The US Federal Estate Tax and the State Tax Credit, 1924–2005

Lessons on Wealth Taxation in a Federation

Lukas Puschnig

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Abstract. Tax competition is one of the major difficulties policymakers need to address when trying to implement taxes on capital, as mobile assets can easily change their residencies to move to a location where they face a lower or no taxation at all. This issue is mostly discussed from a between-country perspective, but it also arises within countries if the sovereignty to set taxes is on a local level as is the case in many federations such as the US and the EU. Unlike the EU, the US has a longstanding history of wealth taxation at multiple levels, and federal and state-level taxes on wealth transfers have coexisted for more than a century at this point. The main policy tool for the federal government to curb the impending race to the bottom was a federal tax credit for state-level taxes. This work analyzes the functioning of such a credit and the history of the US experience in this field in a broader sense, in order to derive hands-on lessons for policymakers to consider when implementing similar tax systems. The result is that such a credit is not a first-best solution because it entails a high bureaucratic cost but can be a necessary concession to the lower levels of government to accept federal involvement in the area. Moreover, it is advisable to exempt small and medium-sized businesses and farms and to allow for flexible payment options that prevents the liquidation of their assets and fire sales, in order to preempt populist attacks that often go along these lines.

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Supervisor: Prof. Thomas Piketty
Referee: Prof. Romain Huret (EHESS)
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Contents

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1 Introduction

Public finance is once more one of the main topics in the public debate about economic policy. With the Great Recession, the Euro Crisis, and the public health crisis due to Covid-19, governments around the globe and in particular in Europe have increased their government spending in order to keep their economies afloat. Inextricably linked to the subject matter is the debate about public debt, and at least since the latest crisis, who is to pay for the bill is back up for discussion. Urging for a fair split of the burden, the calls for wealthy citizens to contribute a higher share to the public coffers have become louder, and contrary to the recent past, these calls are not limited to left-leaning politicians, labor unions, and academics, even the International Monetary Fund (2021) proposes to levy higher taxes on high incomes and high wealth to offset the fiscal impact of the crisis, at least temporarily. Yet, it remains to be seen whether the current momentum will lead to a reversal in the past decades' trend away from wealth taxation.[1]

The immediate appeals of wealth taxes are clear: They allow to raise revenue for public spending, without tapping labor incomes and the inefficiencies this brings along, while at the same time counteracting the increasing concentration of wealth, an issue that has gained increasing publicity since the publication of the seminal work by Piketty (2013) and the ongoing pandemic that even reinforced this trend (Financial Times, 2021). On the downside, taxes on wealth may create disincentives for its accumulation and may therefore have adverse economic effects, although it is also possible that a wealth tax encourages efforts to better employ one's capital and in order to reach a positive net return, so as to not seeing their wealth decrease (see further below). One clear disadvantage however is that if the wealth in question is mobile and can change its residence to another jurisdiction, it creates a fiscal externality and induces governments to compete for its residency by lowering their tax rates, leading to a race to the bottom that makes the implementation of such a tax more difficult. Such competition can occur at the international level (between countries), but also at the intranational level (within countries), in the case of federal systems where the states are each sovereign in setting their proper tax rates.

While the principal problem is the same at both levels, the solutions may differ: With a central government, perhaps a functioning tax authority, and most likely more experience in bargaining and a higher degree of homogeneity in preferences, federations may be in a better position to counteract the effects of tax competition. The relevance of this issue is apparent: With the European Union (EU) and the United States (US) alone, almost a third of total world GDP and almost two thirds of GDP within the Organization for Economic Co-operation and Development (OECD) accrues in such a system.[2]

But while the US have a longstanding history of multi-level taxation in several fields, with examples of shared jurisdiction being estate and inheritance taxation as the main focus of this work, income and corporate income taxation, or excise taxation, the EU does not directly engage in tax policy, and merely assumes a coordinating and harmonizing role between member states (European Union, 2021). It is therefore in-

[1] See for instance the decline of net wealth taxes in the OECD (2018).

[2] See World Bank (2021) for the relative shares, adjusted for purchasing power parity (their share would be even larger using absolute figures).

teresting for its policymakers to take a look across the Atlantic and the history of multi-level taxation in the US, in order to better understand the role a federal government can play in coordinating its internal taxation.

These areas define the scope of this paper. Its aim is to analyze the history of the US experience of taxing transfers of wealth, with a focus on the US federal estate tax and its state-level counterparts. The goal is to understand in detail the policies enacted and their background, in order to find answers to the questions about the peculiarities of fiscal externalities in a federal systems and means to solve or mitigate them, as well as to derive relevant lessons if a similar tax system were to be established in a European context. A particular focus lies on a credit for state-level taxes, which has been the main tool of the federal government to coordinate the taxation at both levels.

The remainder of this work is structured as follows. The next section gives a broad overview over the subject at hand, introducing the most important terms and notions in this context and providing the reader with an overview of the issues policymakers usually face. Section (3) will then introduce a simple theoretical framework in order to understand how a US-style state-level tax credit, the main policy tool that has historically been used to counter the fiscal externality and define the sovereignty of the two levels of government, works. Although it does not provide a closed-form solution to the model, it shows the trade-off the policymakers face and how the equilibrium in such a situation can be found for a given policy. Section (4) then gives a detailed account of the experience the US have had with wealth transfer taxation in general, starting from the early 19th century until today, with a particular focus on the strategic interactions between jurisdictions and on the state tax credit. Section (5) goes on to formulate the lessons that can be learned from the US experience for similar tax systems in other countries, and to highlight other important issues that need to be considered, but that cannot be provided with straightforward recommendations. Section (6) concludes.

2 Categorization & Scope

Categorization

The US federal estate tax, the main subject of this work, is only one particular form of wealth taxation. It is helpful to understand how it fits into the broader landscape by categorizing and comparing it to other forms, by beginning with the very broad category of capital taxes and splitting it up into narrower groups.

Capital vs. Capital Income Taxes. One distinction can be made relating to whether it is specifically the income generated by capital that is taxed, or if the stock is taxed as well. In the first case of a capital income tax — an intermediate case between an income tax and a capital tax — only the return that the capital creates is subject to the tax. Therefore, unless an asset yields a negative net return, such a tax will not apply to its substance, only to its gain. In the second case of a capital or wealth tax, the stock of capital itself is subject to the tax, and may well decline if the return is not sufficiently high to compensate the tax.

Net Wealth & Transfer Taxes. One can also distinguish wealth taxes by the timing of their application. In principle, wealth taxes can be applied in two different ways. The typical (net) wealth tax directly targets the stock of wealth an individual holds, less its debts, at recurring points in time, usually every year. In contrast, inheritance, estate, and gift taxes (transfer taxes) target wealth (less debt) when it is passed from one individual to another.

Gift & Decease Taxes. Within this last group, a further distinction can be made according to the time of the transfer: Concretely, one can differentiate between a transfer that happens before the death of the donor (*inter vivos*), ie. a gift, that may be subject to a gift tax, and one that happens at the time of or after death, that may be subject to a "death tax" or "decease tax". In principle, however, these two types of transfers are taxed in very similar ways. First of all, there is no clear moral or philosophical reason why one of these should be treated in a preferential way over the other: Objections and endorsements of either kind of tax usually apply to the other as well. However, governments may prefer to have a lower gift tax rate so as to incentivize and thus bring forward transfers and receive the revenue earlier, even if it is less. Secondly, it can also be difficult to draw a distinction between the two cases. This becomes clear when considering the case of a gift made by the donor shortly before she passes away: It is hard to argue why such a gift, one that was arguably made in contemplation of death, should face a different tax schedule from a typical inheritance, in particular because a decease tax without a gift tax may open up the possibility of tax avoidance and evasion by simply passing on the entire inheritance shortly before the actual time of death, or to pretend afterwards that this has happened.

Forms of Decease Taxes. There are several forms of wealth taxation that are related to the death of a citizen, and it is helpful to briefly distinguish between the most important ones before going on. To begin with, I will use the term *decease taxes* as an umbrella term for all of them. An alternative and more commonly used term for this type of tax is "death tax". It has gained popularity over time and has even been used by the Internal Revenue Service (IRC), however, since it has been adopted and traditionally used by opponents of these taxes, it has obtained a derogatory meaning. I will therefore use the neutral term "decease tax" in the remainder of this work.

The first specific form of decease tax is the inheritance tax: It is a tax that is applied to the inheritance that a beneficiary receives, as depicted in the lower part of Figure (1). In contrast, an estate tax is applied to the wealth that the decedent bequeaths, as can be seen in the upper part. There is a natural connection between inheritances and the corresponding estate, which is that the sum of inheritances must coincide with the amount of the estate, accounting for the shares of the estate that are not liable to the tax because they are for instance donated to charity, for which many decease taxes have special rules. However, this does not mean that both forms of taxation are equivalent: Under a progressive scheme, the number of beneficiaries and the distribution of the estate upon them will have an influence on the amount of tax that is due, concretely, the more beneficiaries and the more evenly the estate is split among them, the lower the tax will be. This is not the case for the estate tax: The schedule applies before the amount is split, and is therefore unaffected by the latter.

Inheritance and estate taxes are the two main forms of decease taxes, but there are also others, like stamp duties, to name only one example. However, they are no longer in broad use and have largely been abolished with or without replacement by the two other forms.[3] In addition to these different forms, there are also different names that these taxes had been given, examples being "succession tax" or "legacy tax". It is not always clear which type of tax these names refer to: The language used in decease taxation is about as harmonized as decease taxation itself, which means hardly at all. However, most of the time, they refer to one of the two main types above (eg. Connecticut's inheritance tax was called succession tax, and an early federal inheritance tax during the Civil War was called legacy tax), with minor deviations at most (for instance if there are different rates and exemptions for lineal descendants, ie. children, and others).

Tax Rate Equivalence

While this work is primarily concerned with transfer taxes, it is important and interesting to compare different policies with respect to their impact and tax burden. In simple set-ups, capital income taxes, annual wealth taxes, and transfer taxes, while all being defined in different ways, can lead to equivalent results under certain circumstances.

To illustrate this, let $k_{i,t}$ denote the stock of capital an individual i holds at time t, and suppose further that she starts with an initial capital stock of $k_{i,0}$ at time $t = 0$ and that the further development of her portfolio depends only on the rate of return r and the (average) tax rate τ she faces, where τ can either be a capital income tax τ_c, an annual net wealth tax τ_a, or a decease tax τ_d. Then, the capital stock in the case of a capital income tax and a net wealth tax in the following period can be written as follows:

[3] As noted in the foreword of Parker (1933), taxes other than estate and inheritance taxes had already become insignificant by the interwar-period.

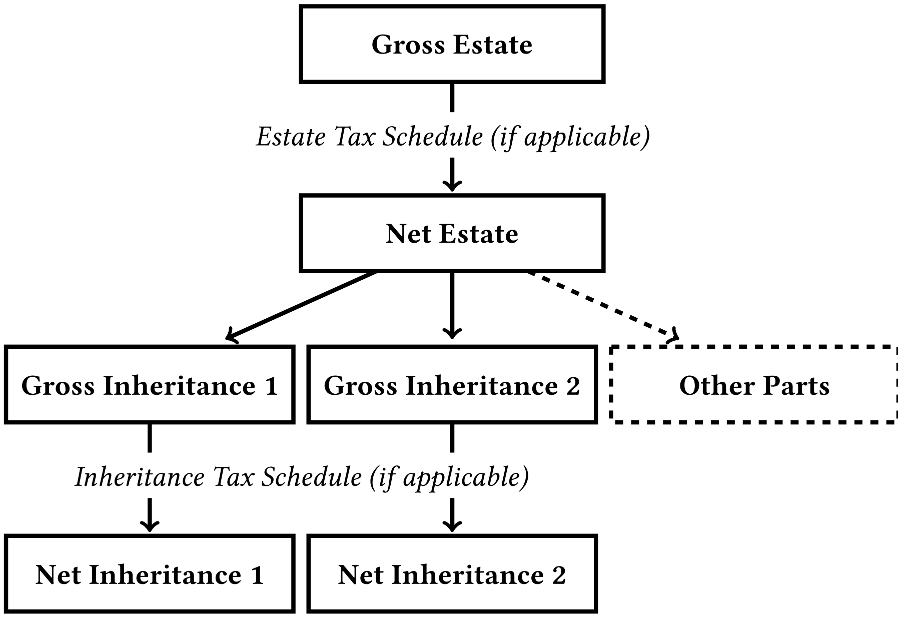


Figure 1: Tax Schedule: Gross Estate to Net Inheritance(s).
Source: Own Representation.

$$\text{Capital Income Tax:} \quad k_{i,1} = k_{i,0} + (1-\tau_c) \times r k_{i,0} \tag{1}$$

$$\text{Net Wealth Tax:} \quad k_{i,1} = (1-\tau_a)(1+r)\, k_{i,0} \tag{2}$$

Guvenen et al. (2019) show that these two taxes can be equivalent, in the sense that there is a τ_a for every τ_c that will result in the same outcome, if the rate of return is uniform and constant at some $r = \bar{r}$. Table (1) shows the equivalence expressions of the three wealth taxes in question. The expression in the first column of the second row yields the annual wealth tax τ_a that is equivalent to a capital income tax τ_c as a function of the latter (vice versa in the second column, first row). A similar connection can be made between the annual wealth tax and the decease tax. Suppose that capital accumulates for n years before it is passed on, and let n be fixed and constant for the moment. Then, the capital stock at the end of the n years can be written as follows:

$$\text{Net Wealth Tax:} \quad k_{i,n} = (1-\tau_a)^n (1+r)^n\, k_{i,0} \tag{3}$$

$$\text{Decease Tax:} \quad k_{i,n} = (1-\tau_d)(1+r)^n\, k_{i,0} \tag{4}$$

In this case, the equivalence is even clearer, and it is analog to the equivalence of compound interest on a credit with different frequencies, as given by the entries in the second column, third row, and third column, second row in Table (1). By extension, one can also establish equivalent rates between a capital income tax and decease taxes, which are given by the remaining expressions in the first column, third row,

		Equivalent as a function of ...		
		τ_c	τ_a	τ_d
Capital Income Tax	τ_c	–	$\frac{1+r}{r}\tau_a$	$\frac{1+r}{r}\left(1-\sqrt[n]{1-\tau_d}\right)$
Annual Wealth Tax	τ_a	$\frac{\tau_c r}{1+r}$	–	$1-\sqrt[n]{1-\tau_d}$
Decease Tax	τ_d	$1-\left(1-\frac{\tau_c r}{1+r}\right)^n$	$1-(1-\tau_a)^n$	–

Table 1: Equivalent Rates for different Wealth Taxes.
Source: Guvenen et al. (2019) for the relation between the capital income and the annual wealth tax. **Notes:** The table comprises three different kinds of wealth taxes, a capital income tax, an annual wealth tax, and a decease tax and shows for a given (average) rate of a certain form of taxation the equivalent rate of another form that will lead to the same capital stock after n years. For instance, for a given capital income tax rate τ_c, the equivalent decease tax rate τ_d is given in the first column of the third row.

and third column, first row.

Table (2) shows the result of applying these computations on the federal estate tax as it has been effective at several points in time during its history, for estates of varying sizes (a more comprehensive overview over the effective tax rates of the federal estate tax as given in the top panel can be found in Table 4 and the accompanying text down below). The middle panel, which exhibits the annual wealth tax equivalents for gross estates of various sizes (in 2018 prices) and for an assumed length of a generation of 25 years, shows that today, the federal estate tax equals an annual wealth tax of 2 % for an estate of \$ 1 billion, 1.7 % for an estate of \$ 100 million, and no tax for an estate of \$ 10 million or less (the current legislation exempts approximately \$ 11 million, see Figure 14 for details). In 1954, when the tax rates peaked with the top marginal tax rate of 77 %, a billionaire would have to pay at least 5.5 % of his wealth's value to the federal coffers each year. This is a very high rate: In terms of a capital income tax, as can be seen in the bottom panel, this corresponds to an average tax rate of over 80 % of the entire capital income for an average real return of 6–7 % (as estimated by Jordà et al., 2019), and even more than 100 % if the return is only 5 %, which would lead to an actual decline in the capital stock. However, it has to be noted that the tax rates in the upper panel are to be regarded as conservative upper bounds, because they only account for the standard exemption or credit (see Table 4 and the accompanying text down below).

A key observation in Guvenen et al. (2019) is that the equivalence between a capital income tax and an annual wealth tax only holds if the return is fixed and constant over time and across individuals. However, in case of heterogeneous returns, this no longer holds: All else equal, individuals with a high r would prefer the wealth tax (and decease tax, by extension), whereas less productive individuals with a low r would prefer a capital income tax instead. In a similar vein, individuals with a higher life expectancy would prefer decease taxation over an annual tax, since they would have to pay the tax relatively less often.

