	1,99%	2,43%	2,75%	2,87%	2,95%	2,74%

For the interpretation of these numbers, see Table K1 in Appendix K.

Table M2: Transitional effects of changes in the estate tax system since 1980 on **inter-vivos transfers provided by workers and entrepreneurs**: baseline simulation relative to counterfactual 2a

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
Z^L_4 (% diff.)	0,13%	-3,25%	-18,87%	-0,95%	-1,32%	-0,44%	-0,55%	-1,52%
Z^L_5 (% diff.)	0,00%	0,00%	0,00%	0,00%	-106,33%	-74,02%	-45,12%	-53,46%
Z^L_6 (% diff.)	0,00%	0,00%	0,00%	0,00%	52,87%	1,73%	3,16%	4,96%
Z^E_4 (% diff.)	0,51%	-0,74%	-33,83%	-9,58%	-13,73%	-14,71%	-15,99%	-17,91%
Z^E_5 (% diff.)	-0,02%	100,00%	-460,53%	-16,33%	-717,12%	-852,28%	-248,16%	-145,55%
Z^E_6 (% diff.)	3,63%	12,26%	-467,89%	-113,50%	-28,39%	-22,56%	-18,35%	-18,03%
Z_4/C_4 (%-pt. diff.)	-0,01%	-0,12%	-0,51%	-0,05%	-0,08%	-0,11%	-0,13%	-0,16%
Z_5/C_5 (%-pt. diff.)	0,00%	0,02%	0,00%	0,00%	-0,14%	-0,20%	-0,12%	-0,17%
Z_6/C_6 (%-pt. diff.)	0,00%	0,02%	-0,14%	-0,06%	0,10%	0,00%	0,06%	0,09%
Ω_6/C_6 (%-pt. diff.)	0,05%	0,14%	0,98%	1,49%	1,89%	1,73%	2,18%	3,08%

$Z^L_{4,B}$ (% diff.)	-1,28%	0,02%	3,70%	-0,97%	-0,16%	-0,14%	0,54%	1,41%
$Z^L_{4,M}$ (% diff.)	-0,21%	-0,26%	-0,01%	-0,31%	0,15%	1,21%	0,47%	-0,08%
$Z^L_{4,H}$ (% diff.)	1,10%	-3,18%	-10,38%	0,15%	0,22%	5,36%	5,22%	3,70%
$Z^L_{4,T10}$ (% diff.)	-3,40%	-69,61%	-25,39%	-0,51%	-4,87%	-6,88%	-6,75%	-6,55%
$Z^L_{4,T2}$ (% diff.)	-0,02%	-1,75%	-26,33%	-2,07%	-1,71%	-3,66%	-3,82%	-4,43%
$Z^L_{5,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{5,M}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{5,H}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	99,96%	69,21%	60,66%
$Z^L_{5,T10}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{5,T2}$ (% diff.)	0,01%	0,04%	-0,06%	0,03%	-106,33%	-76,24%	-75,94%	-80,96%
$Z^L_{6,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{6,M}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	-3,83%	-4,49%	19,67%
$Z^L_{6,H}$ (% diff.)	-0,01%	0,00%	0,00%	0,00%	98,74%	19,83%	42,78%	20,09%
$Z^L_{6,T10}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	89,80%
$Z^L_{6,T2}$ (% diff.)	0,14%	-0,02%	-0,12%	-0,17%	52,84%	1,05%	0,70%	-1,31%

$Z^E_{4,B}$ (% diff.)	-0,52%	-1,25%	0,31%	1,36%	2,08%	1,60%	0,51%	-0,52%
$Z^E_{4,M}$ (% diff.)	-0,77%	-4,98%	-7,78%	0,13%	2,39%	9,48%	7,04%	5,34%
$Z^E_{4,H}$ (% diff.)	0,55%	-0,07%	-15,17%	-1,51%	-3,88%	-3,99%	-4,71%	-7,25%
$Z^E_{4,T10}$ (% diff.)	0,20%	-2,18%	-111,12%	-3,92%	-12,90%	-19,03%	-21,88%	-23,05%
$Z^E_{4,T2}$ (% diff.)	1,39%	0,67%	-59,53%	-24,77%	-26,43%	-27,50%	-28,09%	-28,72%
$Z^E_{5,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^E_{5,M}$ (% diff.)	0,00%	0,00%	12,21%	2,04%	0,36%	-1,05%	-0,47%	-14,23%
$Z^E_{5,H}$ (% diff.)	0,00%	100,00%	-100,00%	-20,02%	36,17%	50,75%	35,53%	28,33%
$Z^E_{5,T10}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^E_{5,T2}$ (% diff.)	-0,79%	100,00%	-0,33%	-0,38%	-100,00%	-100,00%	-595,08%	-385,29%
$Z^E_{6,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	27,25%	17,71%	-59,45%
$Z^E_{6,M}$ (% diff.)	0,00%	-0,81%	-0,28%	3,05%	0,20%	0,06%	-3,09%	-3,11%
$Z^E_{6,H}$ (% diff.)	2,24%	15,32%	-128,87%	-55,36%	-12,65%	3,63%	4,04%	-2,67%
$Z^E_{6,T10}$ (% diff.)	0,02%	0,03%	-0,01%	0,03%	99,99%	78,94%	96,15%	70,36%
$Z^E_{6,T2}$ (% diff.)	3,96%	11,47%	-100,00%	-190,89%	-40,84%	-44,55%	-30,76%	-32,66%

For the interpretation of these numbers, see Table K2 in Appendix K.

Table M3: Transitional effects of changes in the estate tax system since 1980 on **consumption and wealth of workers**: baseline relative to counterfactual 2a:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$C^L_{2,B}$ (% diff.)	0,01%	0,06%	0,04%	0,08%	0,10%	0,26%	0,40%	0,54%
$C^L_{2,M}$ (% diff.)	0,16%	0,16%	0,18%	0,30%	0,42%	1,46%	1,71%	1,62%
$C^L_{2,H}$ (% diff.)	0,19%	0,22%	0,30%	0,59%	0,82%	0,84%	0,94%	0,84%
$C^L_{2,T10}$ (% diff.)	-0,42%	-0,25%	0,05%	0,17%	0,09%	0,17%	0,29%	0,53%
$C^L_{2,T2}$ (% diff.)	0,08%	0,13%	-0,43%	0,24%	0,59%	0,77%	0,92%	0,95%
$C^L_{3,B}$ (% diff.)	-0,01%	-0,01%	0,05%	0,06%	-0,03%	0,05%	0,21%	0,33%
$C^L_{3,M}$ (% diff.)	0,08%	0,11%	0,19%	0,19%	0,44%	0,65%	1,82%	1,76%
$C^L_{3,H}$ (% diff.)	0,04%	0,14%	0,19%	0,25%	1,34%	1,65%	1,59%	1,38%
$C^L_{3,T10}$ (% diff.)	-0,65%	-0,47%	-0,28%	-0,04%	0,28%	0,43%	0,62%	1,04%
$C^L_{3,T2}$ (% diff.)	0,50%	0,44%	-0,70%	-0,53%	0,06%	0,21%	0,28%	0,35%
$C^L_{4,B}$ (% diff.)	-0,03%	-0,02%	-0,03%	-0,03%	-0,04%	0,02%	0,14%	0,25%
$C^L_{4,M}$ (% diff.)	0,01%	0,04%	0,11%	0,10%	0,04%	0,47%	0,65%	2,40%
$C^L_{4,H}$ (% diff.)	0,11%	-0,02%	0,11%	0,09%	0,20%	1,73%	1,80%	1,49%
$C^L_{4,T10}$ (% diff.)	-0,22%	-0,71%	-0,51%	-0,39%	-0,22%	-0,09%	-0,06%	0,46%
$C^L_{4,T2}$ (% diff.)	-0,02%	0,46%	1,19%	-0,81%	-0,72%	-0,32%	-0,28%	-0,26%
$C^L_{5,B}$ (% diff.)	-0,09%	-0,06%	-0,05%	-0,09%	-0,15%	-0,15%	-0,24%	-0,07%
$C^L_{5,M}$ (% diff.)	-0,06%	-0,03%	0,05%	0,07%	-0,02%	-0,16%	0,13%	1,93%
$C^L_{5,H}$ (% diff.)	0,04%	0,07%	0,01%	0,17%	0,13%	0,14%	1,71%	1,50%
$C^L_{5,T10}$ (% diff.)	-0,14%	-0,42%	0,89%	0,62%	0,39%	0,20%	0,16%	0,43%
$C^L_{5,T2}$ (% diff.)	-0,15%	-0,08%	-1,02%	-1,97%	-0,36%	-0,30%	-1,22%	-1,56%
$C^L_{6,B}$ (% diff.)	-0,17%	-0,13%	-0,09%	-0,10%	-0,15%	-0,30%	-0,34%	-0,40%
$C^L_{6,M}$ (% diff.)	-0,13%	-0,11%	-0,07%	-0,04%	-0,07%	-0,32%	-0,52%	1,48%
$C^L_{6,H}$ (% diff.)	-0,11%	-0,01%	0,33%	0,13%	0,19%	-0,12%	-0,25%	1,08%
$C^L_{6,T10}$ (% diff.)	-0,21%	-0,19%	1,87%	2,95%	2,50%	1,91%	1,30%	0,93%
$C^L_{6,T2}$ (% diff.)	1,93%	-0,46%	-2,77%	-6,11%	-0,94%	1,05%	0,70%	-1,31%
C^L_{2} (% diff.)	0,05%	0,10%	0,11%	0,36%	0,51%	0,78%	0,93%	0,93%
C^L_{3} (% diff.)	-0,03%	0,05%	-0,01%	0,06%	0,66%	0,88%	1,15%	1,15%
C^L_{4} (% diff.)	0,00%	-0,08%	0,10%	-0,10%	-0,05%	0,71%	0,80%	1,14%
C^L_{5} (% diff.)	-0,05%	-0,06%	0,06%	-0,03%	0,05%	0,00%	0,52%	0,82%
C^L_{6} (% diff.)	0,11%	-0,12%	0,16%	-0,04%	0,34%	0,28%	0,06%	0,63%

$\Omega^L_{2,B}$ (% diff.)	-0,46%	-1,03%	-1,88%	-0,77%	-1,66%	-2,63%	-2,71%	-4,92%
$\Omega^L_{2,M}$ (% diff.)	-0,67%	-4,45%	-26,71%	-2,64%	-7,81%	-5,34%	-5,89%	-5,61%
$\Omega^L_{2,H}$ (% diff.)	-1,98%	-2,96%	-27,22%	-13,57%	-16,35%	-18,46%	-19,12%	-17,74%
$\Omega^L_{2,T10}$ (% diff.)	7,06%	0,77%	-1,23%	-8,51%	-100,00%	126,57%	166,48%	122,94%
$\Omega^L_{2,T2}$ (% diff.)	-18,65%	-33,67%	4,89%	-4,15%	-6,17%	-5,66%	-7,28%	-6,84%
$\Omega^L_{3,B}$ (% diff.)	-0,95%	-0,66%	-1,30%	-2,57%	-2,94%	-5,99%	-8,15%	-13,52%
$\Omega^L_{3,M}$ (% diff.)	0,21%	-0,27%	-0,56%	-3,19%	-0,25%	-4,36%	8,82%	7,24%
$\Omega^L_{3,H}$ (% diff.)	-0,63%	-1,70%	-0,59%	-7,76%	-1,12%	-5,45%	-8,76%	-14,52%
$\Omega^L_{3,T10}$ (% diff.)	7,26%	2,91%	2,36%	1,73%	1,16%	0,09%	-0,15%	1,20%
$\Omega^L_{3,T2}$ (% diff.)	-4,76%	-9,35%	3,30%	2,14%	-0,23%	-0,82%	-1,18%	-1,64%
$\Omega^L_{4,B}$ (% diff.)	-0,40%	-0,32%	-0,71%	-1,38%	-3,40%	-3,81%	-5,29%	-6,58%
$\Omega^L_{4,M}$ (% diff.)	-0,18%	0,12%	0,07%	-0,36%	-1,96%	-0,51%	-0,99%	6,38%
$\Omega^L_{4,H}$ (% diff.)	0,42%	0,24%	0,47%	0,14%	-1,19%	3,36%	2,11%	-1,69%
$\Omega^L_{4,T10}$ (% diff.)	1,05%	4,79%	3,78%	2,96%	2,48%	2,12%	1,55%	2,19%
$\Omega^L_{4,T2}$ (% diff.)	0,07%	-4,26%	7,62%	3,72%	2,99%	1,29%	0,61%	0,01%
$\Omega^L_{5,B}$ (% diff.)	-0,23%	-0,28%	-0,51%	-1,05%	-2,14%	-3,39%	-3,70%	-5,39%
$\Omega^L_{5,M}$ (% diff.)	-0,12%	-0,11%	0,03%	0,03%	-0,69%	-1,80%	-0,67%	5,72%
$\Omega^L_{5,H}$ (% diff.)	0,07%	0,70%	0,50%	0,79%	0,62%	0,96%	6,67%	5,55%
$\Omega^L_{5,T10}$ (% diff.)	-0,18%	2,74%	4,94%	4,49%	3,66%	2,84%	2,33%	2,40%
$\Omega^L_{5,T2}$ (% diff.)	1,40%	0,67%	0,11%	12,59%	9,27%	9,93%	9,27%	8,52%
$\Omega^L_{6,B}$ (% diff.)	-0,35%	-0,27%	-0,18%	-0,22%	-0,33%	-0,65%	-0,74%	-0,93%
$\Omega^L_{6,M}$ (% diff.)	-0,26%	-0,22%	-0,13%	-0,01%	-0,02%	-0,53%	-0,94%	6,12%
$\Omega^L_{6,H}$ (% diff.)	-0,12%	0,15%	1,28%	0,52%	0,76%	0,03%	-0,04%	6,20%
$\Omega^L_{6,T10}$ (% diff.)	-0,43%	-0,38%	3,76%	5,84%	4,97%	3,79%	2,61%	1,93%
$\Omega^L_{6,T2}$ (% diff.)	2,44%	6,81%	10,44%	16,81%	27,18%	28,55%	30,21%	29,42%
Ω^L_{2} (% diff.)	-0,38%	-2,22%	-13,78%	-5,76%	-8,92%	-9,02%	-9,81%	-9,63%
Ω^L_{3} (% diff.)	0,13%	-0,26%	0,75%	-1,89%	-0,40%	-2,55%	-2,35%	-3,98%
Ω^L_{4} (% diff.)	0,32%	0,83%	2,16%	1,53%	0,85%	1,79%	0,96%	0,41%
Ω^L_{5} (% diff.)	0,17%	0,92%	1,33%	4,56%	4,01%	4,50%	5,91%	5,86%
Ω^L_{6} (% diff.)	0,78%	2,09%	4,08%	6,03%	10,35%	12,89%	15,08%	16,50%

For the interpretation of these numbers, see Tables K1 and K2 in Appendix K.

Table M4: Transitional effects of changes in the estate tax system since 1980 on **consumption and wealth of entrepreneurs**: baseline relative to counterfactual 2a:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$C^E_{2,B}$ (% diff.)	0,29%	0,55%	0,02%	1,01%	0,94%	1,23%	1,09%	0,84%
$C^E_{2,M}$ (% diff.)	-0,07%	0,27%	-0,85%	0,76%	0,50%	1,19%	1,23%	1,17%
$C^E_{2,H}$ (% diff.)	-0,68%	-0,32%	-0,74%	-1,79%	-2,48%	-2,47%	-2,60%	-2,82%
$C^E_{2,T10}$ (% diff.)	0,46%	-0,42%	0,12%	0,25%	0,47%	0,70%	0,87%	0,98%
$C^E_{2,T2}$ (% diff.)	2,25%	0,50%	3,35%	3,87%	3,90%	4,04%	4,10%	3,92%
$C^E_{3,B}$ (% diff.)	0,01%	0,17%	0,75%	0,43%	1,06%	0,87%	1,14%	0,75%
$C^E_{3,M}$ (% diff.)	0,26%	-0,10%	0,25%	-0,04%	2,03%	1,52%	1,88%	1,72%
$C^E_{3,H}$ (% diff.)	0,22%	-0,54%	-0,36%	-0,47%	-0,50%	-1,14%	-1,11%	-1,71%
$C^E_{3,T10}$ (% diff.)	0,43%	0,36%	-0,49%	0,16%	1,10%	1,12%	1,46%	1,60%
$C^E_{3,T2}$ (% diff.)	0,73%	2,20%	4,17%	3,66%	3,70%	3,53%	3,56%	3,34%
$C^E_{4,B}$ (% diff.)	-0,03%	-0,05%	0,29%	0,79%	0,50%	1,02%	0,83%	0,57%
$C^E_{4,M}$ (% diff.)	0,28%	0,17%	0,03%	0,18%	0,91%	3,31%	2,22%	3,35%
$C^E_{4,H}$ (% diff.)	0,43%	0,19%	-0,28%	-0,45%	-0,44%	0,13%	-0,11%	-0,72%
$C^E_{4,T10}$ (% diff.)	0,14%	0,37%	0,28%	-0,59%	0,02%	0,79%	0,68%	1,08%
$C^E_{4,T2}$ (% diff.)	1,39%	0,67%	2,16%	4,07%	3,48%	3,33%	3,05%	2,75%
$C^E_{5,B}$ (% diff.)	-0,08%	-0,07%	0,19%	0,50%	0,78%	0,40%	0,70%	0,13%
$C^E_{5,M}$ (% diff.)	0,62%	0,20%	0,48%	0,53%	0,66%	1,16%	3,21%	3,37%
$C^E_{5,H}$ (% diff.)	0,57%	0,55%	-0,71%	-0,55%	1,14%	0,86%	1,04%	0,90%
$C^E_{5,T10}$ (% diff.)	-0,27%	-0,06%	-0,65%	-1,36%	0,32%	0,62%	1,18%	1,15%
$C^E_{5,T2}$ (% diff.)	0,55%	2,36%	1,85%	3,31%	5,34%	4,93%	4,97%	4,01%
$C^E_{6,B}$ (% diff.)	-0,16%	-0,13%	-0,11%	0,10%	0,45%	0,45%	-0,02%	-0,35%
$C^E_{6,M}$ (% diff.)	0,68%	0,59%	1,36%	1,44%	1,27%	0,75%	0,93%	3,17%
$C^E_{6,H}$ (% diff.)	0,40%	0,62%	0,95%	0,10%	1,64%	2,70%	1,92%	1,20%
$C^E_{6,T10}$ (% diff.)	0,43%	-1,29%	-3,90%	-6,39%	0,65%	1,97%	2,04%	1,74%
$C^E_{6,T2}$ (% diff.)	-0,35%	1,43%	8,08%	2,92%	2,95%	7,09%	6,98%	5,63%
C^E_{2} (% diff.)	0,08%	-0,01%	0,13%	0,30%	0,05%	0,29%	0,29%	0,16%
C^E_{3} (% diff.)	0,30%	0,09%	0,49%	0,48%	1,12%	0,74%	0,93%	0,63%
C^E_{4} (% diff.)	0,40%	0,24%	0,21%	0,41%	0,63%	1,49%	1,10%	1,11%
C^E_{5} (% diff.)	0,37%	0,51%	-0,06%	0,12%	1,45%	1,49%	2,11%	1,89%
C^E_{6} (% diff.)	0,31%	0,31%	1,00%	-0,38%	1,41%	2,58%	2,41%	2,31%