Gross Estate	**Average Federal Estate Tax Rate (%)**				
2018 USD	1926	1954	1987	2013	2018
$ 1,000,000	0.0	5.9	0.0	0.0	0.0
$ 10,000,000	3.2	30.8	42.8	17.4	0.0
$ 100,000,000	11.4	61.5	53.8	37.7	35.5
$ 1,000,000,000	19.1	75.5	54.9	39.8	39.6

	Annual Wealth Tax Equivalent (%, $n = 25$)				
$ 1,000,000	0.0	0.2	0.0	0.0	0.0
$ 10,000,000	0.1	1.5	2.2	0.8	0.0
$ 100,000,000	0.5	3.7	3.0	1.9	1.7
$ 1,000,000,000	0.8	5.5	3.1	2.0	2.0

	Capital Income Tax Equivalent (%)				
$r = 5\%$					
$ 1,000,000	0.0	5.1	0.0	0.0	0.0
$ 10,000,000	2.8	30.7	46.4	16.0	0.0
$ 100,000,000	10.2	78.7	63.8	39.4	36.5
$ 1,000,000,000	17.7	114.7	65.8	42.2	41.9
$r = 6\%$					
$ 1,000,000	0.0	4.3	0.0	0.0	0.0
$ 10,000,000	2.3	25.8	39.0	13.4	0.0
$ 100,000,000	8.6	66.2	53.7	33.2	30.7
$ 1,000,000,000	14.9	96.5	55.4	35.5	35.2
$r = 7\%$					
$ 1,000,000	0.0	3.7	0.0	0.0	0.0
$ 10,000,000	2.0	22.4	33.8	11.6	0.0
$ 100,000,000	7.4	57.3	46.5	28.7	26.6
$ 1,000,000,000	12.9	83.5	47.9	30.7	30.5

Table 2: Equivalent Rates of Annual Wealth Taxes and Capital Income Taxes of the Federal Estate Tax.
Source: See Table (4) for information on the top panel. Equivalent rates according to Guvenen et al. (2019) and own calculations as described in the text and Table (1). Jordà et al. (2019) for estimations of the (real) rate of return on wealth, which averages about 6–7 % since 1870 according to the authors (5 % have been included as a conservative value). **Notes:** The top panel presents (conservative estimations of) the average tax rates of the federal estate tax over time. The middle panel show their equivalent rates of an annual wealth tax with a fixed length of a generation of $n = 25$. Based on the middle panel annual tax rates, the bottom panel shows the equivalent capital income rates for returns of 5, 6, and 7 %. Tax rates that would lead to a decrease in the initial capital stock are highlighted red (for the federal estate and annual wealth tax, the lowest rate of return has been used for this categorization).

3 The State Tax Credit in Theory

The main policy reflecting the balancing of interests between the federal government and its state-level counterparts was undoubtedly the state tax credit that was in force between 1924 and 2005. It was used to curb tax competition, to harmonize state-level legislation, and to share the tax revenue from this domain between the two levels of government. Before going on to explore how the US had employed this policy tool and the its experience with it in the next section, it is worthwhile to look at such a policy in theory. This section will therefore first introduce the concept of such a credit, and then go on to set up a simple two-states one-period model that shows the range of choices a federal government faces regarding the policy rate.

3.1 How the State Tax Credit Worked

In 1924, the federal government enacted a state credit on the federal estate tax of 25 %. This means that state-level decease taxes could be subtracted from the federal estate tax for up to 25 % of the latter's liability. In order to understand how the credit worked precisely, it is helpful to go through a brief example. Starting from the federal estate tax schedule of 1924 and the 25 % state credit provision, one can calculate the liability and the height of the credit for a fictitious estate worth, say $ 2 million. The schedule is represented in Panel (a) in Figure (2), and the precise results are that such an estate would have owed $ 232,000 in federal estate tax, which translates into a state tax credit of $ 58,000.[4] Taking these numbers as fixed, the state has a clear incentive to set its tax liability at least such that all the credit is used up. This can be seen in the sketch in Panel (b) of Figure (2): Since an increase in the tax up to the maximum credit will not lead to a higher burden of the taxpayer, because the federal liability is simultaneously reduced on a dollar-by-dollar basis, the state can effectively divert federal tax revenue into its own coffers, without risking resentment from the taxpayer's side. It can raise $ 58,000 in revenue from the $ 2 million estate alone, and the estate will pay just as much in taxes as if the state had no decease tax at all.

3.2 Theoretical Framework

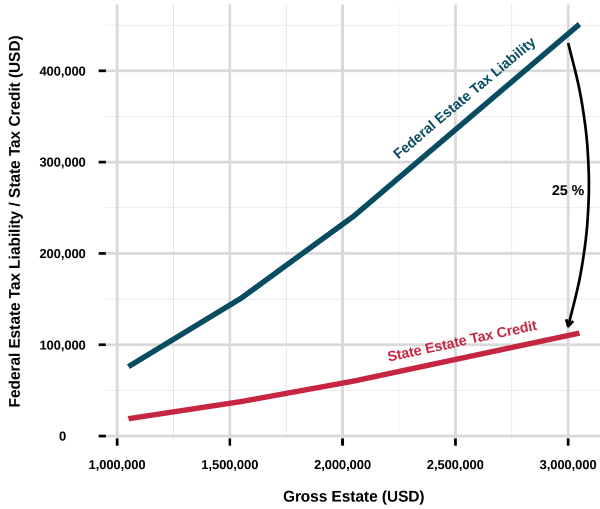
This subsection will introduce a theoretical framework and notation that will be used later on for the analytical analysis. It is on purpose set much more general than necessary for the analysis of this work, mainly because it may be useful for further research beyond the scope of this paper.

States and their Capital Endowment

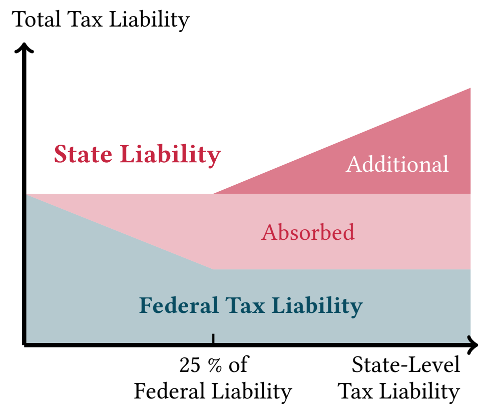
We assume a federation of states $n = 1, \ldots, N$, each holding a mass of population $F_{p,n} = [0; P_n]$. Each country starts with a mass of capital $k_n \in [0; K_n]$.[5] Capital can be moved between states, although doing so incurs a cost which can be expressed as a fraction of the capital's mass, denoted by $C_n(k_n) \in [0; 1]$. This mobility cost allows to distinguish between mobile and immobile capital, although the meaning of

[4] At the time, there was an exemption of $ 50,000. In this example, the $ 50,000 are yet to be deducted from the $ 2 million, so the figure is not yet net of this exemption (although the numerical difference is minuscule).

[5] In this paper we only consider productive capital employed by firms and disregard potential other categories.



(a) Federal Estate Tax Liability and State Credit



(b) State-Level Taxation and Total Liability

Figure 2: Federal Estate Tax Liability and State Decease Tax Credit as of 1924.
Source: Own Representation. **Data:** Parker (1933) and Joulfaian (2019). **Notes:** Panel (a) shows the federal estate tax liability and the maximum state estate tax credit, which was set to 25 % of the former, as of 1924, for gross estates from $ 1 to 3 million. Note that the axes are not proportional and that the marginal tax rate may look higher than it actually was (for the range between $ 2 and 3 million, it was 21 %). Panel (b) shows a schematic sketch of how the total tax liability of an estate depends on the state-level decease tax liability, relative to the federal estate tax liability. Up to the maximum credit, 25 % in the figure, an increase in state-level decease tax liability does not change the total tax liability because it is fully absorbed by the federal credit. Only beyond the maximum credit do higher state-level decease taxes cause the taxpayer's bill to increase.

these terms that we apply in this paper is slightly different to its common definition. In the traditional sense, mobile capital refers to capital that can easily be moved from one place to another *physically*. In this paper, we extend the scope of mobility to also capture how easy it is to *figuratively* transfer capital from one place to another by selling the (maybe physically immobile) capital at its original location and buying a similar unit at another place. Our notion of mobility thus incorporates physical as well as market aspects.

Without loss of generality, we can sort all capital by this cost that is associated with moving it to another state. A unit of capital that has zero cost of moving is fully mobile and can be transferred from one state to another without incurring any (or only a very low) cost. Examples could be a provider of online services that can be provided from any location through the internet or subsidiary firms that hold patents and other intellectual property for their parent corporation (moving intellectual property abroad is actually a practice that tech giants and other multinational corporations often employ to avoid taxation, see Saez and Zucman, 2019).

But also (physically) immobile capital like real estate could actually be associated with a low mobility cost if it is regularly traded in markets and could thus be easily bought and sold, as described above. On the other side of the spectrum is capital with a moving cost of (close to) unity. Practically speaking, this is immobile capital, because moving it costs as much as it is worth. It is even conceivable that there are some capital units for which the potential cost of moving even exceeds its value, but it is not necessary to allow for mobility costs larger than one since no rational agent would ever move capital whose associated mobility cost is equal to one, let alone if it is even larger than that. An example of such a capital form could be very large and specialized machinery. If said machinery is too large to be transported and also cannot be sold on the market, for instance because it uses secret technology that must not fall into the hands of competitors, then it is practically immobile in the sense of this paper.

Policy Options

States can enact a policy $t_n \in [0; 1]$ to their preference. The example we will use in this paper is a linear tax that is applied to all the capital residing within a state. A policy rate $t_n = 0$ means that there is no capital tax at all, whereas a policy rate $t_n = 1$ means that all the capital is taxed away, although the results of this model are to be regarded as schematic and qualitative only, therefore the height of the rates should not be interpreted by itself. States may enact different policies, leading to policy differentials if the chosen rates differ. We assume that capital moves if there is another state whose policy is lower than the domestic one by a policy differential that exceeds the mobility cost of a unit. For example, in a model with two states h and l, that have a high and low preference for the policy rate, respectively, and have therefore enacted $t_h = 0.3$ and $t_l = 0.15$, all capital units in h for which the mobility cost is smaller than $t_h - t_l = 0.15$ will move to state l.

Objective Function

States can have several potential objectives, or combinations of them. Moreover, not all states may have the same objective functions. We will consider three different aspects of the policy and the capital that resides in a state: pure policy preference, budget for public good provision, and (positive) capital externalities.[6]

Tax Revenue. One important rationale for the introduction of a capital tax is to raise revenue which can then be used to provide a public good. Since we assume a linear tax rate, the resulting budget is simply the product of the tax rate and the capital residing in the country.

Capital Externality. Capital that resides in a state not only contributes to the public coffers by the tax that it pays, but it also generates employment for the citizens, for instance. This factor is important to explain why some states may completely reject the tax.

[6] At the moment, we assume that capital is not held by citizens. This might become a problem. The question is if it could simply be incorporated in the pure policy preference, if this objective function is included for the state; or, if it can be ignored at all, given a very unequal distribution of capital and the median voter theorem. If we assume that capital is in the hands of very few and that the median voter theorem holds, then we have no problem. However, it might be that the (rich) shareholders have overproportional influence on the political decision-making process; or that capital is spread across a wider population — if the latter is true, the model would need to be adjusted.

Policy Preference. Assume that citizens of each state have an intrinsic preference for the policy that is shaped by their own apprehension of fairness and equity, for instance. Analogously to the states' mass of population $F_{p,n}$, we obtain a preference distribution $F_{t,n}$. Assuming regular democratic elections and single-peaked preferences, the winning policy t_n° will correspond to the preference of the median voter. It is important not to confound this pure policy preference with pecuniary or other economic factors like the budget for public policy preference or the capital externality. One can think of the pure policy preference as the preference that remains after accounting for the budget and the externality above, one example being the population's preference for redistribution.

3.3 Two States, One Period

From now on, we consider two states h and l that can set any policy rate $t_n \in [0;1]$ for $n \in h, l$. Let both states start with a mass of population and capital of one, and let the mobility cost of said capital be uniformly distributed between zero and one:

$$P_h = P_l = 1 \tag{5}$$

$$K_h = K_l = 1 \tag{6}$$

$$C_h, C_l \sim \mathcal{U}(0,1) \tag{7}$$

Pure Policy Preference

Consider one of the two states, denoted by n, that has a median voter preference over the policy rate of t_n°. Assume that the state's policy preference utility U_n^P decreases with the square of the absolute difference between the actual and the preferred policy rate:

$$U_n^P = -(t_n - t_n^\circ)^2 \tag{8}$$

Tax Revenue

In addition to any state n, let m denote the other state. Tax revenue is given by the product of the state's tax rate and the amount of capital residing in the state, where the latter can be substituted by a function of both tax rates, the domestic one t_n and that of the other state t_m, due to the assumption of the uniform distribution of mobility costs:

$$U_n^R = B_n = t_n \times K_n = t_n \times (1 - t_n + t_m) \tag{9}$$

Capital Externality

Let each unit of capital bring a constant benefit besides the tax revenue that it generates:

$$U_n^C = 1 - t_n + t_m \tag{10}$$

Total State Utility

Assume that total utility of a state can be expressed as a linear (conical) combination of policy preference, tax revenue, and the capital externality, with $a_n \geqslant 0$, $b_n \geqslant 0$, and $c_n \geqslant 0$ being the weights on each of these components:[7]

$$\begin{aligned} U_n &= a_n \times U_n^P + b_n \times U_n^R + c_n \times U_n^C & (11)\\ &= -a_n \left(t_n - t_n^\circ\right)^2 + b_n t_n \left(1 - t_n + t_m\right) + c_n \left(1 - t_n + t_m\right) & (12)\\ &= -a_n \left(t_n - t_n^\circ\right)^2 + \left(b_n t_n + c_n\right)\left(1 - t_n + t_m\right) & (13)\end{aligned}$$

3.4 Independent Solution

The first-order condition for state n to maximize its utility is the following:

$$\frac{\partial U_n}{\partial t_n} = -2a_n \left(t_n - t_n^\circ\right) + b_n \left(1 - t_n + t_m\right) - b_n t_n - c_n \stackrel{!}{=} 0 \tag{14}$$

This leads to the following optimality condition:

$$(14) \iff t_n^\star = \underset{t_n \in [0;1]}{\arg\max}\ U_n = \max\left(0; \frac{2a_n t_n^\circ + b_n \left(1 + t_m\right) - c_n}{2\left(a_n + b_n\right)}\right) \tag{15}$$

Due to the concavity of the utility function (which stems from the policy preference and the tax revenue, both themselves concave), the second-order condition is always negative, proving that the optimal tax rate indeed maximizes the state's utility:

$$\frac{\partial^2 U_n}{\partial t_n^2} = -2\left(a_n + b_n\right) < 0 \tag{16}$$

In the case of an interior solution, the optimal policy of state n will increase with the policy preference of the state as well as the other state's policy:

$$\frac{\partial t_n^\star}{\partial t_n^\circ} = \frac{2a_n}{2\left(a_n + b_n\right)} > 0 \tag{17}$$

$$\frac{\partial t_n^\star}{\partial t_m} = \frac{b_n}{2\left(a_n + b_n\right)} > 0 \tag{18}$$

[7] Since utility does not have a cardinal interpretation and only its relative order is of importance, a third coefficient is redundant because one of them can be fixed and the others would be able to adjust so that any ordering can be reached. I include the third nonetheless, in order to make it easier to see how each of the components feeds into the end result.

3.5 Optimal Solution

Consider a situation where a benevolent observer sets the tax rates (which in this case can be separate) so as to maximize the sum of both utilities (ie. not considering potential disparities in the level of utility between the states). The first-order conditions change so as to take into account the effect on the utility of both countries:

$$U = \underbrace{-a_n\left(t_n - t_n^\circ\right)^2 + \left(b_n t_n + c_n\right)\left(1 - t_n + t_m\right)}_{U_n} + \underbrace{-a_m\left(t_m - t_m^\circ\right)^2 + \left(b_m t_m + c_m\right)\left(1 - t_m + t_n\right)}_{U_m} \tag{19}$$

$$\frac{\partial U}{\partial t_n} = -2a_n\left(t_n - t_n^\circ\right) + b_n\left(1 - t_n + t_m\right) - \left(b_n t_n + c_n\right) \underbrace{+\left(b_m t_m + c_m\right)}_{\geqslant 0} \overset{!}{=} 0 \tag{20}$$

The differences in Equation (20) to the independent solution is colored red. This leads to the following solution for state n (vice versa for state m):

$$(20) \iff t_n^* = \frac{2a_n t_n^\circ + b_n\left(1 + t_m\right) - c_n + b_m t_m + c_m}{2\left(a_n + b_n\right)} \geqslant t_n^\star \tag{21}$$

Since the additional terms are non-negative, and unless $b_m = c_m = 0$, the independent outcome will be a lower tax rate than is optimal.