$\Omega^{L}_{2,B}$ (% diff.)	-1,28%	-3,95%	-19,91%	-3,21%	-4,90%	-5,19%	-5,62%	-6,06%
$\Omega^{L}_{2,M}$ (% diff.)	0,94%	-1,46%	-61,43%	-14,96%	-22,37%	-34,50%	-42,01%	-51,96%
$\Omega^{L}_{2,H}$ (% diff.)	2,94%	1,61%	-87,84%	-18,75%	-14,48%	-15,66%	-16,82%	-15,69%
$\Omega^{L}_{2,T10}$ (% diff.)	-1,29%	1,94%	-6,05%	-16,00%	-17,62%	-22,13%	-22,60%	-17,44%
$\Omega^{L}_{2,T2}$ (% diff.)	-7,68%	-100,00%	-100,00%	-31,93%	-17,53%	-15,70%	-15,31%	-13,86%
$\Omega^{E}_{3,B}$ (% diff.)	0,02%	-0,94%	1,13%	-1,37%	1,07%	-1,99%	-1,53%	-5,49%
$\Omega^{E}_{3,M}$ (% diff.)	0,51%	1,31%	-0,04%	-7,89%	8,77%	2,89%	4,11%	-1,21%
$\Omega^{E}_{3,H}$ (% diff.)	0,14%	3,55%	2,91%	-5,85%	1,37%	-1,24%	-1,70%	-5,56%
$\Omega^{E}_{3,T10}$ (% diff.)	-0,22%	-0,85%	3,58%	1,39%	5,33%	4,36%	4,44%	3,69%
$\Omega^{E}_{3,T2}$ (% diff.)	-0,15%	-10,15%	-11,99%	-10,58%	-5,95%	-4,76%	-4,75%	-4,71%
$\Omega^{E}_{4,B}$ (% diff.)	-0,18%	0,34%	1,13%	2,00%	0,70%	2,12%	0,36%	-1,38%
$\Omega^{E}_{4,M}$ (% diff.)	1,12%	1,31%	0,78%	0,13%	0,07%	7,01%	4,25%	2,93%
$\Omega^{E}_{4,H}$ (% diff.)	0,00%	-0,04%	1,79%	2,17%	1,12%	3,53%	3,14%	1,13%
$\Omega^{E}_{4,T10}$ (% diff.)	1,78%	-0,21%	3,18%	5,54%	4,98%	6,56%	6,23%	5,91%
$\Omega^{E}_{4,T2}$ (% diff.)	-5,26%	-0,56%	3,56%	-5,22%	-3,04%	-0,57%	0,11%	-0,03%
$\Omega^{E}_{5,B}$ (% diff.)	-0,16%	-0,19%	0,35%	1,43%	2,00%	0,33%	1,30%	-1,41%
$\Omega^{E}_{5,M}$ (% diff.)	0,94%	2,15%	2,70%	2,82%	1,99%	2,62%	7,67%	8,06%
$\Omega^{E}_{5,H}$ (% diff.)	1,05%	-1,41%	0,80%	4,19%	5,74%	4,31%	4,87%	5,06%
$\Omega^{E}_{5,T10}$ (% diff.)	4,31%	3,78%	1,09%	9,16%	9,48%	7,30%	8,11%	8,18%
$\Omega^{E}_{5,T2}$ (% diff.)	-1,76%	-16,49%	-2,00%	0,07%	-7,55%	-1,05%	1,69%	4,27%
$\Omega^{E}_{6,B}$ (% diff.)	-0,33%	-0,28%	-0,23%	0,46%	1,52%	1,62%	0,19%	-0,57%
$\Omega^{E}_{6,M}$ (% diff.)	2,35%	1,83%	3,56%	3,24%	3,98%	1,80%	2,72%	13,44%
$\Omega^{E}_{6,H}$ (% diff.)	0,67%	-0,77%	3,94%	8,31%	11,51%	10,19%	6,64%	14,31%
$\Omega^{E}_{6,T10}$ (% diff.)	0,68%	17,72%	19,88%	18,11%	26,03%	21,64%	13,57%	16,88%
$\Omega^{E}_{6,T2}$ (% diff.)	-0,80%	-13,54%	5,25%	15,90%	8,26%	-15,63%	-1,75%	12,21%
Ω^{E}_{2} (% diff.)	0,21%	0,16%	-67,13%	-17,68%	-15,64%	-17,32%	-18,38%	-18,21%
Ω^{E}_{3} (% diff.)	0,08%	0,39%	0,27%	-5,89%	0,32%	-1,39%	-1,47%	-3,29%
Ω^{E}_{4} (% diff.)	-0,32%	0,12%	2,13%	0,92%	0,42%	3,08%	2,63%	1,66%
Ω^{E}_{5} (% diff.)	0,96%	-2,61%	0,59%	3,90%	2,27%	2,76%	4,55%	5,47%
Ω^{E}_{6} (% diff.)	0,16%	-0,46%	8,04%	12,10%	12,49%	2,65%	3,63%	13,34%

For the interpretation of these numbers, see Tables K1 and K2 in Appendix K.

Table M5: Transitional effects of changes in the estate tax system since 1980 on **the labor supply of workers**: baseline relative to counterfactual 2a:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$n^L_{2,B}$ (% diff.)	0,00%	0,00%	-0,01%	0,00%	-0,01%	-0,04%	-0,05%	-0,05%
$n^L_{2,M}$ (% diff.)	-0,05%	-0,04%	-0,05%	-0,09%	-0,14%	-0,49%	-0,50%	-0,39%
$n^L_{2,H}$ (% diff.)	-0,07%	-0,09%	-0,14%	-0,23%	-0,29%	-0,24%	-0,24%	-0,20%
$n^L_{2,T10}$ (% diff.)	0,17%	0,06%	-0,06%	-0,10%	-0,04%	-0,03%	-0,05%	-0,08%
$n^L_{2,T2}$ (% diff.)	-0,01%	-0,03%	0,32%	-0,33%	-0,53%	-0,56%	-0,70%	-0,69%
$n^L_{3,B}$ (% diff.)	0,01%	0,02%	0,00%	0,01%	0,03%	0,04%	0,02%	0,02%
$n^L_{3,M}$ (% diff.)	-0,02%	-0,03%	-0,06%	-0,03%	-0,14%	-0,17%	-0,55%	-0,43%
$n^L_{3,H}$ (% diff.)	-0,01%	-0,05%	-0,08%	-0,09%	-0,55%	-0,57%	-0,53%	-0,43%
$n^L_{3,T10}$ (% diff.)	0,30%	0,16%	0,12%	0,02%	-0,15%	-0,18%	-0,23%	-0,37%
$n^L_{3,T2}$ (% diff.)	-0,30%	-0,26%	0,48%	0,27%	-0,05%	-0,07%	-0,12%	-0,14%
$n^L_{4,B}$ (% diff.)	0,02%	0,03%	0,01%	0,05%	0,03%	0,06%	0,06%	0,06%
$n^L_{4,M}$ (% diff.)	0,01%	0,00%	-0,05%	0,00%	0,04%	-0,11%	-0,11%	-0,74%
$n^L_{4,H}$ (% diff.)	-0,04%	0,03%	-0,06%	0,00%	-0,02%	-0,62%	-0,55%	-0,41%
$n^L_{4,T10}$ (% diff.)	0,09%	0,39%	0,31%	0,27%	0,16%	0,15%	0,20%	-0,04%
$n^L_{4,T2}$ (% diff.)	0,11%	-0,28%	-1,02%	0,57%	0,65%	0,42%	0,38%	0,39%
$n^L_{5,B}$ (% diff.)	0,10%	0,10%	0,02%	0,62%	0,45%	0,62%	1,02%	0,77%
$n^L_{5,M}$ (% diff.)	0,11%	0,11%	0,05%	0,78%	0,89%	1,21%	1,27%	0,04%
$n^L_{5,H}$ (% diff.)	0,09%	0,15%	-0,02%	0,12%	0,53%	1,40%	1,35%	1,24%
$n^L_{5,T10}$ (% diff.)	0,16%	0,62%	-3,46%	-3,02%	-1,74%	-0,35%	0,13%	-0,04%
$n^L_{5,T2}$ (% diff.)	1,54%	0,86%	2,24%	4,22%	1,14%	1,64%	5,50%	6,94%
$R^L_{5,B}$ (% diff.)	0,03%	0,04%	-0,03%	0,25%	0,15%	0,37%	0,62%	0,40%
$R^L_{5,M}$ (% diff.)	0,03%	0,04%	0,02%	0,30%	0,36%	0,64%	0,82%	0,56%
$R^L_{5,H}$ (% diff.)	0,03%	0,06%	0,00%	0,09%	0,26%	0,57%	0,79%	0,65%
$R^L_{5,T10}$ (% diff.)	0,02%	0,10%	-0,65%	-0,55%	-0,29%	-0,06%	0,04%	0,03%
$R^L_{5,T2}$ (% diff.)	0,12%	0,12%	0,44%	0,77%	0,15%	0,20%	0,66%	0,84%
n^L_2 (% diff.)	-0,02%	-0,03%	-0,06%	-0,10%	-0,14%	-0,24%	-0,25%	-0,21%
n^L_3 (% diff.)	0,01%	-0,01%	-0,03%	-0,03%	-0,20%	-0,21%	-0,33%	-0,27%
n^L_4 (% diff.)	0,01%	0,04%	-0,02%	0,04%	0,04%	-0,17%	-0,15%	-0,31%
n^L_5 (% diff.)	0,11%	0,16%	-0,17%	0,26%	0,43%	0,97%	1,18%	0,71%
R^L_5 (% diff.)	0,03%	0,05%	-0,05%	0,12%	0,20%	0,46%	0,68%	0,50%

For the interpretation of these numbers, see Tables K1 and K2 in Appendix K.