3.6 State Tax Credit

Set-Up

Now let the federal government enact a state tax credit C up to which the state-level tax can be deducted from the federal tax liability. Note that no federal tax is explicitly included in the model: We assume that it is there and that it is constant, and that the utility functions of the states already take it into account.[8] This changes the utility of the states insofar as they can still freely choose their policy rate, but for the policy preference and the flow of capital, there are effective lower bounds for both states:

$$U_n = -a_n\left[\max\left(t_n, C\right) - t_n^\circ\right]^2 + \left[b_n t_n + c_n\right]\left[1 - \max\left(t_n, C\right) + \max\left(t_m, C\right)\right] \tag{22}$$

These lower bounds are incorporated by rewriting the state-level policy as $\max\left(t_n, C\right)$ instead of t_n, where the federal tax is such that the total tax liability is equal to C if the state-level tax is smaller than the credit, and zero otherwise. This new policy measure is used in some of the parts of the state-level utility only:

[8] Not the most elegant solution but keeps it simple. Just assume that the capital already pays some tax to the federal government that allows to offset the state tax, and that for instance the policy preference is defined in terms of additional taxation.

- For the policy preference, the new measure is used. For redistribution, for instance, it does not matter at which level of government the tax is levied.[9]
- For the capital externality as well, the new measure is used. Capital is concerned with the effective differential in policy rates, and oblivious of the level of government at which the tax is levied.
- For the state-level revenue, however, the plain term is used in the first component of the product, as only revenues from the state-level schedule will end up in state-level coffers. If the state has a policy rate below the credit, this differential revenue will go to the federal coffers and be lost for the state. The new measure, however, still determines the amount of capital residing in the state, ie. the other component of the product.

How the credit affects the three components of the states' utility functions is depicted in Figure (3). Panel (a) shows the policy preference component and how the utility decreases by the square of the deviation from the preferred rate for the two states h and l, and how the credit fixes this preference below its height. Panel (b) shows the revenue that a state can achieve dependent on the tax rate it chooses for various levels of the state tax credit. It can be seen that a state can raise much more revenue for any given policy rate since the credit to the extent of its height mitigates capital flight. This can also be seen in Panel (c) which is concerned with the stock of capital. The state tax credit defers the point at which raising the domestic tax rate will translate into capital moving abroad. These cut-offs that the credit creates have to be taken into account while establishing the first derivative of total utility with respect to the domestic policy:

$$\frac{\partial U_n}{\partial t_n} = \begin{cases} -2a_n\left(t_n - t_n^\circ\right) + b_n\left[1 - 2t_n + \max\left(t_m, C\right)\right] - c_n & \text{for } \; t_n \geqslant C \\ b_n\left[1 - C + \max\left(t_m, C\right)\right] & \text{for } \; t_n < C \end{cases} \tag{23}$$

It can be seen that $\frac{\partial U_n}{\partial t_n} \geqslant b_n \geqslant 0$ for $t_n < C$. This means that the utility-maximizing policy level will never be below the state credit C as long as $b_n > 0$ holds. This immediately follows from the implications of the credit: Since it compensates for any policy changes below its level, the policy preference is constant in this range, as is the capital externality. The only change is in the state's revenue, which, by increasing rates and no capital leaving the state, must increase. This implies that the state is better off if $b_n > 0$, ie. if the state is not completely indifferent to having more money, a reasonable assumption.

Above the state credit threshold, all channels of utility are in force: The marginal benefit of a policy increase may be positive or negative regarding the policy preference, depending on which side of the median voter's preference the state currently is; with respect to the capital externality, it is negative; and finally, the marginal tax revenue may be positive or negative, depending on which side of the resulting "Laffer curve" the state is on (which itself is determined by the foreign policy, the credit, and the corresponding parameter).

[9] It may matter at which level the revenue is spent, though, but this is beyond the scope of this work.

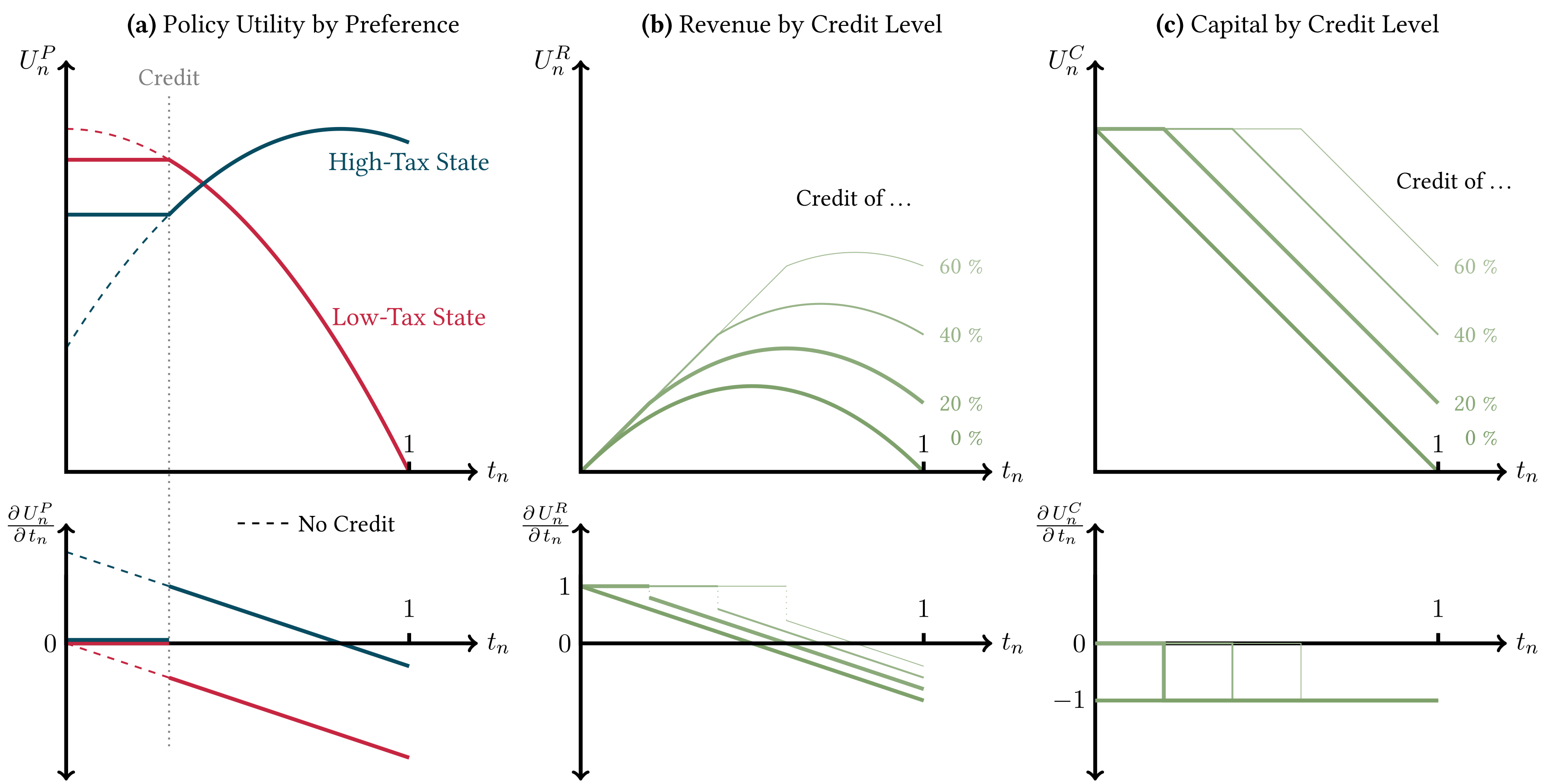


Figure 3: Depiction of Pure Policy Preference with Tax Credit.
Source: Own Representation. **Notes:** The upper graphs visualize the components of the states' utility functions, the lower graphs the corresponding marginal utilities. Panel (a) shows the partial utility function for pure policy preference for a state with a preference of no tax rate (red) and one with a preference for a high tax rate (blue), when there is a tax credit at an intermediate level. To the right of the tax credit cut-off, the utility function decreases the further the state deviates from its preferred policy rate, whereas to the left of it, it remains at the level where the tax is set to the height of the credit. Panels (b) and (c) show how state-level revenue and the domestic capital stock depend on the domestic tax rate for different levels of the state tax credit.

The optimal policy can then be expressed as follows:

$$t_n^\star = \max\left(0;\ \min\left(1;\ \frac{2a_n t_n^\circ + b_n\left[1+\max\left(t_m; C\right)\right] - c_n}{2\left(a_n+b_n\right)}\right)\right) \tag{24}$$

$$= \max\left(C;\ \frac{2a_n t_n^\circ + b_n\left[1+\max\left(t_m; C\right)\right] - c_n}{2\left(a_n+b_n\right)}\right) \tag{25}$$

Note that given the restrictions on the parameters and the policy rate, the analytical solution of the first-order condition will never exceed one, and given the incentive to always have a policy rate the height of the tax credit C, Equation (24) becomes (25).

Solving the Model for a Given Credit

Unfortunately, it is not straightforward to solve for the equilibrium in such a model, due to the maximum function in the states' reaction curves, which essentially makes it a piece-wise reaction curve that does not translate into a closed-form solution. However, one can differentiate between different cases according to the height of the credit and then use an algorithm to obtain the equilibrium. First, note that there are three potential cases:

1. The height of the credit is below the no-credit tax rate the low-tax state would choose, and therefore the credit is not binding for any state.
2. The credit is high enough to be binding for the low-tax state, which will therefore set its tax rate equal to the credit; however, it is not high enough to be binding for the high-tax state (given that the low-tax state has rate C) which will still have a higher tax rate.
3. The credit is so high that it is binding for both states.

The boundaries of these three cases are given by Equations (26) and (27), with Case 2 being in-between Cases 1 and 3. Note that the t_n in Equation (26) corresponds to the equilibrium tax rate of the high-tax state as given by Equation (15) in Section (3.4):

$$\text{Case 1:} \qquad C \leqslant \frac{2a_m t_m^\circ + b_m\left(1+t_n\right) - c_m}{2\left(a_m+b_m\right)} \tag{26}$$

$$\text{Case 3:} \qquad C \geqslant \frac{2a_n t_n^\circ + b_n - c_n}{2a_n+b_n} \tag{27}$$

The resulting three potential cases cases are depicted in Figure (4). In Case 1, the policy has no effect and the equilibrium is given by Equation (15) in Section (3.4). Since such a policy does not make sense, it is reasonable to assume that if the federal government enacts a state credit, it will be so high as to be binding at least for the low-tax state. This implies that $t_l^\star = C$ (irrespective of whether it is Case 2 or

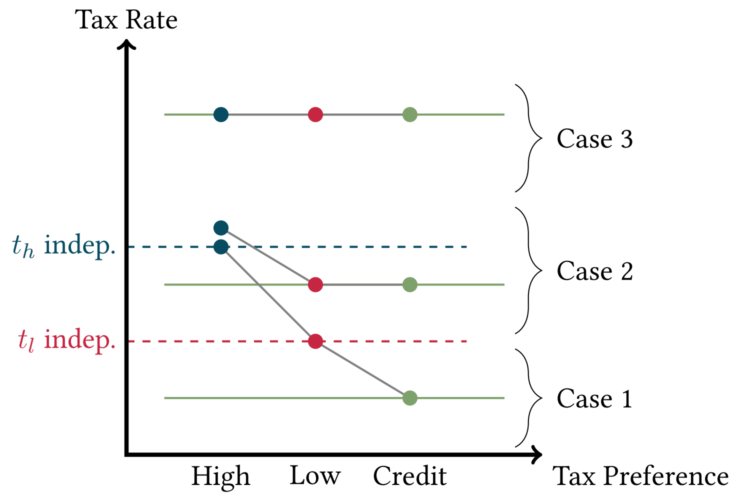


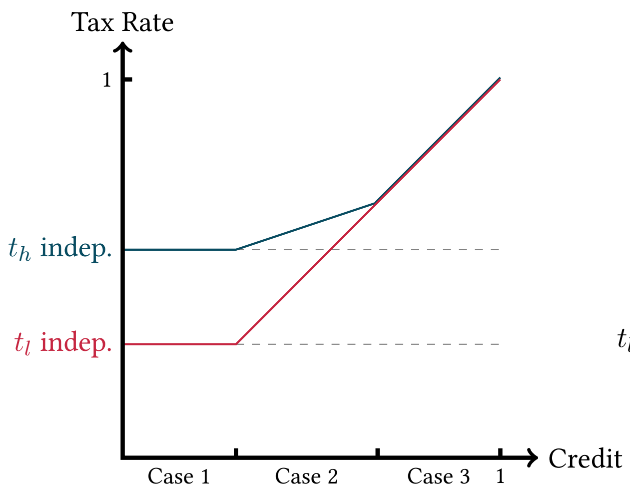
Figure 4: Effect of the Height of the State Tax Credit on the Tax Rates (Schematic).
Source: Own Representation. **Notes:** This is a schematic depiction of the effect that a state tax credit has on the states' policy rates in the theoretical framework of this paper. The graph shows one potential constellation for each of the cases laid out in the main text (information that belongs to one case is linked by a gray line; green lines extend the height of the credit for visibility). Case 1: The credit (green) is so low that it is lower than the tax rates that the two states would have enacted in its absence (denoted by t_h and t_l independent on the y-axis) and has therefore no effect. Case 2: The credit is binding (not legally but practically) for the low-tax state but not for the high-tax state; the tax rate of the latter is nonetheless affected by the credit, indirectly through its effect on the tax rate of the low-tax state, but the slope is less than or equal to $1/2$. Case 3: At some point (although that point may already be at the boundary of the parameter space, ie. unity), the credit and the low-tax state rate catch up to the high-tax state's rate and the credit becomes binding for both states, which now have the same policy rate.

3), and therefore no longer dependent on the tax rate of the high-tax state, which can consecutively be plugged into the reaction curve of the high-tax state, allowing to solve for the second policy rate:

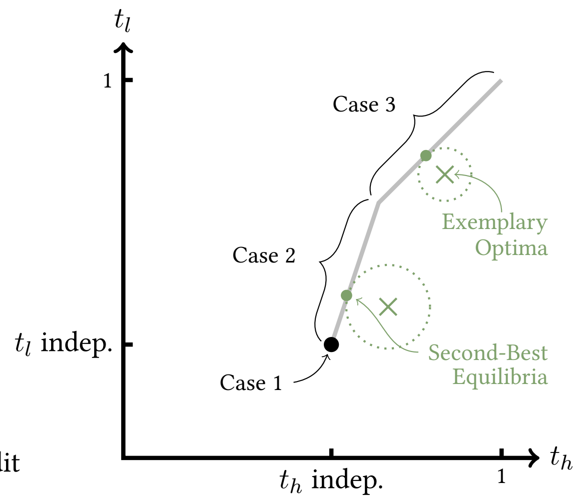
$$t_h^\star\Big|_{t_l=C} = \max\left(C;\ \frac{2a_n t_n^\circ + b_n\left[1+C\right] - c_n}{2\left(a_n+b_n\right)}\right) \tag{28}$$

Optimal State Tax Credit

Without a closed-form solution for the equilibrium that would arise under a state tax credit, it is also impossible to find one for the optimal height of such a tax credit from the point of view of the federal government as a consequence. However, it is possible to investigate into the type of problem that the choice of the credit's height poses. First of all, note that when the federal government chooses the height of the state tax credit, it also implicitly chooses the two state tax rates that then arise in the equilibrium, which are either the tax rates that arise in the independent equilibrium (Case 1), or both the height of the tax credit itself (Case 3), or a linear combination between Cases 1 and 3. This circumstance already allows to highlight a major drawback of the state tax credit solution: With only one instrument for two targets, the federal government will be unable to achieve a first-best solution except for some special cases in which the combination of policy rates that is optimal coincides with one of the equilibria that can be reached by means of the credit.



(a) Credit Height and Equilibrium Tax Rates



(b) Credit Height and Equilibrium Tax Rates

Figure 5: Optimal Credit Height (Schematic).
Source: Own Representation. **Notes:** Panel (a) shows the equilibrium state-level tax rates as a function of the credit set by the federal government. Panel (b) shows the feasible combination of equilibria (black dot and gray line) and exemplary first-best solutions that cannot be reached using the credit solution. It also shows the second-best solutions that can be attained using a credit, once where the optimum is such that it corresponds to Case 2 (with different state-level tax rates), once such that it corresponds to Case 3 (with equal tax rates, see the main text).

The choice of the height of the credit is schematically visualized in Figure (5). Analogously to Figure (4), Panel (a) shows the relationship between the height of the credit and the tax rates of the two states. Panel (b) shows the different combinations of tax rates from a different perspective, in the plane of the two tax rates (t_h, t_l). This allows to visualize the optimization problem of the federal government: to choose the point along the range of options so as to maximize utility by reaching the highest indifference curve around the first-best optimum. For a policymaker, unfortunately, this does not provide a clear guidance as to the height of the credit at which it should be set. But this is likely to be co-determined by the respective bargaining power in any case, and it is nonetheless interesting to see the credit at work.