Table M6: Transitional effects of changes in the estate tax system since 1980 on **the labor supply of entrepreneurs**: baseline relative to counterfactual 2a:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$n^E_{2,B}$ (% diff.)	-0,10%	-0,19%	0,00%	-0,34%	-0,31%	-0,35%	-0,25%	-0,13%
$n^E_{2,M}$ (% diff.)	0,03%	-0,15%	0,34%	-0,35%	-0,13%	-0,40%	-0,42%	-0,38%
$n^E_{2,H}$ (% diff.)	0,26%	0,08%	0,29%	0,71%	0,94%	0,96%	1,00%	1,05%
$n^E_{2,T10}$ (% diff.)	-0,25%	0,27%	-0,10%	-0,17%	-0,21%	-0,25%	-0,27%	-0,28%
$n^E_{2,T2}$ (% diff.)	-1,59%	-0,12%	-3,01%	-3,14%	-2,80%	-2,85%	-2,87%	-2,76%
$n^E_{3,B}$ (% diff.)	0,01%	-0,06%	-0,27%	-0,08%	-0,30%	-0,17%	-0,22%	-0,05%
$n^E_{3,M}$ (% diff.)	-0,10%	0,03%	-0,20%	-0,03%	-0,84%	-0,49%	-0,64%	-0,60%
$n^E_{3,H}$ (% diff.)	-0,07%	0,21%	0,07%	0,11%	0,05%	0,36%	0,36%	0,54%
$n^E_{3,T10}$ (% diff.)	-0,22%	-0,24%	0,37%	-0,10%	-0,64%	-0,52%	-0,67%	-0,69%
$n^E_{3,T2}$ (% diff.)	-0,27%	-1,85%	-3,26%	-2,35%	-2,18%	-1,93%	-1,92%	-1,78%
$n^E_{4,B}$ (% diff.)	0,05%	0,07%	-0,15%	-0,30%	-0,12%	-0,26%	-0,14%	0,00%
$n^E_{4,M}$ (% diff.)	-0,14%	-0,12%	-0,12%	-0,12%	-0,42%	-1,59%	-0,86%	-1,04%
$n^E_{4,H}$ (% diff.)	-0,20%	-0,13%	0,08%	0,20%	0,22%	-0,10%	0,11%	0,47%
$n^E_{4,T10}$ (% diff.)	-0,04%	-0,33%	-0,40%	0,64%	0,17%	-0,35%	-0,12%	-0,36%
$n^E_{4,T2}$ (% diff.)	-1,91%	-0,50%	-1,45%	-3,27%	-2,37%	-2,18%	-1,79%	-1,53%
$n^E_{5,B}$ (% diff.)	0,21%	0,31%	1,15%	1,71%	0,29%	-0,02%	0,11%	0,52%
$n^E_{5,M}$ (% diff.)	-0,35%	0,69%	-11,58%	0,29%	-1,54%	-1,12%	-1,25%	0,49%
$n^E_{5,H}$ (% diff.)	-0,74%	1,88%	8,78%	-1,98%	-2,96%	-1,52%	-1,89%	-0,27%
$n^E_{5,T10}$ (% diff.)	9,17%	30,11%	291,23%	11,98%	-0,96%	-1,02%	-2,85%	-2,02%
$n^E_{5,T2}$ (% diff.)	34,11%	-27,48%	-30,78%	-11,64%	-23,56%	-29,21%	-44,39%	-41,41%
$R^E_{5,B}$ (% diff.)	0,06%	0,09%	0,24%	0,66%	0,72%	0,47%	0,66%	0,50%
$R^E_{5,M}$ (% diff.)	-0,01%	0,11%	0,08%	0,19%	0,14%	0,25%	0,65%	0,83%
$R^E_{5,H}$ (% diff.)	-0,06%	0,07%	0,04%	-0,24%	-0,43%	-0,28%	-0,24%	-0,01%
$R^E_{5,T10}$ (% diff.)	0,20%	0,05%	0,01%	0,17%	-0,06%	-0,10%	-0,27%	-0,20%
$R^E_{5,T2}$ (% diff.)	0,01%	0,02%	-0,11%	-1,04%	-2,02%	-1,84%	-1,91%	-1,44%
n^E_2 (% diff.)	0,01%	-0,07%	0,14%	-0,07%	0,07%	-0,03%	0,01%	0,07%
n^E_3 (% diff.)	-0,06%	0,00%	-0,15%	-0,05%	-0,42%	-0,17%	-0,24%	-0,12%
n^E_4 (% diff.)	-0,10%	-0,07%	-0,12%	-0,09%	-0,13%	-0,65%	-0,31%	-0,23%
n^E_5 (% diff.)	-0,04%	0,61%	1,00%	0,17%	-1,39%	-0,93%	-1,11%	0,07%
R^E_5 (% diff.)	0,01%	0,09%	0,09%	0,07%	-0,03%	0,03%	0,20%	0,31%

For the interpretation of these numbers, see Tables K1 and K2 in Appendix K.

Appendix N. Effects of changes in the U.S. federal estate tax system since 1980 relative to counterfactual 2b (bequests and transfers no longer taxed – extra tax revenues in the counterfactual absorbed by a lower $\bar{\tau}_{k,t}$)

Table N1: Transitional effects of changes in the estate tax system since 1980 on **key macroeconomic variables**: baseline simulation relative to counterfactual 2b:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long Run
% estates taxed (%-pt. diff.)	-0,27%	0,00%	-9,39%	-9,27%	-12,66%	-12,38%	-11,56%	-10,76%
Average estate tax paid (%-pt. diff.)	0,87%	-0,11%	-5,13%	-10,21%	-10,08%	-10,05%	-1,35%	-5,12%
Yearly extra estate tax revenues, % of GDP (%-pt. diff.)	-0,02%	0,00%	-0,12%	-0,09%	-0,45%	-0,59%	-0,64%	-0,58%
Yearly per capita GDP growth (%-pt. diff.)	0,00%	0,00%	-0,01%	0,00%	-0,01%	0,00%	0,00%	0,00%
Per capita GDP level (% diff.)	-0,02%	-0,03%	-0,12%	-0,19%	-0,29%	-0,30%	-0,24%	-0,10%
Yearly r (%-pt. diff.)	-0,01%	0,00%	-0,03%	-0,01%	-0,09%	-0,11%	-0,11%	-0,10%
K = Ω (% diff.)	-0,05%	-0,35%	-0,47%	-0,88%	-1,05%	-1,04%	-0,85%	-0,62%
K/GDP (%-pt. diff.)	-0,10%	-1,12%	-1,33%	-2,87%	-3,32%	-3,26%	-2,74%	-2,33%
yearly flow of inter-vivos transfers/stock of K (%-pt. dif	0,00%	0,00%	-0,08%	-0,01%	-0,04%	-0,07%	-0,06%	-0,07%
yearly flow of pre-tax bequests/stock of K (%-pt. diff.)	0,00%	0,00%	0,01%	0,03%	0,04%	0,04%	0,05%	0,08%
Aggregate consumption C (% diff.)	-0,02%	0,09%	0,00%	0,09%	-0,03%	-0,08%	-0,08%	0,05%
Aggregate ordinary labor L (% diff.)	0,03%	-0,01%	0,01%	0,00%	0,07%	0,11%	0,19%	0,18%
L_B (% diff.)	0,04%	0,01%	0,05%	0,04%	0,19%	0,25%	0,31%	0,31%
L_M (% diff.)	0,01%	-0,03%	0,02%	-0,01%	0,15%	0,14%	0,04%	-0,18%
L_H (% diff.)	-0,01%	-0,05%	-0,03%	-0,09%	-0,05%	-0,07%	-0,03%	0,07%
L_{T10} (% diff.)	0,21%	0,18%	0,00%	-0,09%	0,07%	0,23%	0,27%	0,08%
L_{T2} (% diff.)	-0,07%	-0,21%	0,04%	0,20%	0,13%	0,26%	0,55%	0,70%
w^L_B (% diff.)	-0,06%	-0,04%	-0,16%	-0,22%	-0,45%	-0,51%	-0,51%	-0,37%
w^L_M (% diff.)	-0,04%	-0,01%	-0,14%	-0,19%	-0,42%	-0,43%	-0,33%	-0,03%
w^L_H (% diff.)	-0,02%	0,01%	-0,10%	-0,13%	-0,27%	-0,28%	-0,27%	-0,20%
w^L_{T10} (% diff.)	-0,18%	-0,15%	-0,13%	-0,13%	-0,36%	-0,49%	-0,49%	-0,21%
w^L_{T2} (% diff.)	0,02%	0,12%	-0,15%	-0,33%	-0,40%	-0,51%	-0,69%	-0,64%
Aggregate entrepreneurship E (% diff.)	-0,15%	-0,14%	-0,45%	-0,75%	-0,83%	-0,74%	-0,62%	-0,37%
E_B (% diff.)	0,04%	-0,07%	-0,06%	-0,17%	0,00%	0,06%	0,14%	0,32%
E_M (% diff.)	-0,07%	-0,08%	0,07%	-0,10%	-0,33%	-0,53%	-0,33%	-0,17%
E_H (% diff.)	-0,01%	0,10%	0,33%	0,36%	0,49%	0,66%	0,77%	1,09%
E_{T10} (% diff.)	-0,07%	-0,10%	0,14%	0,13%	-0,04%	-0,08%	-0,15%	-0,23%
E_{T2} (% diff.)	-1,01%	-1,05%	-2,76%	-3,39%	-3,55%	-3,29%	-3,07%	-2,61%
w^E_B (% diff.)	0,00%	0,06%	0,05%	0,15%	-0,04%	-0,12%	-0,15%	-0,22%
w^E_M (% diff.)	0,07%	0,06%	-0,04%	0,10%	0,19%	0,29%	0,18%	0,13%
w^E_H (% diff.)	0,04%	-0,06%	-0,22%	-0,22%	-0,39%	-0,55%	-0,59%	-0,76%
w^E_{T10} (% diff.)	0,08%	0,08%	-0,08%	-0,06%	-0,01%	-0,02%	0,05%	0,17%
w^E_{T2} (% diff.)	0,73%	0,74%	1,90%	2,34%	2,37%	2,16%	2,04%	1,80%

For the interpretation of these numbers, see Table K1 in Appendix K.