3.7 Zero Tax Rates under a Credit Scheme

Even for states with a very low or even zero preference for the policy rate (t_n° small) and a high valuation for capital in itself (c_n high), the state credit creates an incentive to adopt a policy of at least the credit's height in the one-period model, and therefore similar to a minimum tax policy, although not strictly binding. To explain why some states in the US still took a fairly long time until they adopted a pick-up tax, one may need to extend the analysis to multiple states and multiple periods in time. While this is generally beyond the scope of this work, it is nonetheless possible to consider such a case: Suppose the state tax credit has been recently enacted, but that its future is unclear and there is a possibility that this policy will be abandoned at some point (a situation similar to the US experience in the interwar period, as will be laid out in the next section). Suppose further that there are now several states that have a policy preference for low or no tax, which would usually all compete for the moving capital. Finally, suppose that reluctance of a state can serve as a signal to shareholders about which states are least likely to impose a tax (or to impose the lowest tax) at some point in the future.[10] In such a setting, these low-tax states may compete with one another to establish a reputation as being capital-friendly, and to do so, be willing to set the state tax to a level below the credit.

[10]In this text, it may be a little bit ambiguous why the shareholders may pay so much attention to which state this may be — after all, they could just pick at random one of the countries with the lowest rate, if there are multiple at all. However, one can imagine that reluctance to this tax may be related to reluctance to other taxes, or in general, that the states that would forego the most revenue are those that may in other ways be more capital friendly in the future, for instance in terms of regulations.

4 The US Experience with Decease Taxation

In order to understand the motives behind and difficulties associated with decease taxes, it is worthwhile to look at their history from a US perspective. Regarding the history of decease taxation in the US, a few sources have been particularly helpful: The book by Joulfaian (2019) provides a thorough overview over the history of the federal estate tax; Parker (1933) and West (1908), who give detailed information on both levels up to the interwar period; and Cooper (2006) for the 20th century. There are many other sources that provide significant information, but these excel by being both detailed and broad at the same time and can therefore be found throughout this chapter.

4.1 US Decease Taxation at a Glance

This section gives a detailed account over the evolution of decease taxation in the United States. But before going into the details and specifics, it is interesting to look at the broad picture. The history of decease taxation in the US begins in the late 18th century, and can best be summarized by three stages that roughly correspond to the 19th, the 20th, and the 21st century, as depicted in Figure (6). The 19th century was the time when decease taxes first became popular in the US, with many states adopting inheritance taxes until the end of the century. Very often, in particular in the onset of decease taxation, states only taxed inheritances received by "collateral" heirs, as opposed to "direct" or "lineal" heirs such as spouses, children, or grandchildren, who have largely been fully exempt from the tax. However, towards the end of the century, there was a trend towards full taxation, ie. taxing every individual that receives an inheritance, regardless of her relation with the decedent (although differences in the rate schedules persisted for many states). There have already been some federal decease taxes during this period, but they have only been raised to finance wars, and have been abolished once the revenue was no longer needed. In the 20th century, the federal government enacted an estate tax as well and tried to harmonize state legislation in this field. The reason for the federal tax was once more to pay for (an imminent) war, but unlike the decease taxes enacted in the preceding century, the tax was not repealed afterwards. In addition, the federal government introduced a credit for state taxes, the main policy that was targeted at the states and that achieved partial harmonization and a reduction of pressure due to tax competition across states, with all states eventually adopting such a tax to make use of the credit. The 21st century then marks a tipping point, reached after continuous erosion of the reach and progressiveness of the federal tax at the end of the 20th century, through a convergence of top and bottom rates as well as a sharp increases in the amount of wealth exempt. There was an attempt to abolish the federal tax that, although unsuccessful, replaced the state tax credit that ensured a level playing field for states up to some point, and as a consequence, tax competition led a majority of states to abandon their state-level decease taxes. In a nutshell, the focus of US decease taxation, in the sense of what were the defining characteristics of the systems at the time and at the state-level, went from the existence of such a tax and the importance of the relationship between the heir and the decedent in the 19th century; on to whether the tax was independent or related to the tax credit that the federal government provided in the 20th century; back to the existence of such a tax today.

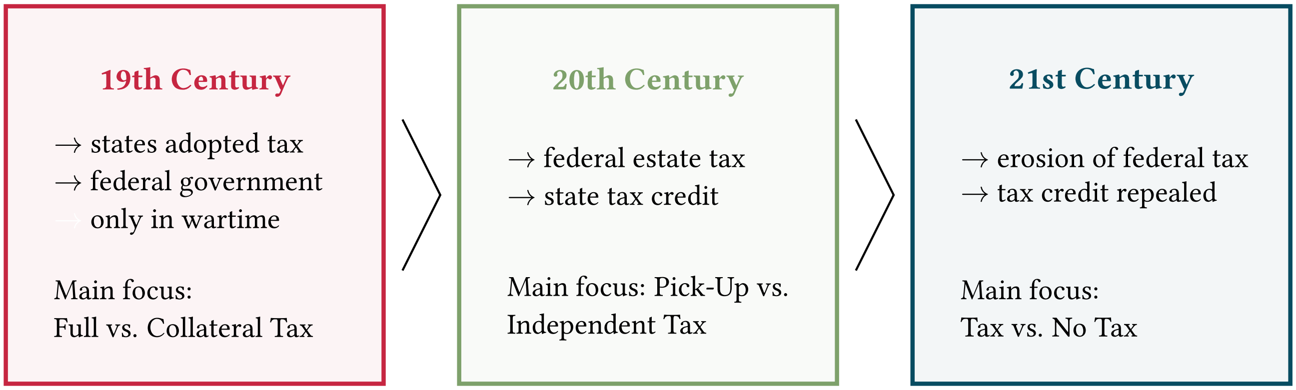


Figure 6: Broad Overview over the History of Decease Taxation in the US.
Source: Own Representation.

4.2 Pre-WWI — State Taxes and War Finances

The Federal Government. The history of inheritance and estate taxation in the US dates back to the eve of the 18th century. The federal government first enacted a tax that was collected upon the death of a citizen in 1797: It was a stamp duty, payable on wills, receipts, and other forms of bureaucracy, and its purpose was to raise revenue for military action (Jacobson, Raub, and Johnson, 2007). While this form of taxation may have vanished, as already described above, the motive to enact taxes in order to finance wars, and to abolish them once the war is over — as was the stamp duty in 1802 — will accompany the legislation on taxation in the US until the mid-20th century. It so came that when the Civil War broke out in 1861, the government found itself in need of money and introduced new taxes, among which was an inheritance tax (succession tax) that was later replaced by an estate tax (legacy tax). After the war was over, financial pressure eased and the tax was abandoned in 1870 (Joulfaian, 2019).

Two more decease taxes have been implemented and repealed in the time preceding the first World War. One followed the Panic of 1893, a deep recession that led the government to enact a very broad income tax that treated inheritances as income in 1894 (this tax was called accession tax, to introduce yet another name). This tax is particularly interesting because it is an early instance of the conflict between federal taxation and the US constitution: The US Supreme Court revoked the law on the grounds of it being unconstitutional (JUSTIA US Supreme Court, 1895, see the Digression below for more details). Only a few years later, on the onset of the Spanish-American war in 1898, another set of new taxes was introduced, including an inheritance tax, and once more repealed when the war was over in 1902.

Digression: Tax Apportionment in the US Constitution (Jensen, 2013)

At the time when the US Supreme Court repealed the 1894 income tax, the US Constitution required all direct taxes levied by the federal government to be apportioned. Apportionment means that the revenue a tax raises needs to be divided among the states according to their representation in the

House of Representatives (ie. their population shares). This rule was likely introduced as a check on the government and to limit its taxation power, because indirect taxes like an excise on tobacco or alcohol that instead made up the majority of the budget can more easily be avoided and therefore have an inherent "upper bound". The income tax of 1894 did not fulfill this criterion, and thus was repealed.[a]

Trying to imagine a federal income or property tax that is apportioned fully reveals the extent of this restriction. The distribution of income, as well as that of property, does not necessarily follow the distribution of the population. In order to make sure the state revenues correspond to the division imposed by the population figures, one would have to enact different rates across the states, and this in a regressive way as Jensen (2013) points out: States with lower incomes or less wealth would have had to be taxed *more* than their richer counterparts, *et vice versa*, when policymakers usually try to achieve the opposite for the sake of redistribution (even though on the individual level).

It was only in 1909 that the 16th Amendment passed Congress and made an explicit exception for income taxes from this rule, which led to the enactment of a new income tax in 1913. As archaic as the concept of apportionment seems from a modern perspective, it is still effective as of today. This naturally leads to the question how a federal estate tax can be in line with this principle, since it clearly is unaffected by the income tax exemption. The answer lies not in the 16th Amendment at all, but rather in the precise nature of the estate tax: It was considered an "excise on the transfer of property at death" (Preston Jr., 1951, p. 164)[b] — not a tax that is directly paid by the citizen, as one might argue for an inheritance tax, for instance — and thus unaffected by apportionment.

[a] In actuality, and interestingly, it was not the tax on *earned* income that was the problem, but that it was the income derived from property that would have had to be apportioned. A tax on labor income alone, in contrast to the modern interpretation, was regarded an excise (Jensen, 2013, p. 805).

[b] Even the Supreme Court ruled unanimously in favor of the estate tax being an excise, see its answer to *Knowlton v. Moore* in Cornell Law School Legal Information Institute (2021).

This was not the last attempt to install a decease tax before World War I. In his *State of the Union Address* to the Senate and the House of Representatives on December 3, 1906, Republican President Theodore Roosevelt (1906) made his case for a progressive inheritance tax, not (only) on the grounds of raising revenue, as it was the case with the previous installments of decease taxes, but on grounds of fairness and equality, invoking many arguments and issues that are still brought forward in today's policy discussions. To begin with, he justified the tax using the benefit principle, arguing that rich people derive a greater benefit from government, and should therefore pay relatively more taxes.[11] But it is clear from his words that he not only sought a fairer share of the tax burden, but also to limit what he referred to as "the perpetuation of fortunes swollen to an unhealthy size". Analogously to his extensive usage of the Sherman

[11] *"The man of great wealth owes a peculiar obligation to the State, because he derives special advantages from the mere existence of government. Not only should he recognize this obligation in the way he leads his daily life and in the way he earns and spends his money, but it should also be recognized by the way in which he pays for the protection the State gives him."* (Roosevelt, 1906)

Antitrust Act to bring down businesses that he thought had grown too big and powerful, he wanted to curb private wealth as well. But he also acknowledges the issue of a fiscal externality and consequent capital flight if taxation is decentralized and not uniform across entities.[12] He was also wary of the possibility that an unaffected majority (the population at large) might impose too excessive a tax on a minority (the wealthy).[13]

Roosevelt foresaw several problems that still have a bearing on wealth and decease taxation today. But as far-sighted as his address has been, the inheritance tax he proposed has never seen the light of day. Under Roosevelt's successor, President William Taft, the inheritance tax was added to the Payne-Aldrich Act, but did not persist the ensuing debates and was eventually dropped because Taft (also a Republican) failed to convince the conservative wing of his party (Pollack, 2013).

The States. Regardless of the federal politics, it is likely that the scheme would have faced heavy resistance from the states, a majority of which relied on at least one decease tax of some form, and who have been much more constrained financially than their federal counterpart (Bullock, 1907).

The history of state estate taxes in the 19th and early 20th century is depicted in Figure (7) and begins in 1826.[14] Pennsylvania was the first state to enact an inheritance tax on collateral heirs, ie. those not directly related to the decedent. Only two years later, Louisiana adopted a collateral inheritance tax that only applied to foreigners (defined as non-US citizens less French citizens, who were entitled to be taxed like US citizens). Other early adopters were Massachusetts in 1841 (though short-lived), Virginia in 1843, Maryland, North Carolina, and Alabama in 1845, 1847 and 1848, respectively. However, it was only at the turn of the century, in the midst of the Gilded Age, that decease taxes became increasingly popular and widespread: From 1886 to 1908, the number of states that had some form of decease tax rose from a mere 6 out of 38 states to a stunning 37 out of 46 states. The reasons for this increase are given by Parker (1933) and range from the economic conditions, the need for revenue, to the concentration of wealth. While the increase of their total number is rather steady over this period, it can actually be split into two different developments: On the one hand, states that so far went without adopted decease taxes of both kinds, full (ie. taxing both lineal and other heirs) and collateral. On the other hand, several states that so far only had collateral systems changed for a full system. In sum, the 19th century and in particular the beginning of the 20th century saw a large increase in the popularity (or at least the employment) of decease taxes.

[12] *"[...] there are many kinds of taxes which can only be levied by the General Government so as to produce the best results, because, among other reasons, the attempt to impose them in one particular State too often results merely in driving the corporation or individual affected to some other locality or other State."* (Roosevelt, 1906)

[13] *"[...] it is quite as necessary that in this kind of taxation, where the men who vote the tax pay but little of it, there should be clear recognition of the danger of inaugurating any such system save in a spirit of entire justice and moderation. Whenever we, as a people, undertake to remodel our taxation system along the lines suggested, we must make it clear beyond peradventure that our aim is to distribute the burden of supporting the Government more equitably than at present; that we intend to treat rich man and poor man on a basis of absolute equality, and that we regard it as equally fatal to true democracy to do or permit injustice to the one as to do or permit injustice to the other."* (Roosevelt, 1906)

[14] To be precise, the earliest trace of something similar to a decease tax goes back as far as 1687 when the Virginian government demanded 200 pounds of tobacco and a cask for the official paperwork linked to an inheritance (West, 1908; Parker, 1933).

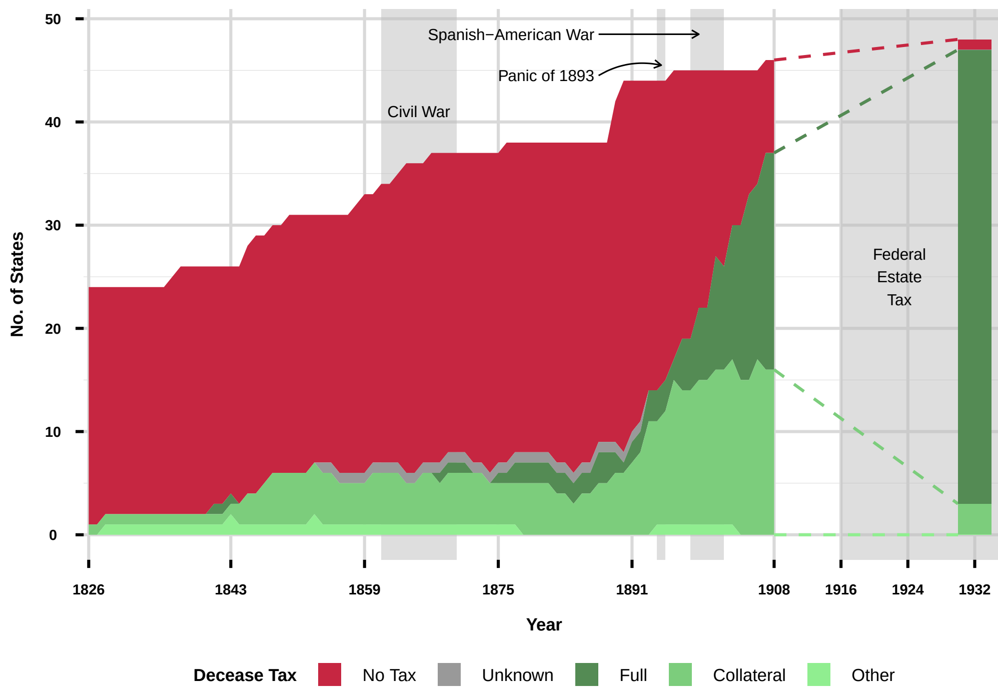


Figure 7: Adoption of Decease Taxes in the United States, 1826–1932.
Source: Own Representation. **Data:** Historical overview by West (1908) up until 1908; Parker (1933) for 1932; Stark (2004) for more information on WI; Escarraz and Yirak (1968) for more information on GA for which there seems to be an inaccuracy in West (1908); Huebner (1904) and Millis (1905) for further completeness checks. **Notes:** The period between 1908 and 1932 is missing from the graph because the data for this period may be incomplete. The gray bars in the background indicate periods during which a federal decease tax was in force. West (1908) provides enough details to make it reasonable to assume that states that were not mentioned as having a decease tax did in fact not have one, this applies to FL, GA, IN, KS, MS, NV, RI, SC. In 1932, NV was the only state that did not have a decease tax of any kind; MD, NH, OR were the only states that applied the tax to collateral heirs only. The other 44 states either had an inheritance tax that was applied to all heirs or an estate tax, which by definition is oblivious to the distribution of inheritances and therefore counts as a full tax. Due to data limitations, this graph includes only states in the narrower sense, AK, DC, and HI are therefore not included in this figure (AK and HI were admitted to the union in 1959, DC is no official state as of today). The only unknown observation is CA which introduced a full inheritance tax on non-residents in 1953, but which at an unknown point was no longer enforced, until in 1893 an inheritance tax for collateral heirs was reintroduced. The number of states refers to the total of the union and the confederacy during the civil war.

Just like the federal accession tax of 1894, many of the states' taxation schemes were judged unconstitutional by their Supreme Courts and thus revoked. Of course, the reasons for these rebukes were different, given that apportionment only concerns federal law, and ranged from a difference in the exemption for lineal and other heirs (Minnesota 1885), over seemingly random changes between progressive and regressive areas in the same schedule (also Minnesota 1885), over sharp increases in liability because the rate applied to the full inheritance once the exemption was exceeded (creating a jump at this point; Ohio 1894/1895), to spatial non-uniformity (eg. Wisconsin in 1889, when an estate tax was introduced for Milwaukee County only). However, most of the constitutional issues were readily fixed by changes in the tax code or constitutional amendments and did not further obstruct the advancement of this form of taxation.

While most of the states did end up having such a tax, how much each of them relied on it to finance their expenses varied considerably, but overall dependence has very likely increase up until World War I and the introduction of the federal estate tax in 1916. Table III of Millis (1905), which is partially replicated and annotated in Table (3) for convenience, lists the revenues from these taxes as a percentage of the total government revenues for 14 of the 23 states that had enacted some form of decease tax around 1900. New York and Illinois, with relative shares of 12 and 7.5 % respectively, were most dependent on the tax, and many states drew at least a couple of percents of their total budget from it. The lowest available figure is Virginia with a mere .53 % in 1903. It is unclear how much the 9 states for which the data is missing relied on them. Nonetheless, given the strong development towards this type of taxation in the years following the period covered in Table (3) and as depicted in Figure (7), the fiscal dependence has very likely increased overall: From 1903 to 1908 alone — until the last year for which reliable, detailed data is available in Figure (7) — seven states had newly introduced a full system (ID, MN, OK, OR, SD, WI, WY), four states had newly introduced a collateral system (KY, NH, ND, TX), and another four states had switched from collateral systems or taxes on foreigners only to full systems (CA, LA, MA, WV). This resulted in 11 more states with full decease tax systems and a constant number of collateral systems, from the status quo in 1902 to that of 1908. In conclusion, the situation in the early 20th century was marked by decease taxes taking on a more and more prominent role in states' fiscal plans, and given this development, it is evident that the states had a massive incentive to protect their sovereignty in this area. It therefore took World War I for the federal government to push through its proper estate tax as well.

4.3 1916 — The Installment of the Federal Estate Tax

Since the emergence of the federal estate tax in 1916 and its subsequent history are well documented in Joulfaian (2019), I will only briefly recapitulate the most important features here for convenience and completeness, before turning to the states' reactions. As already mentioned above, the installment of the federal estate tax, which in its foundation is still in force today, once more originated in a military conflict and the associated need for revenue. Already in the year 1915, two years before the US actively joined World War I, measures were taken to prepare the country for this eventuality. A *Preparedness Movement* was launched, and famously supported, among others, by ex-President Theodore Roosevelt himself, it sought to build up the military as well as economic resources of the country. A detailed account

State	Period	% of Total Revenue	Type of Tax
New York	1899–1901	12.01	Full
Illinois	1898–1902	7.45	Full
Pennsylvania	1902–1903	5.75	Collateral
Connecticut	1899–1901	5.73	Full
Massachusetts	1899–1901	4.96	Collateral
Montana	1900–1902	4.68	Full
New Jersey	1899–1901	4	Collateral
Iowa	1900–1903	3.82	Collateral
Missouri	1902–1903	3.46	Collateral
California	1899–1901	2.88	Collateral
Michigan	1902–1903	2.42	Full
Ohio	1899–1901	2.28	Collateral
Maryland	1899–1901	1.91	Collateral
Virginia	1903	.53	Collateral

Table 3: Share of State Revenues from Decease Taxes around the Beginning of the 20th Century.
Source: Partial Replication of Table III in Millis (1905) with own Annotations (Type of Tax). **Notes:** Share of the states' total revenues that was generated by decease taxes in the specified time period. Missing countries are those that were also missing in the original paper or for which the relative share was not available. Those are (in 1900): DE (Collateral), HI (Collateral), LA (Collateral for Foreigners), ME (Collateral), MT (Full), NC (Full), TN (Collateral), VT (Collateral), WV (Collateral), WI (Full).

of what followed is given by Brownlee (1985). As an answer to the *Preparedness Movement*, then-President Woodrow Wilson put together a legislative package that would lead to a significant divergence from the tax system the US were accustomed to at the time. Up until World War I, tariffs and excises constituted the bulk of the revenue of the federal government. However, with revenues from tariffs falling even before the US entered the war,[15] it would have to tap on other sources, and the Revenue Act of 1916 strengthened the income tax that was only adopted three years earlier, introduced a corporate income tax as well as the federal estate tax, and also made the entire tax schedule much more progressive. The estate tax was born.

4.4 1916–1987 — The States' Reactions and the State Tax Credit

Initially at least, the enactment of the federal estate tax seems not to have dampened the momentum towards state-level decease taxation, with Mississippi, New Mexico, Rhode Island, and South Carolina introducing decease taxes on or shortly after 1916, Delaware switching from a collateral to a full tax in 1917, and no state repealing it until 1925.[16] This is particularly surprising because at the time, there were no provisions accounting for the "double taxation" at both levels, and estates (inheritances) had to pay the two taxes separately without any deductions. This is confirmed in the evolution of revenues from decease taxes at the time, which are represented in Figure (8). As can be seen in the graph, the revenue of the federal estate tax sharply rose in the years after its enactment and surpassed the states' decease tax revenues to

[15] See eg. Section 2 in Joint Committee on Taxation (2001) and Figure 1 in Irwin (2020).
[16] MS and RI introduced the tax in 1918, NM in 1919, and SC in 1922. NV repealed its tax in 1925 (Parker, 1933).

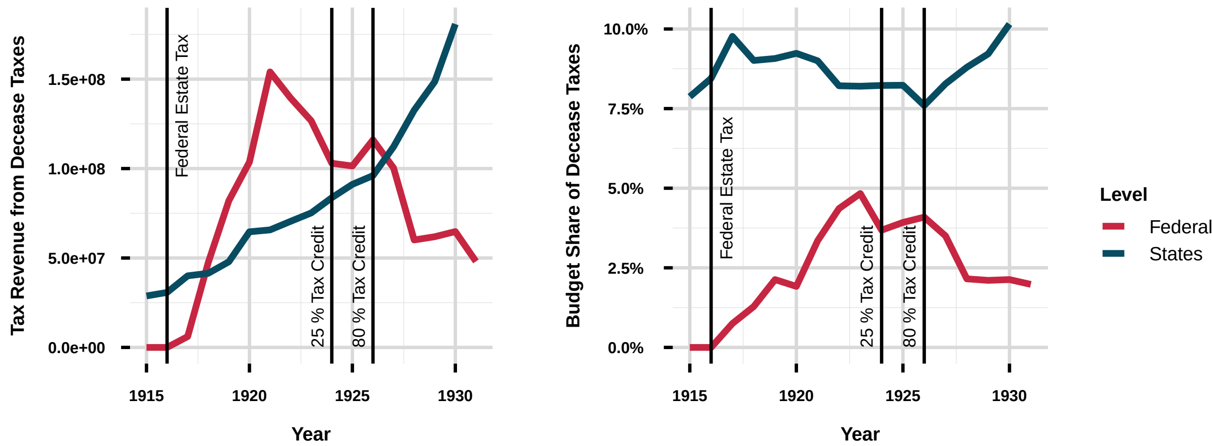


Figure 8: Absolute and Relative Revenue from Decease Taxes in the US, 1915–1931.
Source: Own Representation. **Data:** Exhibit Q in Parker (1933). **Notes:** Absolute and relative revenues from decease taxes at the federal and state level. Relative values are the budget shares of decease taxes with respect to the total tax revenue. The federal estate tax was the only decease tax at this level, while the states had used different forms of taxes throughout. The three vertical bars mark the years in which the federal estate tax was enacted (1916) as well as the two years when the state tax credit was first introduced at a level of 25 % of the federal tax (1924) and when it was raised to 80 % of the federal tax (1926). At the federal level, the data is available up until 1931, while at the state level, it is only available up until 1930. Note that the federal estate tax rates and exemptions varied during this period, to see how, see Figure (14).

raise more than twice their revenue in 1921. Afterwards, the federal revenue began to decline, while the states' revenues increased in absolute terms, and remained fairly stable in terms of relative budget shares.

The increases in the revenues can at least partially be explained by the evolution of the tax schedules on both levels, which were rapidly changing at the time. As already described above, decease taxation became increasingly popular among the states, but also the federal government soon raised the rates of its tax schedule to increase revenue: The initial tax rate schedule of 1916, which spanned rates between 1 and 10 %, faced two increases in the year after, first from 1.5 to 15 %, then from 2 to 25 %, while the allowed exemption remained constant at $ 50,000. The bottom rate was reduced to 1 % in 1919, before the top rate was raised to 40 % in 1924. The first significant reduction in rates came along in 1926, when the top rate was reduced to 20 %, and the allowed exemption doubled to $ 100,000.

The diverging paths that the federal and state-level revenues took from 1924 onwards, however, have their origin in a different policy, the state tax credit as introduced in the previous section. It initially was set to a level of 25 % of the federal estate tax liability, and allowed states to set a tax of that height without increasint the total liability of the taxpayer. It was undoubtedly the most important accommodation towards the states, and its significance increased even more when the maximum credit was raised more than threefold in 1926, from 25 % to 80 % of the federal liability. However, although this provision remained in force until 1954, it is misleading as to its effect: A state credit that is defined relative to the federal liability suggests that when the federal liability increases, so does the height of the state credit. However, when the federal tax rates were raised by the tax reform of 1932, the federal estate tax was split up into two separate schedules: a basic one and an "additional" one, also called surtax or "supertax". While the basic schedule was unchanged with marginal tax rates between 1 and 20 %, the additional schedule vastly increased the aggregate marginal tax rates of both schedules combined, first to a maximum rate of 45 %, which was consecutively increased to astounding 77 % by 1941. This detail, which is neglected by many reviews and historic accounts that only report the aggregate tax schedule, is of major importance for the relation between the federal and the state governments, because the state tax credit only applied to the basic schedule, *not* the additional one. While the federal government vastly increased the pie by hiking the rates of its estate tax, it provided that all the additional revenue would go to itself, and none to the states. While the tax code was reformed in 1954 and this provision was fully superseded, the height of the state tax credit was effectively unchanged: The two schedules were combined into a single one, but the maximum state tax credit was no longer defined as 80 % of the federal liability, but given by a fixed schedule of its own, corresponding to 80 % of the previous basic schedule, with marginal rates ranging from 0.8 to 16 % (ie. 80 % of the 1 to 20 % marginal rates of the old basic schedule).

For the state decease taxes, the tax credit was introduced just at the right moment. The sentiment of state legislators towards decease taxation had taken a turn, for two main reasons. To begin with, World War I was over for several years, and with the war expenses gone and the government cutting taxes, the states were expecting the federal government to give up on the estate tax and to hand back sovereignty in the decease tax area to them, as has been the case prior to the war, and has historically been the case for all instances of federal decease taxation up to that point. That the federal government opted to stick with the estate tax rang their alarm bells as they had become fairly dependent on them, by now, as is best illustrated by the case of Virginia: As mentioned above and as shown in Table (3), among those states that had such a tax and for which the data is available, it was the one that least relied on decease taxes in terms of the relative budget share in 1903, with a collateral inheritance tax that yielded a mere $ 19,600 making up only .53 % of the total budget. However, 21 years later, in 1924, this figure has risen to $ 628,538, an increase by a factor of 32 (Exhibit M in Parker, 1933).

While the majority of states have seen their decease tax revenues increase manifold, the example of Virginia also highlights the second development in state decease taxation: tax competition. The early 1920s have seen an intensified competition between states to lure wealthy residents. As described in Perkins (1934), in 1924, Florida, which at the time did not have such a tax, sent a strong signal to other states by enacting a constitutional amendment prohibiting it from using such a tax in the future, a policy that was already in place in Alabama. Several other states reacted: Nevada repealed its inheritance tax in 1925, California, Ohio, and Colorado were considering doing the same, and the Alabama Power Company even started an advertisement campaign aimed at the wealthy, pointing out their own constitutional prohibition of such taxes. This is why several states, albeit seeing decease taxation as their domain, were at the same time reluctant to plans of the federal government to repeal its estate tax.

While the tax credit was a compromise between these two concerns and did alleviate them by 1) giving part of the revenue back to the states, and by 2) setting a quasi-lower limit for tax competition, these two arguments alone cannot justify the choice of such a system. As later criticized by Dwan and Ruth (1960), one can obtain the same tax revenue and allocation of said revenue using a system with a federal tax only and redistribution among states, a much simpler solution than a dual system with often three different taxes (resulting from the fact that many states had used inheritance taxes prior to the credit, and then enacted an additional estate tax to pick up the federal credit, cf. below for details).[17] They suggested such a system with a federal tax only and that the revenue be split across states according to a key to the preference of the government, along with a provision that would actually disincentivize states from collecting death taxes on their own, by subtracting the revenue raised by state-level taxes from their share on a dollar-by-dollar basis. However, they do point out that states may not favor such a solution in order to remain more independent from the federal government, although such independence may be specious. Despite the bureaucratic cost, states may still prefer to collect the tax themselves, in order to maintain the infrastructure and preserve the necessary know-how. Yet, true independence is unfeasible, because the states' decease tax revenue would still depend on the federal government preventing a race to the bottom through tax competition. Yet, while the authors do acknowledge the states' preference for independence, they do not explore the rationale behind it. Even if true independence may not be reached, states may still have an incentive to uphold the impression of independence from the federal government, or at least proclaim their intention not to yield sovereignty to it for political reasons. It may serve as a signal to voters who believe that their interests are best represented by their state government rather than the federal government.[18]

However, federal policymakers may not have had the long term of this provision in mind when they developed it. As described in Perkins (1934), the National Committee on Inheritance Taxation, named in 1925 to discuss the further development of decease taxation in the US, not only recommended the increase of the state credit from 25 to 80 % that was put in place the year after, it also planned to hand over the sole sovereignty in decease taxation to the states by abolishing the estate tax six years later. Aware of the tax competition problem, they were optimistic that until then, the increased state tax credit would have lead to extensive harmonization of the state decease taxes, but did not put the repeal into writing.

Overly optimistic though the committee was, the majority of states was indeed quite quick in adopting to the new framework. As can be seen in Figure (9), which shows the state of state-level decease taxation at several points in time, by 1932, 30 states had already amended their legislation in a way that would ensure the federal credit is fully used. Most of the states have had an inheritance tax at that time, and the way this

[17] See Exhibit K in Parker (1933). The states having both forms of taxation in 1932 were CA, CO, CT, DE, GA, IN, IA, KS, LA, ME, MD, MA, MI, MN, MO, NE, NH, NC, OH, OR, PA, RI, TN, VT, VA, WA, WI.

[18] It is possible that trust and political support is generally higher on more local levels of government. Some empirical evidence in favor of this statement can be found in a Gallup survey as reported by McCarthy (2016): In 1981, 56 % of respondents favored political power to be concentrated around state governments, whereas only 28 % favored the federal government. In 2016, these numbers were more or less the same, with 55 % favoring state governments, and 37 % the federal government. The third year for which this data is available is 1936, when the trend was the other way around, although much closer than for the later observations: Then, only 44 % favored the state governments, and 56 % the federal government, although this needs to be put into perspective as it was taken during the presidential term of Franklin D. Roosevelt, one of the most popular presidents the US ever had, and the implementation of his New Deal reforms, which drew even more attention to federal policy.

was usually implemented was by creating a separate estate tax that was directly defined by referring to the credit of the federal estate tax, something often referred to as a "pick-up" or "sponge" tax, allowing to subtract the liability of the inheritance tax from the liability of the estate tax, so that only the differential between the previous tax system and the credit was added to the tax burden. This was in fact not exactly how the National Committee on Inheritance Taxation had intended states to act. Cooper (2006) correctly acknowledged that state legislation that directly referred to the federal law — instead of copying the table into their own code — would be void if the federal estate tax ceased to exist, as was initially planned. Instead, state decease taxes continued to be dependent on the federal tax code.

The dual system of two (sometimes even three) different state decease taxes in addition to the federal estate tax, a rather complicated system that entailed a lot of bureaucracy, also had its rationale: It functioned as a safety net. As already described above, due to the way many states implemented the pick-up tax, many of them would have ceased to exist had the federal estate tax or the state credit been repealed, and given the discussions of the National Committee on Inheritance Taxation on such a step, it is likely that many states were particularly aware of this possibility. In such a case, states with the dual system would still collect money from the previous tax, whereas those without would have had to change the legislation or adopt a new one, processes that can take up to several years and may be blocked or stalled by the political opposition (Cooper, 2006).