Table N2: Transitional effects of changes in the estate tax system since 1980 on **inter-vivos transfers provided by workers and entrepreneurs**: baseline simulation relative to counterfactual 2b

Z^L_4 (% diff.)	-0,13%	-3,74%	-19,81%	-1,11%	-2,21%	-1,86%	-2,13%	-3,07%
Z^L_5 (% diff.)	0,00%	0,00%	0,00%	0,00%	-113,01%	-80,70%	-51,90%	-58,26%
Z^L_6 (% diff.)	0,00%	0,00%	-0,01%	0,00%	48,93%	-0,12%	0,57%	2,47%
Z^E_4 (% diff.)	0,30%	-0,91%	-34,56%	-9,90%	-14,67%	-16,40%	-17,88%	-19,64%
Z^E_5 (% diff.)	-0,02%	100,00%	-464,76%	-17,67%	-737,16%	-868,36%	-262,04%	-155,15%
Z^E_6 (% diff.)	2,89%	11,88%	-470,19%	-114,70%	-31,08%	-25,57%	-21,50%	-21,08%
Z_4/C_4 (%-pt. diff.)	-0,02%	-0,15%	-0,55%	-0,07%	-0,12%	-0,16%	-0,17%	-0,21%
Z_5/C_5 (%-pt. diff.)	0,00%	0,02%	0,00%	0,00%	-0,15%	-0,21%	-0,14%	-0,18%
Z_6/C_6 (%-pt. diff.)	0,00%	0,02%	-0,14%	-0,07%	0,09%	-0,03%	0,02%	0,06%
Ω_6/C_6 (%-pt. diff.)	0,02%	0,13%	0,94%	1,45%	1,78%	1,53%	1,94%	2,75%

$Z^L_{4,B}$ (% diff.)	-1,63%	0,03%	3,15%	-1,82%	-1,40%	-1,67%	-0,19%	1,53%
$Z^L_{4,M}$ (% diff.)	-0,37%	-0,56%	-0,30%	-0,89%	-1,16%	-0,20%	-1,34%	-2,37%
$Z^L_{4,H}$ (% diff.)	0,70%	-4,16%	-12,24%	-0,06%	-0,47%	3,90%	3,50%	1,74%
$Z^L_{4,T10}$ (% diff.)	-4,07%	-76,65%	-31,06%	-0,62%	-7,31%	-10,64%	-10,49%	-9,45%
$Z^L_{4,T2}$ (% diff.)	-0,12%	-1,83%	-26,45%	-2,06%	-2,22%	-4,54%	-4,83%	-5,40%
$Z^L_{5,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{5,M}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{5,H}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	99,96%	66,03%	57,87%
$Z^L_{5,T10}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{5,T2}$ (% diff.)	0,00%	0,03%	-0,08%	0,00%	-113,02%	-83,00%	-83,68%	-86,24%
$Z^L_{6,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^L_{6,M}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	-8,85%	-9,66%	27,97%
$Z^L_{6,H}$ (% diff.)	0,00%	0,00%	-0,01%	0,00%	98,74%	7,62%	27,86%	15,64%
$Z^L_{6,T10}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	80,09%
$Z^L_{6,T2}$ (% diff.)	0,00%	0,00%	-0,51%	-0,17%	48,90%	-0,30%	-1,08%	-3,07%

$Z^E_{4,B}$ (% diff.)	-0,90%	-1,99%	-0,80%	0,51%	0,53%	-0,36%	-1,46%	-2,49%
$Z^E_{4,M}$ (% diff.)	-1,14%	-5,63%	-8,90%	-1,04%	0,97%	7,53%	4,69%	3,65%
$Z^E_{4,H}$ (% diff.)	0,29%	-0,16%	-15,70%	-1,74%	-5,14%	-5,70%	-6,69%	-9,21%
$Z^E_{4,T10}$ (% diff.)	0,09%	-2,36%	-114,19%	-4,05%	-13,56%	-22,64%	-25,56%	-25,83%
$Z^E_{4,T2}$ (% diff.)	1,30%	0,69%	-59,81%	-24,84%	-27,05%	-28,61%	-29,39%	-30,04%
$Z^E_{5,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^E_{5,M}$ (% diff.)	0,00%	0,00%	10,48%	-0,87%	-1,26%	-6,09%	-12,19%	-48,58%
$Z^E_{5,H}$ (% diff.)	0,00%	100,00%	-100,00%	-21,05%	33,07%	39,92%	29,20%	23,94%
$Z^E_{5,T10}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
$Z^E_{5,T2}$ (% diff.)	-0,81%	100,00%	-0,31%	-0,40%	-100,00%	-100,00%	-618,13%	-402,05%
$Z^E_{6,B}$ (% diff.)	0,00%	0,00%	0,00%	0,00%	0,00%	19,72%	8,08%	-107,53%
$Z^E_{6,M}$ (% diff.)	0,00%	-1,93%	-0,95%	1,88%	-2,50%	-3,21%	-7,33%	-7,35%
$Z^E_{6,H}$ (% diff.)	0,79%	14,72%	-130,29%	-56,68%	-15,55%	-0,46%	-2,06%	-5,98%
$Z^E_{6,T10}$ (% diff.)	0,01%	0,02%	-0,02%	0,03%	99,99%	69,79%	91,51%	61,54%
$Z^E_{6,T2}$ (% diff.)	3,38%	11,17%	-100,00%	-191,98%	-43,42%	-46,56%	-32,92%	-35,11%

For the interpretation of these numbers, see Table K2 in Appendix K.

Table N3: Transitional effects of changes in the estate tax system since 1980 on **consumption and wealth of workers**: baseline relative to counterfactual 2b:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$C^L_{2,B}$ (% diff.)	-0,05%	0,15%	0,00%	0,07%	-0,23%	-0,27%	-0,25%	-0,11%
$C^L_{2,M}$ (% diff.)	0,14%	0,33%	0,29%	0,22%	0,04%	0,82%	0,92%	0,85%
$C^L_{2,H}$ (% diff.)	0,18%	0,38%	0,42%	0,50%	0,45%	0,23%	0,21%	0,10%
$C^L_{2,T10}$ (% diff.)	-0,43%	-0,11%	0,17%	0,40%	-0,09%	-0,40%	-0,41%	-0,17%
$C^L_{2,T2}$ (% diff.)	0,02%	0,10%	-0,27%	0,72%	0,85%	0,80%	0,81%	0,81%
$C^L_{3,B}$ (% diff.)	-0,09%	-0,01%	-0,04%	0,04%	-0,52%	-0,62%	-0,55%	-0,43%
$C^L_{3,M}$ (% diff.)	0,01%	0,16%	0,11%	0,32%	0,13%	0,09%	1,06%	1,01%
$C^L_{3,H}$ (% diff.)	-0,01%	0,20%	0,09%	0,37%	1,20%	1,26%	1,09%	0,89%
$C^L_{3,T10}$ (% diff.)	-0,71%	-0,41%	-0,39%	0,09%	0,12%	0,12%	0,22%	0,63%
$C^L_{3,T2}$ (% diff.)	0,45%	0,46%	-0,70%	-0,37%	-0,12%	-0,19%	-0,26%	-0,19%
$C^L_{4,B}$ (% diff.)	-0,12%	-0,01%	-0,19%	-0,10%	-0,49%	-0,70%	-0,67%	-0,55%
$C^L_{4,M}$ (% diff.)	-0,08%	0,05%	-0,10%	0,03%	-0,49%	-0,21%	-0,22%	1,51%
$C^L_{4,H}$ (% diff.)	0,02%	-0,01%	-0,08%	0,00%	-0,35%	0,92%	0,84%	0,60%
$C^L_{4,T10}$ (% diff.)	-0,31%	-0,70%	-0,71%	-0,49%	-0,77%	-0,92%	-0,95%	-0,35%
$C^L_{4,T2}$ (% diff.)	-0,12%	0,49%	1,09%	-0,80%	-1,22%	-1,16%	-1,26%	-1,19%
$C^L_{5,B}$ (% diff.)	-0,18%	-0,08%	-0,26%	-0,21%	-0,71%	-0,91%	-1,29%	-1,10%
$C^L_{5,M}$ (% diff.)	-0,16%	-0,04%	-0,17%	-0,10%	-0,71%	-1,22%	-1,03%	0,70%
$C^L_{5,H}$ (% diff.)	-0,08%	0,05%	-0,21%	0,00%	-0,60%	-1,02%	0,39%	0,24%
$C^L_{5,T10}$ (% diff.)	-0,26%	-0,44%	0,66%	0,43%	-0,37%	-0,98%	-1,21%	-0,77%
$C^L_{5,T2}$ (% diff.)	-0,27%	-0,11%	-1,20%	-2,06%	-1,00%	-1,47%	-2,64%	-2,89%
$C^L_{6,B}$ (% diff.)	-0,32%	-0,16%	-0,34%	-0,27%	-0,63%	-1,12%	-1,23%	-1,68%
$C^L_{6,M}$ (% diff.)	-0,27%	-0,13%	-0,33%	-0,25%	-0,77%	-1,54%	-1,96%	-0,12%
$C^L_{6,H}$ (% diff.)	-0,27%	-0,06%	0,06%	-0,09%	-0,61%	-1,49%	-1,96%	-0,59%
$C^L_{6,T10}$ (% diff.)	-0,38%	-0,24%	1,60%	2,75%	1,67%	0,49%	-0,44%	-0,68%
$C^L_{6,T2}$ (% diff.)	1,77%	-0,51%	-3,08%	-6,31%	-1,69%	-0,30%	-1,08%	-3,07%
C^L_{2} (% diff.)	0,03%	0,23%	0,21%	0,41%	0,27%	0,28%	0,29%	0,30%
C^L_{3} (% diff.)	-0,09%	0,10%	-0,09%	0,18%	0,44%	0,44%	0,58%	0,58%
C^L_{4} (% diff.)	-0,09%	-0,06%	-0,08%	-0,18%	-0,58%	-0,07%	-0,12%	0,27%
C^L_{5} (% diff.)	-0,16%	-0,08%	-0,16%	-0,19%	-0,65%	-1,10%	-0,76%	-0,41%
C^L_{6} (% diff.)	-0,05%	-0,17%	-0,11%	-0,25%	-0,40%	-0,99%	-1,51%	-0,98%

$\Omega^{L}_{2,B}$ (% diff.)	-0,80%	-3,17%	-4,30%	-2,08%	-3,13%	-5,49%	-5,66%	-9,74%
$\Omega^{L}_{2,M}$ (% diff.)	-1,42%	-6,48%	-34,15%	-3,74%	-10,46%	-8,74%	-9,47%	-8,78%
$\Omega^{L}_{2,H}$ (% diff.)	-2,63%	-4,68%	-30,09%	-14,50%	-16,74%	-19,18%	-19,97%	-18,53%
$\Omega^{L}_{2,T10}$ (% diff.)	6,06%	-0,36%	-4,62%	-33,55%	-100,00%	100,00%	148,49%	-35,13%
$\Omega^{L}_{2,T2}$ (% diff.)	-51,07%	40,36%	1,89%	-9,51%	-12,19%	-11,85%	-13,80%	-12,94%
$\Omega^{L}_{3,B}$ (% diff.)	-1,36%	-1,44%	-3,17%	-6,97%	-7,49%	-12,21%	-16,34%	-25,25%
$\Omega^{L}_{3,M}$ (% diff.)	-0,06%	-1,10%	-1,93%	-7,84%	-3,89%	-9,96%	3,58%	1,67%
$\Omega^{L}_{3,H}$ (% diff.)	-1,01%	-2,60%	-1,51%	-10,43%	-4,72%	-9,87%	-13,98%	-19,55%
$\Omega^{L}_{3,T10}$ (% diff.)	6,99%	2,31%	1,71%	-0,28%	-2,64%	-3,81%	-3,79%	-2,18%
$\Omega^{L}_{3,T2}$ (% diff.)	-5,05%	-11,34%	2,99%	0,95%	-2,30%	-3,21%	-3,78%	-4,17%
$\Omega^{L}_{4,B}$ (% diff.)	-0,59%	-0,77%	-1,62%	-4,22%	-9,16%	-9,65%	-11,69%	-12,99%
$\Omega^{L}_{4,M}$ (% diff.)	-0,30%	-0,13%	-0,73%	-2,03%	-6,07%	-4,11%	-5,18%	2,95%
$\Omega^{L}_{4,H}$ (% diff.)	0,30%	0,04%	0,00%	-0,84%	-3,62%	0,82%	-0,74%	-4,26%
$\Omega^{L}_{4,T10}$ (% diff.)	0,94%	4,67%	3,42%	2,32%	0,79%	-0,16%	-0,75%	0,19%
$\Omega^{L}_{4,T2}$ (% diff.)	-0,03%	-4,65%	7,39%	3,31%	1,67%	-0,63%	-1,50%	-2,05%
$\Omega^{L}_{5,B}$ (% diff.)	-0,36%	-0,55%	-1,24%	-3,13%	-6,90%	-9,47%	-9,56%	-10,94%
$\Omega^{L}_{5,M}$ (% diff.)	-0,26%	-0,22%	-0,52%	-1,35%	-3,79%	-6,46%	-4,71%	2,18%
$\Omega^{L}_{5,H}$ (% diff.)	-0,10%	0,65%	0,08%	0,12%	-1,21%	-1,82%	3,91%	2,93%
$\Omega^{L}_{5,T10}$ (% diff.)	-0,35%	2,73%	4,64%	4,16%	2,45%	1,00%	0,26%	0,58%
$\Omega^{L}_{5,T2}$ (% diff.)	1,23%	0,73%	-0,14%	12,39%	8,63%	8,86%	7,88%	6,88%
$\Omega^{L}_{6,B}$ (% diff.)	-0,65%	-0,32%	-0,69%	-0,56%	-1,33%	-2,37%	-2,64%	-3,61%
$\Omega^{L}_{6,M}$ (% diff.)	-0,56%	-0,28%	-0,66%	-0,44%	-1,47%	-3,02%	-3,92%	2,73%
$\Omega^{L}_{6,H}$ (% diff.)	-0,46%	0,04%	0,73%	0,08%	-0,85%	-2,74%	-3,50%	2,75%
$\Omega^{L}_{6,T10}$ (% diff.)	-0,77%	-0,48%	3,21%	5,46%	3,33%	0,98%	-0,87%	-1,31%
$\Omega^{L}_{6,T2}$ (% diff.)	2,21%	6,73%	10,23%	16,54%	26,43%	26,68%	28,43%	26,39%
Ω^{L}_{2} (% diff.)	-1,04%	-3,91%	-17,28%	-8,78%	-12,14%	-12,53%	-13,49%	-13,36%
Ω^{L}_{3} (% diff.)	-0,19%	-1,09%	-0,12%	-4,21%	-3,48%	-6,19%	-6,22%	-7,69%
Ω^{L}_{4} (% diff.)	0,20%	0,61%	1,67%	0,60%	-1,30%	-0,71%	-1,77%	-2,05%
Ω^{L}_{5} (% diff.)	0,01%	0,87%	0,93%	3,95%	2,50%	2,34%	3,55%	3,57%
Ω^{L}_{6} (% diff.)	0,49%	2,00%	3,63%	5,66%	9,07%	10,55%	12,51%	13,31%

For the interpretation of these numbers, see Tables K1 and K2 in Appendix K.

Table N4: Transitional effects of changes in the estate tax system since 1980 on **consumption and wealth of entrepreneurs**: baseline relative to counterfactual 2b:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$C^E_{2,B}$ (% diff.)	0,24%	0,64%	-0,12%	0,99%	0,55%	0,58%	0,32%	0,08%
$C^E_{2,M}$ (% diff.)	-0,13%	0,38%	-0,91%	0,62%	0,11%	0,46%	0,30%	0,25%
$C^E_{2,H}$ (% diff.)	-0,73%	-0,22%	-0,78%	-1,89%	-2,83%	-3,11%	-3,41%	-3,63%
$C^E_{2,T10}$ (% diff.)	0,40%	-0,32%	0,13%	0,39%	0,36%	0,23%	0,27%	0,38%
$C^E_{2,T2}$ (% diff.)	2,25%	0,69%	3,51%	4,32%	4,10%	4,01%	3,93%	3,70%
$C^E_{3,B}$ (% diff.)	-0,07%	0,18%	0,59%	0,42%	0,59%	0,16%	0,32%	-0,04%
$C^E_{3,M}$ (% diff.)	0,18%	-0,09%	0,10%	0,05%	1,74%	1,04%	1,15%	0,96%
$C^E_{3,H}$ (% diff.)	0,14%	-0,53%	-0,51%	-0,37%	-0,72%	-1,64%	-1,74%	-2,33%
$C^E_{3,T10}$ (% diff.)	0,34%	0,37%	-0,64%	0,23%	0,89%	0,69%	0,94%	1,06%
$C^E_{3,T2}$ (% diff.)	0,68%	2,28%	4,12%	3,82%	3,50%	3,10%	2,99%	2,73%
$C^E_{4,B}$ (% diff.)	-0,13%	-0,06%	0,05%	0,65%	0,00%	0,09%	-0,17%	-0,36%
$C^E_{4,M}$ (% diff.)	0,17%	0,16%	-0,22%	0,03%	0,33%	2,45%	1,18%	2,22%
$C^E_{4,H}$ (% diff.)	0,33%	0,17%	-0,52%	-0,60%	-1,02%	-0,76%	-1,18%	-1,73%
$C^E_{4,T10}$ (% diff.)	0,04%	0,36%	0,04%	-0,74%	-0,58%	-0,08%	-0,31%	0,14%
$C^E_{4,T2}$ (% diff.)	1,30%	0,69%	1,99%	4,01%	3,00%	2,49%	2,06%	1,76%
$C^E_{5,B}$ (% diff.)	-0,20%	-0,10%	-0,07%	0,29%	0,04%	-0,63%	-0,67%	-1,14%
$C^E_{5,M}$ (% diff.)	0,49%	0,16%	0,21%	0,28%	-0,12%	-0,03%	1,84%	1,87%
$C^E_{5,H}$ (% diff.)	0,43%	0,51%	-0,98%	-0,79%	0,35%	-0,36%	-0,41%	-0,51%
$C^E_{5,T10}$ (% diff.)	-0,41%	-0,10%	-0,92%	-1,62%	-0,49%	-0,63%	-0,25%	-0,18%
$C^E_{5,T2}$ (% diff.)	0,42%	2,34%	1,63%	3,15%	4,68%	3,88%	3,63%	2,66%
$C^E_{6,B}$ (% diff.)	-0,32%	-0,18%	-0,39%	-0,14%	-0,36%	-0,84%	-1,49%	-1,98%
$C^E_{6,M}$ (% diff.)	0,50%	0,53%	1,06%	1,19%	0,39%	-0,67%	-0,79%	1,28%
$C^E_{6,H}$ (% diff.)	0,22%	0,56%	0,66%	-0,18%	0,75%	1,27%	0,16%	-0,61%
$C^E_{6,T10}$ (% diff.)	0,25%	-1,38%	-4,21%	-6,69%	-0,30%	0,44%	0,16%	-0,04%
$C^E_{6,T2}$ (% diff.)	-0,53%	1,36%	7,82%	2,68%	2,14%	5,79%	5,45%	3,89%
C^E_{2} (% diff.)	0,03%	0,11%	0,12%	0,33%	-0,18%	-0,23%	-0,39%	-0,52%
C^E_{3} (% diff.)	0,22%	0,11%	0,35%	0,57%	0,86%	0,25%	0,28%	-0,02%
C^E_{4} (% diff.)	0,30%	0,23%	-0,02%	0,28%	0,07%	0,61%	0,07%	0,10%
C^E_{5} (% diff.)	0,24%	0,47%	-0,33%	-0,11%	0,68%	0,32%	0,71%	0,50%
C^E_{6} (% diff.)	0,13%	0,24%	0,70%	-0,65%	0,53%	1,17%	0,70%	0,51%