The following decades were marked by a steady convergence and harmonization at the state level. While most of the states reacted promptly to the enactment of the state tax credit and developed taxation, some took substantially more time. A few, notably Nevada, waited for decades. Finally, by 1987, over 60 years after the introduction of the credit, every state gave in to the temptation of free money and established at least a pick-up tax of its own. It is not clear why Nevada waited over 60 years to finally implement a pick-up tax, but it is unlikely the result of political deadlock, in particular given that the Democratic Party won the gubernatorial elections and control over both, the State Senate and the State Assembly, at two points in time, from 1935 to 1938 and again from 1973 to 1978, and that the pick-up tax was finally adopted when power was split between the two parties as Republicans controlled the State Senate. One potential justification for it could be that it wanted to use this refusal to send a signal to wealthy citizens as described at the end of the previous section, in order to establish a reputation for low decease taxes, as Florida and Alabama had done in the past. However, for such a strategy to eventually bear fruits, state legislators must have anticipated an abolishment or at least a significant change in the federal law, which may have been relatively likely in the very beginning, but are expected to have diminished quite fast. However, given the substantial loss in revenues that this bet must have cost, and the uncertain benefits that it might have brought, it is questionable at best whether this was a viable strategy at any point, even in the very beginning. After all, decease taxes certainly are not the only factor the often elderly wealthy take into account when choosing their residence, and the Nevada desert may not appeal to them as much as Miami Beach in any way.

4.5 1976–2000 — The Erosion of the Federal Estate Tax

The Federal Estate Tax. The Tax Reform Act of 1976 marks the beginning of the end of a "golden era" of estate taxation, when in the first time since 50 years, the top marginal tax rate was lowered several times to reach 55 % by 1984, as can be seen in the upper graph of Panel (a) in Figure (14). At the same time, the minimum rate was drastically raised, from the all-time high of 3 % to 18 %, bringing the range of marginal tax rates much closer together, thereby limiting the progressiveness of the scheme and undermining one of the main reasons why the tax was implemented in the first place. But this was not the only change to the tax. The 1976 reform also provided for a drastic increase in the applicable exemptions, as shown in the bottom graph. The general exemption, which since the enactment of the federal estate tax in 1916 has varied between $ 40,000 and $ 100,000, was replaced by a unified credit that corresponded to a deduction of more than twice the previous level, and was gradually raised over the years, so that by 1997, only estates of more than $ 600,000 would owe any federal estate tax at all.[19] Only a couple of years later, in 1981, bequests made to one's spouse — which had already been treated preferentially by having been exempted for 50 % since 1949 — were now entirely exempted from the tax.

The States. As for the states, the dual system of having an independent decease tax and a separate pick-up tax for the federal credit had prevailed for several decades, reaching a peak in the mid-1970s, as depicted in Figure (9). However, soon afterwards, the trend reverted and many states abandoned this system in favor of a pick-up tax only. While in 1975, 40 states had the dual system, and only 6 states had a pick-up tax only, 25 years later, the situation is almost exactly the opposite: Only 15 states still had a dual system, and 36 had a pick-up tax only, greatly exposing the states' decease tax revenue to fluctuations induced by changes in the federal law.

There are three potential explanations for why this has happened: tax competition, complacency, and a change in the federal law that had necessitated adjustments in the state laws. The state tax credit has led to a harmonization in rates, and a reduction of interstate tax competition by imposing a rational lower bound on state taxes, but in a sense, it was a one-sided policy, because it was not concerned with states that had decease taxes above this level. Of course, the height of the federal credit served as a focal point. But while this credit was of an effective height of 10 % of the federal estate tax liability (due to the surtax solution described above), states collected 2.5 to 3 times as much revenue as compared to the situation where they they had only relied on the pick up tax (see p. 565 and footnote 13 in Dwan and Ruth, 1960). In other words, since some of the states collected more state-level decease taxes than the credit allowed for, some tax competition did persist, and according to Cooper (2006), this has been a driving factor behind some states' decision to get rid of the independent decease tax.

It could also be that after decades had passed, the states came to believe that the federal estate tax was "here to stay", and that it would be no longer justifiable to keep this rather costly safeguard or signal in case of a repeal of the federal law any longer. Incidentally, this is also the period when the last states who

[19] Reminder: A deduction or exemption lowers the tax base, while a credit is subtracted from the tax liability itself. While $ 1 of (additional) credit therefore lowers the liability by the same amount, an (additional) $ 1 of deduction or exemption only lowers the tax liability by the marginal tax rate that the taxpayer faces at the time. We will come back to this in greater detail in the next subsection.

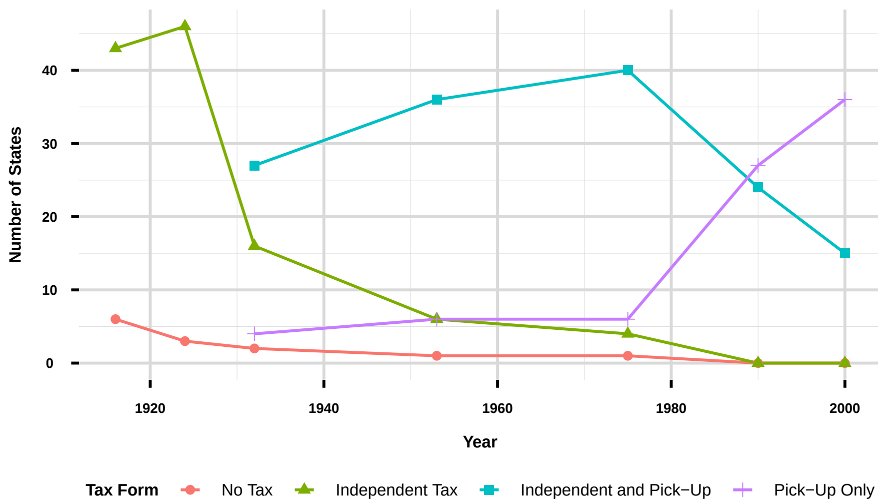


Figure 9: Distribution of different Decease Tax Solutions of US States, 1916–2000.
Source: Own Representation. **Data:** Table 5 in Cooper (2006) (1916, 1924, 1932, 1953, 1975, 1990, 2000). **Notes:** The graph shows how many US states have had which type of state-level decease tax solution for several points in time. After the enactment of the state tax credit for the federal estate tax in 1924, the number of states that did not have such a tax (No Tax) and those that did not account for this provision (Independent Tax) gradually declined. In a first phase, up to 1975 approximately, many states adopted a dual system of an independent tax and an additional provision to make use of the federal credit (Independent and Pick-Up). Afterwards, most of them changed to having a pick-up tax only, leaving their revenues exposed to changes in the federal law. The District of Columbia is considered a state by Cooper (2006) and therefore included in this graph, contrary to most other analysis in this paper.

had so far resisted using the credit gave in and adopted pick-up taxes, which would fit the picture of the states seeing no further possibility that the federal tax provisions could be overturned in the near future.

Both of these justifications can explain why the states switched, but not why it happened during this time precisely. However, Cooper (2006) argues that it might have been due to changes in the federal estate tax legislation that have been adopted in the Tax Reform Act of 1976 and the Economic Recovery Tax Act of 1981, when according to the author, many state decease taxes would have had to be heavily revised in order to remain compatible. This may have posed the last barrier that many states were no longer willing to overcome, and so they let their guards down.

4.6 2001–2021 — Abolition and Reinstatement, or the Return of the Race to the Bottom

The Federal Government. Already by the end of President Bill Clinton's second term, the pressure on the federal estate tax increased. At the time, both houses of Congress were controlled by the Republican party, and within less than a year, they brought forward two tax reforms that included the abolishment of the tax, the Taxpayer Refund and Relief Act of 1999 and the not so subtle Death Tax Elimination Act of 2000 (and several others would follow in the years to come, cf. Birney, Graetz, and Shapiro, 2006). Both acts never became effective as they were vetoed by the president. However, after the inauguration of President George W. Bush, the federal estate tax no longer had a fan residing in the White House.

In 2001, the legislation finally passed. The enactment of the Economic Growth and Tax Reconciliation

Relief Act (EGTRRA) by President George W. Bush, also known as the "Bush tax cuts", was to completely change the landscape of decease taxation in the United States. It set forth a fast phase-out of the state tax credit, a gradual decrease of the federal estate tax rates and an increase of the unified credit, and, eventually, the abolishment of the tax altogether:

The State Tax Credit. The state tax credit, which was created in 1924 and in terms of its relative share in the overall taxable estate of decedents remained more or less the same since 1926, was set to phase out by being lowered by 25 %P each year, ie. was decreased to 75 % of its original height in 2002, 50 % in 2003, 25 % in 2004, and finally, in 2005, it was to be replaced by a deduction instead. Vital though it was to prevent interstate competition among the states, it received little to no attention from legislators when they debated EGTRRA. In fact, as can be read in the Congressional Record, Democrats in the Senate only tried to amend the bill in such a way that the credit phase-out would be aligned with the reduction in federal revenue, since the bill would repeal the state credit much earlier than the federal estate tax overall, arguably to decrease the burden on the federal budget at the cost of the states (some of which had already passed their budgets that would need revision under the provision). However, both attempts at changing the legislation in this direction did not go through . That the credit would lead to increased competition and put pressure on the states to repeal their decease taxes did not receive any attention at all (U.S. Congress, 2021).[20]

The Rates and Exemptions. The top marginal tax rate, which has been 55 % since 1984, was lowered to 50 % in 2002 and then gradually lowered by another 1 %P each year to reach 45 % by 2007. The unified credit, which was $ 220,550 in 2001, which corresponded to an exemption of $ 675,000, was also substantially increased to reach $ 1,455,800 in 2009. In terms of an exemption, this is equivalent to $ 3,500,000 — meaning that estates up to this value did not pay any federal estate tax at all. These changes can once more be seen in the two graphs featured in Panel (a) in Figure (14) on Page 47. In broad terms, this was a continuation of the trend that the federal estate tax has been subject to since the Tax Reform Act of 1976: A convergence of the tax rates and an increase of the exemption, further limiting the reach as well as the progressiveness of the tax.

The Abolishment of the Tax. But EGTRRA did not only change the tax, it also planned to entirely remove it by the end of 2010. However, this repeal was not cut in stone: Due to a rule that prevented President Bush and Congress from making these changes permanent at the time, the reform was enacted as a "sunset provision".[21] A sunset provision is one that will automatically expire at a fixed point in time,

[20] The Congressional Record, where the debates are written down, can be accessed through the *Actions* tab. The two proposed amendments were SA 688 by Sen. Graham (D-FL), introduced on May 17, 2001, voted and rejected on May 21, 2001; and SA 748, introduced by Sen. Nelson (D-FL) and Sen. Graham (D-FL) on May 22, 2001 and rejected on the same day. Other democratic Senators to criticize the provision have been Sen. Clinton (D-NY), Sen. Reid (D-RI), Sen. Rockefeller (D-WV), and Sen. Leahy (D-VT).

[21] A popular stalling technique in the Congress is the so-called filibuster, where the opposition keeps the debate alive to delay or prevent a vote on a subject matter. It usually takes a majority of 60 votes out of 100 to bypass the filibuster, a majority that is rarely held by one party alone. By using the *reconciliation* procedure, Congress can pass bills related to the budget with a simple majority of 50+1 votes only. President Bush and the 107th Congress, split 50–50 between the parties, though dominated by Republicans at the time due to the tie-braking role of Vice President Dick Cheney, did not have so many votes and had to resort

as for EGTRRA, this date was set to 2011, one year after the planned repeal of the federal estate tax. It would only become permanent if legislators would take further action to uphold it, otherwise, with no further action taken, the law would be reverted to the status quo prior to 2001, and the estate tax therefore reinstated.

The planned abolishment of the tax came as no surprise. Already in December 1999, in a campaign speech in Iowa, Bush (1999) declared his intention of getting rid of the estate tax. He did so on emotional grounds, saying that the tax is a "punishment" for entrepreneurs and small business owners, and it would be "ending the life's work" of men and women who built a business, but also for economic reasons, claiming that it impedes growth by taking away capital and that farms and small businesses would face high tax rates for assets beyond $ 650,000, which they could not afford and would be a major reason for failure. However, this depiction was not quite accurate, as it failed to mention several provisions that had been put in place precisely for such situations, as later described in the report on the issue by the Joint Committee on Taxation (2001):

- a special use valuation exclusion of $ 750,000 for real property of farms and small businesses, in place since 1976;
- an additional exclusion for family-owned businesses of up to $ 675,000 that had just been enacted two years earlier;
- and the possibility for closely held businesses and farms to pay the tax in installments over a period of up to 14 years, in place since 1959 (see below).

Taking full advantage of these exclusions, a small farm or business would only have to pay a federal estate tax for assets beyond $ 2,075,000, spread over a 14-year period if needed.

However, in the end, the planned repeal of the federal estate tax did not go through. With the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 (Tax Relief Act, TRA), further action had been taken, but not to repeal the estate tax. To begin with, although the sunset of the Bush tax cuts has been clear from the start, passing a follow-up reform was not an easy thing to accomplish for President Obama, who planned to keep the tax cuts for low- and middle-income citizens, but abolish them for the wealthiest taxpayers earning over $ 250,000, while Republicans disagreed and insisted on keeping them for everyone. Not without a certain irony, Democrats, although with the majority in Congress at the time, did not have enough votes to break the filibuster in this impasse (see Footnote 21), which resulted in a temporary extension of the EGTRRA provisions for everyone for two years (and no compulsory estate tax at all for 2010). Instead of solved, the problem was postponed.

However, the issue did not become easier to solve in the following two years, and it took an impending "fiscal cliff" — an automatic increase in tax revenue and a decrease in spending, that was estimated to lead to a recession — that would have come into effect by January 1, 2013, for policymakers to finally

to reconciliation to pass the bill. However, bills that are passed using this procedure may not lead to an increase in the budget deficit beyond a 10-year period. Since the changes to the federal estate tax made in EGTRRA would clearly violate this rule, the bill could not have been made permanent when it was initially passed.

find a permanent agreement in the American Taxpayer Relief Act of 2012 (ATRA).[22] In a hasty last-minute provision, voted in Congress at 2am on January 1, 2013, and signed by President Obama by autopen (an automatic signature machine) because he was in Hawaii at the time, a compromise had been found and adopted.

It provided that the federal estate tax was reintroduced in 2012, although it did not exactly revert to its prior status: The top marginal tax rate was fixed at 40 %, slightly higher than has been just before the brief repeal, but lower than it was before EGTRRA. The unified tax credit was hiked to $ 2,045,800, equivalent to an exemption of $ 5,250,000, making the reach of the tax even narrower. Finally, the state tax credit was *not* reinstated, and state-level taxes could only serve as deductions for the federal estate tax, not as dollar-by-dollar credit, meaning that any state-level decease tax, no matter how low, would necessarily have at least some impact on the total tax liability of the taxpayer. It is not clear why a reintroduction of the state credit was not considered, whether this was on purpose or whether it had been forgotten, but since it had not been proposed in the debates around TRA 2010 and ATRA 2012 and given the tight timetables and the resulting hurry around these reforms, it is likely that it has simply been overlooked.

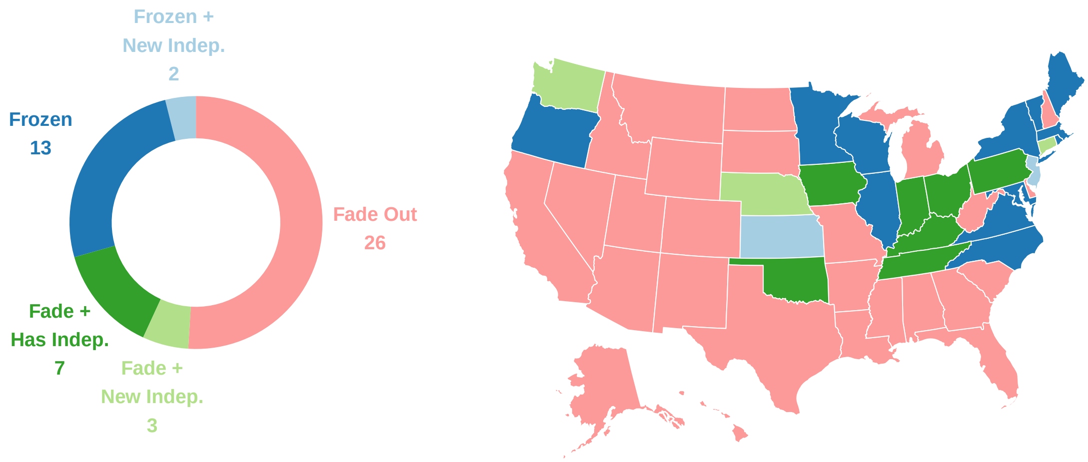
The latest tax reform relating to the federal estate tax was enacted by President Trump in late 2017. The Tax Cuts and Jobs Act (TCJA) only changed the unified credit, so that the equivalent exclusion was doubled to approximately $ 10 million, adjusted for inflation. This provision is also only temporary, set to expire by the end of the year 2025, when the equivalent exclusion will revert to $ 5 million, adjusted for inflation.