$\Omega^{L}_{2,B}$ (% diff.)	-1,56%	-4,74%	-21,64%	-5,14%	-7,79%	-8,57%	-9,00%	-9,20%
$\Omega^{L}_{2,M}$ (% diff.)	0,78%	-2,05%	-64,13%	-15,62%	-23,73%	-37,93%	-45,47%	-54,80%
$\Omega^{L}_{2,H}$ (% diff.)	2,81%	0,99%	-90,32%	-19,89%	-15,67%	-16,91%	-17,80%	-16,67%
$\Omega^{L}_{2,T10}$ (% diff.)	-1,39%	1,42%	-13,58%	-40,76%	-44,28%	-42,09%	-44,37%	-36,58%
$\Omega^{L}_{2,T2}$ (% diff.)	-8,02%	-100,00%	-100,00%	-39,45%	-22,68%	-20,89%	-20,63%	-18,82%
$\Omega^{E}_{3,B}$ (% diff.)	-0,18%	-1,21%	0,16%	-3,46%	-2,61%	-7,32%	-6,93%	-11,27%
$\Omega^{E}_{3,M}$ (% diff.)	0,41%	1,15%	-0,75%	-10,16%	6,37%	-0,92%	-0,35%	-5,85%
$\Omega^{E}_{3,H}$ (% diff.)	0,08%	3,42%	2,34%	-7,59%	-0,97%	-3,92%	-4,94%	-8,92%
$\Omega^{E}_{3,T10}$ (% diff.)	-0,26%	-0,96%	3,09%	-0,06%	3,00%	1,58%	1,68%	1,00%
$\Omega^{E}_{3,T2}$ (% diff.)	-0,24%	-10,56%	-12,73%	-12,07%	-7,85%	-6,94%	-7,15%	-7,06%
$\Omega^{E}_{4,B}$ (% diff.)	-0,35%	0,24%	0,54%	0,84%	-2,14%	-1,58%	-3,83%	-5,39%
$\Omega^{E}_{4,M}$ (% diff.)	0,98%	1,31%	0,36%	-0,59%	-1,99%	4,66%	1,43%	0,23%
$\Omega^{E}_{4,H}$ (% diff.)	-0,13%	-0,02%	1,44%	1,62%	-0,38%	1,64%	1,13%	-0,94%
$\Omega^{E}_{4,T10}$ (% diff.)	1,66%	-0,16%	2,93%	5,13%	3,74%	4,94%	4,43%	4,21%
$\Omega^{E}_{4,T2}$ (% diff.)	-5,40%	-0,57%	3,20%	-5,70%	-4,39%	-2,26%	-1,79%	-1,92%
$\Omega^{E}_{5,B}$ (% diff.)	-0,33%	-0,30%	-0,17%	0,54%	-0,41%	-3,33%	-2,76%	-5,32%
$\Omega^{E}_{5,M}$ (% diff.)	0,75%	2,11%	2,29%	2,28%	0,32%	0,05%	4,99%	5,29%
$\Omega^{E}_{5,H}$ (% diff.)	0,84%	-1,44%	0,39%	3,82%	4,55%	2,48%	2,73%	2,98%
$\Omega^{E}_{5,T10}$ (% diff.)	4,10%	3,77%	0,71%	8,99%	8,66%	6,09%	6,71%	6,76%
$\Omega^{E}_{5,T2}$ (% diff.)	-2,02%	-16,53%	-2,35%	-0,16%	-8,28%	-2,71%	0,25%	2,85%
$\Omega^{E}_{6,B}$ (% diff.)	-0,66%	-0,39%	-0,81%	-0,05%	-0,13%	-1,05%	-2,88%	-4,00%
$\Omega^{E}_{6,M}$ (% diff.)	1,97%	1,69%	3,00%	2,75%	2,35%	-1,10%	-0,81%	9,91%
$\Omega^{E}_{6,H}$ (% diff.)	0,32%	-0,91%	3,41%	7,82%	9,95%	7,68%	3,48%	10,81%
$\Omega^{E}_{6,T10}$ (% diff.)	0,38%	17,58%	19,41%	17,67%	24,96%	20,33%	12,14%	15,43%
$\Omega^{E}_{6,T2}$ (% diff.)	-1,19%	-13,68%	4,68%	15,55%	7,00%	-18,09%	-5,63%	10,12%
Ω^{E}_{2} (% diff.)	0,03%	-0,60%	-71,50%	-21,30%	-19,36%	-21,35%	-22,44%	-22,03%
Ω^{E}_{3} (% diff.)	0,00%	0,22%	-0,36%	-7,59%	-1,94%	-4,08%	-4,45%	-6,23%
Ω^{E}_{4} (% diff.)	-0,46%	0,13%	1,77%	0,35%	-1,11%	1,17%	0,53%	-0,40%
Ω^{E}_{5} (% diff.)	0,74%	-2,65%	0,19%	3,55%	1,16%	0,95%	2,65%	3,60%
Ω^{E}_{6} (% diff.)	-0,20%	-0,60%	7,51%	11,66%	11,12%	0,38%	0,44%	10,86%

For the interpretation of these numbers, see Tables K1 and K2 in Appendix K.

Table N5: Transitional effects of changes in the estate tax system since 1980 on **the labor supply of workers**: baseline relative to counterfactual 2b:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$n^L_{2,B}$ (% diff.)	0,02%	0,00%	0,03%	0,03%	0,08%	0,06%	0,05%	0,03%
$n^L_{2,M}$ (% diff.)	-0,05%	-0,07%	-0,07%	-0,04%	-0,04%	-0,34%	-0,34%	-0,25%
$n^L_{2,H}$ (% diff.)	-0,08%	-0,15%	-0,19%	-0,19%	-0,18%	-0,11%	-0,10%	-0,06%
$n^L_{2,T10}$ (% diff.)	0,16%	-0,01%	-0,14%	-0,27%	-0,06%	0,07%	0,08%	0,04%
$n^L_{2,T2}$ (% diff.)	0,00%	-0,02%	0,15%	-0,79%	-0,95%	-0,97%	-1,08%	-1,06%
$n^L_{3,B}$ (% diff.)	0,03%	0,02%	0,05%	0,02%	0,19%	0,19%	0,16%	0,14%
$n^L_{3,M}$ (% diff.)	-0,01%	-0,04%	0,00%	-0,07%	-0,05%	-0,05%	-0,39%	-0,29%
$n^L_{3,H}$ (% diff.)	0,00%	-0,07%	-0,03%	-0,17%	-0,57%	-0,56%	-0,51%	-0,42%
$n^L_{3,T10}$ (% diff.)	0,31%	0,13%	0,17%	-0,09%	-0,18%	-0,23%	-0,29%	-0,42%
$n^L_{3,T2}$ (% diff.)	-0,30%	-0,30%	0,45%	0,11%	-0,10%	-0,10%	-0,13%	-0,16%
$n^L_{4,B}$ (% diff.)	0,05%	0,02%	0,07%	0,08%	0,17%	0,28%	0,25%	0,23%
$n^L_{4,M}$ (% diff.)	0,04%	-0,01%	0,05%	0,05%	0,26%	0,10%	0,13%	-0,51%
$n^L_{4,H}$ (% diff.)	0,00%	0,01%	0,04%	0,02%	0,22%	-0,34%	-0,24%	-0,15%
$n^L_{4,T10}$ (% diff.)	0,13%	0,36%	0,43%	0,30%	0,40%	0,45%	0,47%	0,19%
$n^L_{4,T2}$ (% diff.)	0,17%	-0,33%	-0,97%	0,52%	0,90%	0,80%	0,77%	0,74%
$n^L_{5,B}$ (% diff.)	0,14%	0,10%	0,20%	0,22%	0,94%	0,87%	1,63%	1,69%
$n^L_{5,M}$ (% diff.)	0,18%	0,10%	0,37%	0,86%	2,29%	2,46%	2,31%	1,26%
$n^L_{5,H}$ (% diff.)	0,21%	0,15%	0,30%	0,36%	1,99%	3,15%	2,94%	2,52%
$n^L_{5,T10}$ (% diff.)	0,35%	0,62%	-2,98%	-2,60%	0,25%	1,79%	2,30%	1,62%
$n^L_{5,T2}$ (% diff.)	1,99%	0,91%	2,51%	4,28%	2,57%	4,55%	8,99%	9,97%
$R^L_{5,B}$ (% diff.)	0,04%	0,04%	-0,01%	-0,05%	0,05%	0,19%	0,64%	0,78%
$R^L_{5,M}$ (% diff.)	0,05%	0,04%	0,06%	0,22%	0,53%	0,84%	0,95%	0,92%
$R^L_{5,H}$ (% diff.)	0,05%	0,06%	0,06%	0,16%	0,56%	0,97%	1,13%	0,95%
$R^L_{5,T10}$ (% diff.)	0,05%	0,11%	-0,58%	-0,45%	0,01%	0,32%	0,46%	0,36%
$R^L_{5,T2}$ (% diff.)	0,15%	0,12%	0,49%	0,78%	0,34%	0,55%	1,06%	1,20%
n^L_2 (% diff.)	-0,02%	-0,06%	-0,07%	-0,09%	-0,06%	-0,12%	-0,12%	-0,09%
n^L_3 (% diff.)	0,03%	-0,02%	0,03%	-0,06%	-0,13%	-0,13%	-0,23%	-0,19%
n^L_4 (% diff.)	0,04%	0,03%	0,06%	0,08%	0,24%	0,07%	0,10%	-0,09%
n^L_5 (% diff.)	0,19%	0,16%	0,12%	0,32%	1,65%	2,14%	2,35%	1,91%
R^L_5 (% diff.)	0,05%	0,05%	-0,01%	0,09%	0,38%	0,67%	0,88%	0,84%

For the interpretation of these numbers, see Tables K1 and K2 in Appendix K.

Table N6: Transitional effects of changes in the estate tax system since 1980 on **the labor supply of entrepreneurs**: baseline relative to counterfactual 2b:

	1950-64	1965-79	1980-94	1995-09	2010-24	2025-39	2040-54	Long run
$n^E_{2,B}$ (% diff.)	-0,07%	-0,18%	0,09%	-0,29%	-0,17%	-0,18%	-0,08%	0,02%
$n^E_{2,M}$ (% diff.)	0,04%	-0,18%	0,38%	-0,29%	-0,02%	-0,21%	-0,19%	-0,17%
$n^E_{2,H}$ (% diff.)	0,26%	0,02%	0,29%	0,73%	1,02%	1,09%	1,16%	1,21%
$n^E_{2,T10}$ (% diff.)	-0,24%	0,21%	-0,16%	-0,35%	-0,33%	-0,25%	-0,25%	-0,25%
$n^E_{2,T2}$ (% diff.)	-1,63%	-0,34%	-3,29%	-3,74%	-3,32%	-3,33%	-3,33%	-3,19%
$n^E_{3,B}$ (% diff.)	0,04%	-0,04%	-0,15%	-0,04%	-0,09%	0,05%	-0,01%	0,12%
$n^E_{3,M}$ (% diff.)	-0,07%	0,03%	-0,10%	-0,09%	-0,77%	-0,41%	-0,50%	-0,48%
$n^E_{3,H}$ (% diff.)	-0,04%	0,20%	0,14%	0,00%	0,01%	0,37%	0,38%	0,56%
$n^E_{3,T10}$ (% diff.)	-0,20%	-0,26%	0,45%	-0,21%	-0,68%	-0,55%	-0,70%	-0,71%
$n^E_{3,T2}$ (% diff.)	-0,26%	-1,92%	-3,26%	-2,57%	-2,23%	-1,95%	-1,92%	-1,79%
$n^E_{4,B}$ (% diff.)	0,10%	0,08%	0,03%	-0,18%	0,11%	0,14%	0,19%	0,26%
$n^E_{4,M}$ (% diff.)	-0,09%	-0,12%	0,07%	-0,02%	-0,15%	-1,24%	-0,50%	-0,67%
$n^E_{4,H}$ (% diff.)	-0,14%	-0,14%	0,27%	0,25%	0,48%	0,26%	0,50%	0,80%
$n^E_{4,T10}$ (% diff.)	0,02%	-0,35%	-0,16%	0,70%	0,47%	0,03%	0,27%	-0,03%
$n^E_{4,T2}$ (% diff.)	-1,83%	-0,53%	-1,30%	-3,27%	-2,10%	-1,71%	-1,30%	-1,06%
$n^E_{5,B}$ (% diff.)	0,32%	0,33%	1,89%	1,96%	1,54%	1,15%	1,62%	1,69%
$n^E_{5,M}$ (% diff.)	-0,19%	0,67%	-8,37%	1,09%	0,28%	0,41%	0,34%	1,72%
$n^E_{5,H}$ (% diff.)	-0,42%	1,90%	11,37%	-1,12%	-1,08%	0,28%	0,13%	1,27%
$n^E_{5,T10}$ (% diff.)	10,30%	30,28%	120,76%	13,86%	2,81%	1,99%	0,55%	0,68%
$n^E_{5,T2}$ (% diff.)	59,22%	-18,36%	-19,58%	-11,10%	-21,08%	-24,12%	-34,51%	-29,26%
$R^E_{5,B}$ (% diff.)	0,08%	0,09%	0,16%	0,51%	0,78%	0,58%	0,89%	0,96%
$R^E_{5,M}$ (% diff.)	0,01%	0,12%	0,03%	0,20%	0,35%	0,53%	0,91%	1,14%
$R^E_{5,H}$ (% diff.)	-0,03%	0,08%	0,05%	-0,17%	-0,17%	0,05%	0,11%	0,28%
$R^E_{5,T10}$ (% diff.)	0,22%	0,05%	0,00%	0,21%	0,24%	0,29%	0,16%	0,18%
$R^E_{5,T2}$ (% diff.)	0,01%	0,02%	-0,05%	-0,99%	-1,81%	-1,51%	-1,48%	-1,01%
n^E_2 (% diff.)	0,02%	-0,10%	0,18%	-0,05%	0,16%	0,12%	0,17%	0,23%
n^E_3 (% diff.)	-0,04%	0,00%	-0,06%	-0,09%	-0,34%	-0,07%	-0,13%	-0,03%
n^E_4 (% diff.)	-0,05%	-0,08%	0,07%	0,00%	0,13%	-0,28%	0,05%	0,09%
n^E_5 (% diff.)	0,13%	0,62%	2,13%	0,75%	0,31%	0,60%	0,67%	1,45%
R^E_5 (% diff.)	0,04%	0,09%	0,06%	0,08%	0,18%	0,30%	0,50%	0,66%

For the interpretation of these numbers, see Tables K1 and K2 in Appendix K.

Appendix O. Aggregate distributional effects of the U.S. federal estate tax reforms since 1980: additional measures of cross-sectional wealth inequality and concentration

Table O1: Evolution of aggregate cross-sectional net wealth inequality and concentration: baseline versus counterfactuals: **pre-tax wealth plus inter-vivos transfers**

		1950	1965	1980	1995	2010	2025	2040	2055	Long run
Wealth Gini	**Baseline**	0,788	0,753	0,699	0,719	0,760	0,806	0,826	0,836	0,842
	Counterfactual 1a	0,787	0,751	0,693	0,709	0,750	0,793	0,815	0,824	0,831
	Counterfactual 1b	0,787	0,751	0,691	0,706	0,746	0,789	0,811	0,821	0,828
	Counterfactual 2a	0,787	0,753	0,698	0,715	0,755	0,798	0,818	0,828	0,833
	Counterfactual 2b	0,787	0,752	0,696	0,713	0,752	0,795	0,816	0,825	0,832
Bottom 50% wealth share	**Baseline**	0,018	0,036	0,066	0,047	0,030	0,018	0,017	0,016	0,016
	Counterfactual 1a	0,018	0,037	0,069	0,052	0,033	0,021	0,020	0,019	0,018
	Counterfactual 1b	0,018	0,037	0,070	0,054	0,035	0,023	0,021	0,020	0,019
	Counterfactual 2a	0,018	0,037	0,067	0,049	0,032	0,020	0,019	0,018	0,017
	Counterfactual 2b	0,018	0,037	0,068	0,051	0,033	0,021	0,020	0,019	0,018
Top 10% wealth share	**Baseline**	0,646	0,611	0,562	0,566	0,612	0,678	0,720	0,739	0,750
	Counterfactual 1a	0,654	0,611	0,555	0,552	0,595	0,659	0,699	0,717	0,731
	Counterfactual 1b	0,653	0,607	0,553	0,549	0,593	0,654	0,695	0,712	0,727
	Counterfactual 2a	0,656	0,610	0,558	0,560	0,601	0,664	0,703	0,722	0,737
	Counterfactual 2b	0,655	0,610	0,556	0,558	0,605	0,662	0,702	0,719	0,733
TOP 1% wealth share	**Baseline**	0,236	0,215	0,182	0,174	0,258	0,294	0,314	0,318	0,336
	Counterfactual 1a	0,236	0,213	0,182	0,168	0,251	0,284	0,309	0,317	0,336
	Counterfactual 1b	0,236	0,213	0,181	0,167	0,247	0,280	0,305	0,313	0,332
	Counterfactual 2a	0,236	0,215	0,186	0,176	0,255	0,295	0,312	0,319	0,336
	Counterfactual 2b	0,236	0,215	0,185	0,175	0,253	0,292	0,310	0,317	0,334

Table O2: Evolution of aggregate cross-sectional net wealth inequality and concentration: baseline versus counterfactuals: **after-tax wealth plus inter-vivos transfers**

		1950	1965	1980	1995	2010	2025	2040	2055	Long run
Wealth Gini	**Baseline**	0,783	0,742	0,688	0,709	0,759	0,804	0,824	0,833	0,838
	Counterfactual 1a	0,781	0,740	0,677	0,694	0,730	0,770	0,790	0,799	0,804
	Counterfactual 1b	0,780	0,741	0,680	0,693	0,728	0,763	0,780	0,787	0,790
	Counterfactual 2a	0,781	0,742	0,681	0,702	0,739	0,780	0,800	0,809	0,815
	Counterfactual 2b	0,781	0,742	0,680	0,700	0,736	0,777	0,797	0,807	0,812
Bottom 50% wealth share	**Baseline**	0,018	0,038	0,068	0,049	0,030	0,018	0,018	0,017	0,016
	Counterfactual 1a	0,018	0,038	0,072	0,055	0,036	0,024	0,023	0,022	0,021
	Counterfactual 1b	0,018	0,039	0,074	0,057	0,038	0,026	0,025	0,024	0,023
	Counterfactual 2a	0,018	0,038	0,071	0,051	0,034	0,022	0,021	0,020	0,020
	Counterfactual 2b	0,018	0,039	0,071	0,053	0,035	0,023	0,022	0,021	0,021
Top 10% wealth share	**Baseline**	0,637	0,592	0,544	0,549	0,610	0,675	0,716	0,734	0,744
	Counterfactual 1a	0,644	0,592	0,529	0,526	0,560	0,616	0,655	0,671	0,683
	Counterfactual 1b	0,643	0,589	0,528	0,524	0,558	0,611	0,649	0,665	0,677
	Counterfactual 2a	0,646	0,591	0,532	0,538	0,572	0,631	0,670	0,688	0,703
	Counterfactual 2b	0,646	0,591	0,531	0,536	0,576	0,629	0,669	0,685	0,699
TOP 1% wealth share	**Baseline**	0,221	0,192	0,164	0,180	0,252	0,286	0,304	0,306	0,322
	Counterfactual 1a	0,219	0,191	0,162	0,146	0,206	0,228	0,256	0,261	0,270
	Counterfactual 1b	0,219	0,191	0,162	0,145	0,204	0,225	0,253	0,258	0,267
	Counterfactual 2a	0,220	0,193	0,166	0,157	0,223	0,263	0,304	0,278	0,279
	Counterfactual 2b	0,220	0,193	0,166	0,156	0,222	0,259	0,302	0,301	0,277

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