The States. Around a century later, the states once more faced a serious trade-off regarding their decease taxes. Should they keep them in order to keep the tax revenue, while risking that wealthy citizens may decide to migrate to other states with lower taxes? Or should they abolish them to remain competitive? What happened can be seen in Figures (10) and (11). In the immediate reaction to the credit repeal in 2005, as shown in Figure (10), most of the states gave in to the pressure or faced legal obstacles and decided to do the latter.

For some of these states, examples being Florida, Alabama, or Nevada, those who previously assumed or sought to assume a reputation of being opposed to decease taxes by altering their constitutions, this was an easy decision. Already wanting to get rid of their state-level decease taxes, yes even reluctant to adopting a pick-up tax, it came as no surprise that they did not actively exert the slightest effort to keep them, as would have been necessary with the repeal of the state credit and the constitutional provisions of some states. But even beyond the clear opponents of the tax, a total of 26 states without an independent decease tax decided to let their pick-up estate taxes fade out without replacement.

Seven other states had kept their independent decease taxes, which were unaffected by the repeal of the credit. As for those that wanted to keep their decease taxes, but only had an exposed pick-up tax at the time, there were basically two ways to achieve this "decoupling". The first one was to simply create a new tax from scratch. The second one was to "freeze" the pick-up tax legislation at a certain point in time,

[22] See this New York Times (2012) article for a more detailed information o the "fiscal cliff" issue.



(a) Frequency of State-Level Actions

(b) Distribution of State Actions

Figure 10: State Action immediately following the Repeal of the State Tax Credit, 2005.
Source: Own Representation. **Data:** Fox (2006) and Joel (2009). **Notes:** These graphs show the status of state decease taxes in the US in 2005, the year when the state tax credit was repealed (no longer in force after December 31, 2004). Up until then, all states collected at least a pick-up tax of the height of the credit, often defined relative to the federal law. 26 states let their pick-up tax fade out, ie. become ineffective by 2005; three others also but introduced new independent decease taxes right away; seven states also let their pick-up taxes fade out but already had an independent tax; and 15 states froze their pick-up taxes so that their state-level taxes would refer to federal law at a point in time prior to the repeal of the tax credit; two of these also introduced new independent taxes on top of it. Panel (a) is a pie chart depicting the frequency of these options, Panel (b) a map showing which states adopted which solution.

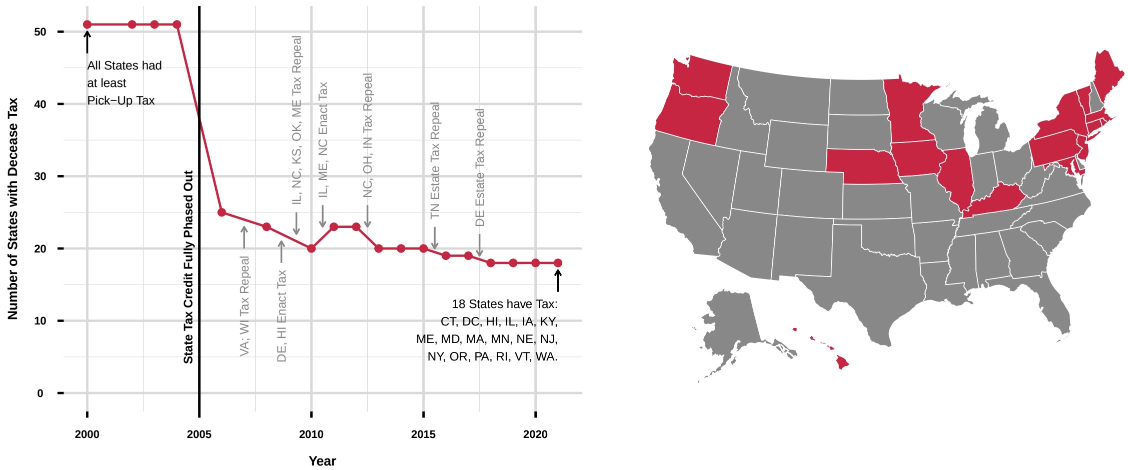
before the credit was repealed. The latter being the easier option, most of these states, 15 to be precise, used the freeze, whereas only 5 states created new taxes (two states did both). In sum, in the year the state credit was repealed, 26 out of the 25 states had given up their state-level decease taxes, and for the first time in over a hundred years, the states without such a tax constituted a majority of the union.

Figure (11) shows how the situation evolved afterwards until today. As can be seen in Panel (a), from the immediate afterwards until 2021, the situation continued to deteriorate, and over the years, seven more states decided to abandon their state-level decease taxes. As of today, only 18 states — primarily in the Northeast (New England) and the Midwest, as shown in Panel (b) — with such a tax remain.

4.7 Additional Aspects of the Federal Estate Tax

Marital Deduction

Beyond collecting tax revenue, one motive behind decease taxation is to redistribute wealth and to prevent the build-up of too large fortunes over time and generations. But wealth is not always passed down a generation or two, but is simply transferred to the decedents' spouse, which, in most of the cases, means that the estate remains in the same generation. One may argue, that a transfer to one's spouse should



(a) Number of States with State-Level Decease Taxation

(b) States with State-Level Decease Taxation, 2021

Figure 11: State Action following the Repeal of the State Tax Credit, 2000–2021.
Source: Own Representation. **Data:** Joel (2009), McNichol, Lav, and Llobrera (2003), Fox (2006), Lohman (2009), Joel (2010), Joel (2011), Joel (2012), Joel (2013), Joel (2014), Joel (2015), Joel (2018), Emanuel, Drenkard, and Borean (2014), Drenkard and Borean (2015), Walczak (2016), Scarboro (2017), Scarboro (2018), Cammenga (2019), Cammenga (2020), and Cammenga (2021). **Notes:** Panel (a) shows the number of states with state-level decease taxation over time, from 2000 to 2021. For some years in-between, there is no data available. Panel (b) depicts the states that collect some form of state-level decease tax in 2021 (red).

therefore be exempt from the tax.[23] In addition, most married couples are roughly of the same age, and their life expectancy is not too far apart. If both of them die within a short period of time, but sufficiently apart so that the estate passes through the spouse before it passes for instance to their children, this could lead to a double taxation and a substantially higher tax burden that some citizens may not deem just (although this is partially covered by the estate tax credit — not to be confused with the state tax credit — of the next subsection).

However, when the federal estate tax was first amended to include a marital deduction in the Revenue Act of 1948, it was for neither of the reasons above. The rationale behind it was an even simpler one: Very often, it was difficult to allocate possession of jointly held property. Therefore, starting 1949, half of the gross estate became tax exempt when it was transferred to one's spouse.[24] The reader might be surprised by the timing of this reform, so shortly after World War II, when one might expect such a provision to be made before or during the war, when many wives had lost their fallen husbands, at a time when many women were financially dependent on their husbands income and/or savings. However, to avoid the image of sending men to war and then taxing their wealth if they die, the estates of fallen soldiers had already been exempted in World War I, see Parker (1933). The marital deduction provision was amended by the

[23] Strictly following this logic, a transfer to a much younger spouse should very well be taxed. This may be more relevant than one might think at first sight, if there is a negative correlation between wealth and the spouse's age. Moreover, the implications for bequests made to one's parents (going up one generation) are unclear.

[24] The choice of 50 % as the height of the exemption was made so that estates across the union would be treated the same way. Prior to this provision, there were differences because some states enforced "community property", where property acquired during marriage would automatically become joint property of the couple, and others didn't.

1976 reform to allow for an exemption of at least $ 250,000 regardless of the size of the estate, and set to 100 % by the 1981 reform when according to Joulfaian (2019), the view that a married couple should be treated as one entity, prevailed.[25]

Credit for Estate Taxes Recently Paid

As early as two years after the enactment of the federal estate tax, the Revenue Act of 1918 provided for the case of deaths and as a consequence bequests in quick succession. The somewhat crude provision is described in Parker (1933), and fully exempted any property from the tax for which any federal estate tax had been paid during the course of the 5 preceding years. This provision was refined in 1954 and replaced by a credit the height of the previously paid federal estate tax, proportionally to the share of the recipient and phased out over a 10-year period (Joulfaian, 2019). This provision is still in place today.

Paying the Tax in Installments

One of the most prominent attacks on decease taxation is about the sudden burden they place on the estate, in particular farms and businesses. It is often criticized, not least by President George W. Bush (1999) during his election campaign as seen above, that estates that do not possess enough liquid assets are forced to sell vital equipment, often at fire sale prices, effectively putting them out of business. This is not a new problem, and policymakers have tried to alleviate it in 1958, when they allowed for the estate tax to be paid in installments under certain circumstances (Joulfaian, 2019). This possibility was enabled for closely held businesses and farms, where a closely held business is one that is defined in terms of purpose and the share of the proprietor (as can be seen in the U.S. Code available through the Legal Information Institute, 2021). It allows to pay the estate tax pertaining to these farm or business assets over a period of 10 years, and has since been amended to defer the start of the payments for up to 5 years.

Treatment of Capital Gains of Inherited Wealth

Capital gains, the positive increase in value of an asset between its purchase and when it is sold — given by the current value less the basis — usually is subject to a capital gains tax. This also applies to inherited assets, although the basis on which the tax is calculated has not always been the same over time. In principle, there are two different regimes that can be applied, that are illustrated in Figure (12):

- Under a carryover scheme, the basis is "carried over" and remains at the initial level. This means that if someone inherits an asset and sells it at a later stage, the capital gains tax schedule applies to the difference between the selling price and the initial price at which the decedent had previously bought it. This is also why the capital gains tax, as an income tax, is relevant in the decease tax discussion, because the increase in value during the decedent's life is potentially subject to both kinds of taxes.

[25] However, the estate tax code is not entirely consistent with this view, because it would imply that the estates of a couple should be jointly taxed as well, which would increase their tax burden. Moreover, the unified credit is available for each partner separately, and not for the couple as a unit, although it can be transferred between them.

A close alternative of basis carryover is to tax capital gains at the death ot the proprietor, which only differs by the point in time at which the tax is levied.

- Under a step-up basis regime, the basis is "stepped up" to the value at the time of the transfer, ie. the inheritance. If the heir is to sell the asset, the capital gains tax would only be applied to the difference between the selling price and the asset's value at the time of the transfer. The capital gains tax would not overlap with decease taxes in this case.

Both regimes have advantages and disadvantages (Joulfaian, 2019; Luckey, 2003). For the asset's owner, a set-up basis regime is the preferable option, because it decreases the capital gains tax liability, in particular if the asset is sold shortly after the transfer and the combination of decease taxes and the capital gains tax might amount to a high overall tax rate. Besides, it usually becomes more difficult to determine the historic value of an asset the further the basis is in the past. On the other hand, it sometimes enables assets to partially escape capital gains taxation if it is not sold but passed on (even completely if passed on perpetually), and therefore creates a potentially distortive disincentive to do so and to cling to one's assets.

In the history of the US federal estate tax, the step-up basis was the dominant regime, with the carryover regime only playing a marginal role, although there have been attempts to switch. The Tax Reform Act of 1976 provided for such a switch, but it was first postponed and then repealed before it became effective in 1980. Next, EGTRRA of 2001 (the "Bush tax cuts"), provided for a switch to a carryover regime alongside the federal estate tax repeal in 2010. But the provision was only effective for the year 2010 alone, when taxpayers were allowed to choose between paying the estate tax as it was effective before the repeal or not paying the estate tax, but being subject to the carryover basis regime (Joint Committee on Taxation, 2015). It remains to be seen for how long the step-up basis regime will prevail, given that President Biden currently envisages to tax capital gains at death as part of his American Families Plan (Gravelle, 2021; White House, 2021).

4.8 General Remarks

Tax Schedule & Average Tax Rates

By and large, the history of decease taxation in the United States follows an inverse U-shape, both on the federal and the state level. The strong movement towards state-level taxation from the early 19th century on peaked in the first decades of the 20th century, when the federal government permanently entered the stage and introduced the federal estate tax as well as the credit to maintain and promote a coexistence of the federal estate tax and state-level taxes. The trend began to reverse in the 1980s, when the scope and progressiveness of the federal estate tax was continuously limited, and following the repeal of the state tax credit in 2005, state-level decease taxation has also disappeared from large parts of the country. This can also be seen in the development of the minimum and maximum tax rates displayed in Figure (14), but a clearer indicator of the actual tax burden than the marginal rates is provided by the average tax rates that estates of different sizes faced over time, as shown in Table (4).

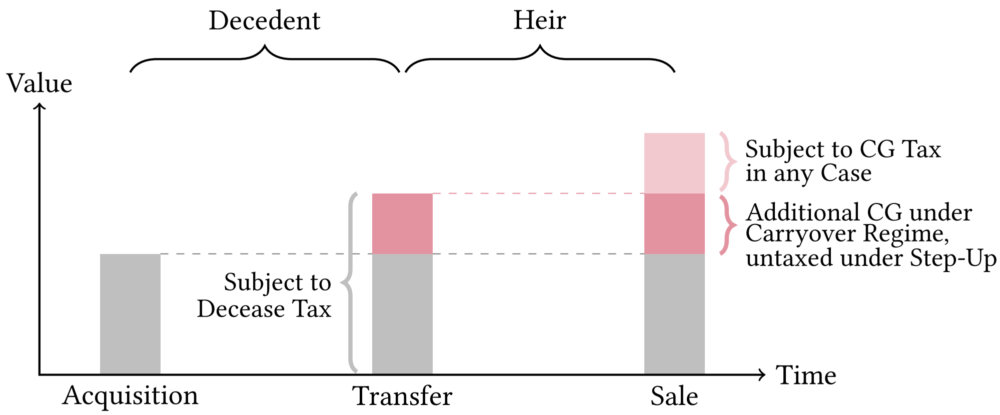


Figure 12: Treatment of Capital Gains at Transfers under a Carryover and Step-Up Basis Regime.
Source: Own Representation. **Notes:** The graph is a schematic representation of how capital gains (CG) of inherited assets are taxed under a Step-Up Basis regime and a Carryover regime. In the former case, only the increase in value since the time of the transfer is subject to the tax. In the latter case, the entire increase in value since the purchase of the asset is, potentially causing an overlap with the estate tax, which taxes the value of the asset at the time of the transfer.

The top panel of Table (4) shows the average tax rates of estates ranging from $ 500,000 to $ 1 billion in 2018 prices. To ensure consistency over time, the size of the estates have been adjusted for inflation. For instance, the first entry of the first column shows the average tax rate on an estate that had the same purchasing power as $ 500,000 had in 2018 (such values may be marked by PP for purchasing power). The bottom panel shows the corresponding conversion index that adjusts the size of the estates for inflation, and also the equivalent amounts of the estates for which the calculations have been done. The first and foremost observation of these calculations is that except for the peak of the federal estate tax from World War II until 1976, when a $ 1 million estate would have to pay 5.9 % of its value, nobody that would not be classified as at least a millionaire in terms of today's purchasing power was subject to the tax (or, to be precise, her estate). The second observation is that although the threshold above which an estate is subject to the tax is quite high, once it is crossed, the average tax rate increases very quickly to a sizable share of the wealth that is passed on: While a $ 10 million estate would not pay any federal tax in 2018, a $ 100 million estate would have to pay more than 35 % of its wealth to the government. The same can be said about estate in the middle of the 20th century, albeit at a lower threshold: While $ 1 million (PP) estates did not pay any tax as of 1987, the average tax rate for a $ 10 million (PP) estate was already beyond 40 % of the total value. The reason for these sharp jumps in the average tax rate is not the same over time: While prior to 1976, the main reason was the very progressive tax schedule with its top rate of 77 %, after 1976 it was mainly that the unified credit did not shift the entire tax schedule by the equivalent exclusion (as it would be the case if the exclusion amount were deducted from the gross estate, and then the schedule applied), but practically eliminated the lower rates until the credit was used up, after which estates faced the higher marginal tax rates. To illustrate this, consider the current tax schedule. Before the top marginal tax of 40 % for the part of the estate that exceeds $ 1 million becomes effective, the estate has to pay $ 345,800 for the first million, before the application of the credit. This liability of the first million, however,

Gross Estate	**Average Tax Rate (%)**				
2018 USD	1926	1954	1987	2013	2018
$ 500,000	0.0	0.0	0.0	0.0	0.0
$ 1,000,000	0.0	5.9	0.0	0.0	0.0
$ 10,000,000	3.2	30.8	42.8	17.4	0.0
$ 100,000,000	11.4	61.5	53.8	37.7	35.5
$ 1,000,000,000	19.1	75.5	54.9	39.8	39.6

	Equivalent Amounts				
CPI	0.07	0.11	0.45	0.93	1.00
	$ 35,245	$ 53,564	$ 226,205	$ 463,959	$ 500,000
	$ 70,490	$ 107,129	$ 452,409	$ 927,917	$ 1,000,000
	$ 704,898	$ 1,071,286	$ 4,524,094	$ 9,279,172	$ 10,000,000
	$ 7,048,984	$ 10,712,863	$ 45,240,940	$ 92,791,716	$ 100,000,000
	$ 70,489,845	$ 107,128,634	$ 452,409,399	$ 927,917,164	$ 1,000,000,000

Table 4: Average Federal Estate Tax Rates over Time and By Size of Gross Estate.
Source: Joulfaian (2019) for the tax schedules of 2018 and 2013, HeinOnline (2021a) and HeinOnline (2021b) for the schedule of 1987, HeinOnline (2021c) for the schedule of 1954, and Parker (1933) for the schedule of 1926. Federal Reserve Bank of Minneapolis (2021) for the US index of consumer prices (CPI). **Notes:** The upper panel gives the average tax rates of the federal estate tax for gross estates of various sizes for five points in time. The gross estates prior to 2018 are adjusted for inflation by the CPI, of which the bottom panel gives an overview. Calculations are based on the tax schedule and the available exemption (prior to 1976) or the unified credit (after 1976). No other deductions or credits (eg. special use exclusion, marital deduction) have been accounted for, therefore the results represent a conservative estimate (an upper bound) of the actual liability.

is lower than the allowed credit, which means that as soon as the credit is used up the estate immediately faces the highest tax rate.

However, these calculations have to be taken with a grain of salt, for they are based on an unmarried decedent who does not make use of any other exemption or deduction. In particular for a married couple, assuming that their joint wealth is of the same height as the hypothetical unmarried decedent's, being married provides a significant decrease in the tax burden by doubling the available credit, as both are entitled to it, and any unused credit by one can be used by the other. In sum, therefore, a married couple could pass on slightly more than $ 22 million to their heirs without incurring any federal estate tax on their deathbed (not considering further exemptions such as the special use exclusion and the gift tax rates annual exclusion).

Tax Revenue & Cost of Collection

Besides justice and fairness arguments pertaining to the realm of moral philosophy, a more economic approach to the analysis of decease taxation is to compare its costs and benefits, ie. to answer the question whether taxing estates and inheritances does more good than harm. Ideally, such an analysis would take on a holistic approach, comparing not only the cost of the administration and the tax revenue raised, but also other benefits such as the preference of the population for being closer at a desired level of redistribution, and costs such as lawyer's fees, personal efforts towards estate planning, costs of tax evasion and avoidance (including eg. relocation costs of property or the individual), and long-term impacts on growth. Unfortunately, many of these costs and benefits are hard to assess, let alone measure in monetary terms so as to be comparable. However, it is possible to compare costs and benefits from a public finance perspective in order to see how expensive it is for the government to raise revenue this way. Joulfaian (2019) proposes to simply allocate the cost of administration incurred by the Internal Revenue Service (IRS) according to either the share of estate tax returns of all returns or the share of examinations of returns of all examinations. This exercise is presented in Table (5), which shows the ratio of tax revenue raised over the cost of administration for different categories of US federal taxation.

In terms of returns, the estate tax by itself is stunningly efficient, with a ratio of $ 12,569 of revenue for $ 1 of administration cost in 2019. This is not surprising, as the estate tax is concerned with the wealthiest residents only (given that effectively estates below $ 11 million are exempt) and is only due for transfers following the death of the holder. In terms of relative efficiency, it therefore has an advantage over eg. the income tax, which applies to a much broader population and lower amounts, and on a regular basis, or the gift tax, which, if included in the estate tax calculations, drives down its efficiency. This also provides an explanation for the increase in the efficiency over time: As the reach of the tax decreased and the tax base became narrower, the height of the average estate, and with it the efficiency of collection, increased.

Allocating costs by the returns that have been examined by the IRS paints a different picture, because estate tax returns have a much higher probability of being examined. While the estate tax is still relatively efficient, it is about equal to the corporate income tax in this regard.

The Reach of the Tax

With wealth being as unequally distributed as it is, the federal estate tax always only targeted a small fraction of the population, although the precise share of which varied over time. As can be seen in Figure (13), which shows the share of deaths that implied a taxable federal estate tax return over time, the tax was relevant for about 1–2 % of all deaths for most of its history. However, in part due to the fact that the exemption amount prior to the peak of 1976 had never been adjusted for inflation (leading to *bracket creep*), more and more estates became subject to the tax, and it reached close to 8 % of deaths in that particular year. Subsequent reforms have narrowed its reach since, and after a short high at 2 % in 2000, fewer and fewer estates owed any tax at all. As of 2017, only 0.2 % of estates were still subject to the tax (Center on Budget and Policy Priorities, 2017).

Estate Tax Evasion & Avoidance

Most people dislike paying taxes, and decease taxes like the Federal estate tax are no exception to the rule. Ever since its inception, there have been numerous attempts by individuals to lower their tax burdens and to circumvent the tax collector. These are usually concerned with hiding assets, artificially depress their value prior to taxation, or move wealth indirectly to recipients. Joulfaian (2019) provides an overview of

	Tax Revenue per $ 1 Administration Cost				
	…by Number of Returns				
	Total	Estate	Estate + Gift	Individual	Corporate
1995	172	4,354	1,379	106	687
2005	192	7,508	1,571	116	676
2015	254	10,119	1,489	223	671
2019	263	12,569	1,342	188	428
	…by Number of Returns Examined				
	Total	Estate	Estate + Gift	Individual	Corporate
1995	172	99	74	145	139
2005	192	226	118	102	366
2015	254	595	228	151	496
2019	263	361	149	163	306

Table 5: Tax Revenue and Cost of Administration of Federal Taxation.
Source: Tax revenue, number of returns and examinations, and costs of administration as published by the Internal Revenue Service in its annual Data Book (IRS, 2021a; IRS, 2021b; IRS, 2021c; IRS, 2021d). **Notes:** This table gives the ratio of tax revenue over cost of administration of several categories of federal taxation. The numbers in each cell can be interpreted as the average tax revenue generated for $ 1 of administration cost in the particular year and tax category. The top panel allocates the costs incurred by the Internal Revenue Service (IRS) by the number of returns that are filed in each tax category, whereas the bottom panel uses the number of returns that are examined instead, as suggested by Joulfaian (2019). The values for the aggregate ratio includes also includes employment and excise taxes, ie. the total numbers are not (only) a linear combination of the other columns. This is also the reason why the total value for 1995 in the bottom panel is above all the other tax categories (employment taxes are particularly efficient in this regard and substantially raise the average).

evidence of the scope of avoidance and evasion on the tax revenue, and Schmalbeck (2001) covers a wide range of avoidance techniques in detail, the most important ones are briefly summarized here:

- **Non-Declaration.** Not declaring assets on one's estate tax return is the most basic evading technique, although clearly illegal and often easy to spot for the authorities.
- **Gifts.** Avoiding the estate tax by giving before one's death was easiest prior to 1924 when there was an estate tax, but no complementary gift tax. One could simply transfer all of his wealth to one's heirs and entirely avoid the estate tax. But even today, it is possible to avoid a sizable portion of one's estate by giving, using the annual exclusion amount. Currently set to $ 15,000 per donee (but reverting back to $ 14,000, it's pre-2018 level, in 2026), it allows a married couple to transfer $ 30,000 to each heir each year. Dependent on the number of potential heirs (children, grandchildren, nieces and nephews…), and how early one starts to give, this can exempt several millions of dollars on top of the unified credit and other potential exclusions.
- **Gifts to Charity.** Charitable donations are fully exempt from the estate and gift taxes.
- **Undervaluation/Partnerships.** The goal of this technique is to reduce the market value of an

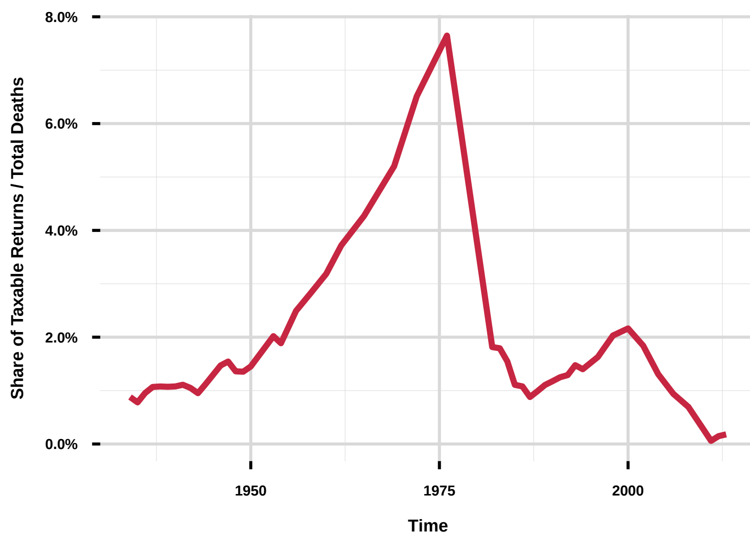
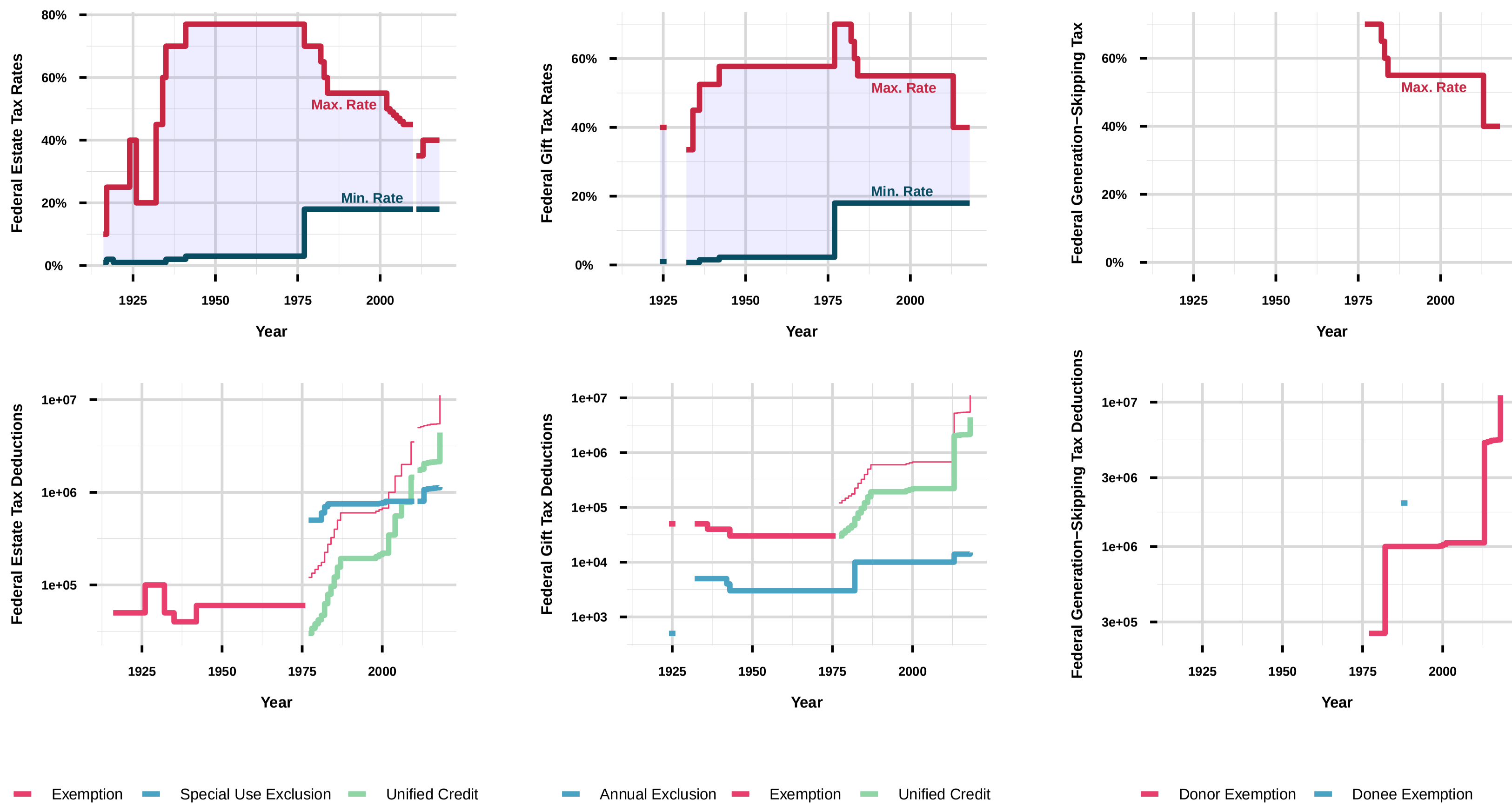


Figure 13: Reach of the Federal Estate Tax in Terms of Taxable Returns of Total Deaths, 1934–2013.
Source: Own Representation. **Data:** Johnson and Eller (1998) for data up until 1993, Joint Committee on Taxation (2015) for data from 1994 onwards. **Notes:** This graph shows the reach of the US federal estate tax in terms of the share of all estates that resulted in a positive tax liability. The main upward developments in the reach can be explained by bracket creep, ie. that fixed tax brackets will include more and more estates as inflation increases the nominal value of assets. This is particularly visible for the years 1942–1976 and 1987-1997, when the exclusion amount was fixed at \$ 60,000 and \$ 600,000, respectively. The main downward developments by the significant increases in the exemption between and after the previously mentioned periods of bracket creep (see Figure 14 for the overall development of the exemption).

asset so that at the time of the transfer, the tax liability is lower. To illustrate this, one example is a *Family Limited Partnership*, where assets are merged into a company and family members are made partners. A share of this company is then valued less than the value of the corresponding share of the original assets, because one cannot freely dispose of one's part (think, for instance, of a 40 % share in a patch of farmland).

- **Marital Deduction.** See Section (4.7).
- **Trusts.** Trusts are one of the most versatile tools of tax evasion. There is a vast choice of different trusts that allow for almost any combination of beneficiaries and donor rights one can imagine, some of which allow to reduce the estate tax burden, for details, see Schmalbeck (2001).
- **Foreign Residents.** Not only US residents are subject to the estate tax, also foreigners who hold certain assets in the country. However, according to a report by CNBC (2015), the enforcement of these estates is very poor.



(a) Federal Estate Tax

(b) Federal Gift Tax

(c) Federal Generation-Skipping Tax

Figure 14: Rates and Exemptions of US Federal Estate and Gift Tax, 1916–2018.
Source: Own Representation. **Data:** Joulfaian (2019). **Notes:** The upper panels show the minimum and maximum tax rates for the (a) federal estate tax; (b) federal gift tax; and (c) federal generation-skipping gift tax over time. The bottom panels show the (not exclusive) exemptions of these taxes. Note that the bottom panels' y-axes are log-transformed. In 1976, the exemptions of the federal estate and gift tax (red) were replaced by a unified credit for both (green), the thin red line after this period exhibits the equivalent exemption for an easy comparison over time. In addition, there is a special use exclusion that exempts business or farming equipment from the estate tax and an annual exclusion for the gift tax. Note that the exemptions and deductions in this graph are not complete but are just the most important ones (cf. the marital deduction or special regulations for insurance policies and retirement assets).

5 Lessons for the Taxation of Wealth

At this point in time, the US have had more than a century of experience in multi-level taxation, with variations in the rate schedule, the numerous exemptions and credits, and also regarding the division of competency and revenue with its states. While obviously, a historical analysis cannot answer all questions concerning such a broad and complex issue, and theoretical as well as applied research continue to be vital in informing the policy discussion, there are nonetheless several key take-aways, recommendations, or simply pointers to be aware of that the US experience can provide. This final section repeats the most important insights for an application of such taxes in other federations, such as the European Union if it were to implement a Union-wide wealth tax. Note, however, that it focuses on what can be learned from the previous chapters, and neither the questions covered nor their answers are to be regarded as complete.

Tax or no Tax?

Should a country or federation of countries impose a wealth tax at all? As mentioned above, a definitive answer to this question requires a holistic cost-benefit analysis, weighing all the up- and downsides of such a tax against one another. This includes estimates of all the private costs of estate planning and adaptation such a tax entails, but also of the valuation of living in a less unequal society. This work cannot provide such an analysis, but from a public finance perspective at least, the Federal estate tax seems to be an efficient way of generating revenue: It generates much more revenue than the bureaucratic costs it incurs, and therefore cannot be rejected on these grounds.

Level(s) of Taxation and Revenue Sharing

The US history quite clearly shows one thing: Wealth taxation should not be left to the states alone, for two main reasons. The first one is tax competition. The fiscal externality that mobile capital creates results in below-optimal capital taxation overall if left unchecked. Secondly, even if some states adopt such a tax despite the pressure of their low-tax or no-tax neighbors, different legislation can create a tangled web of provisions that substantially complicates the tax returns of estates with assets in more than one state. This can easily be avoided by imposing or recommending certain structures or guidelines from the federal level, for instance by means of a state tax credit such as the US version of 1924–2005. But while this credit successfully prevented the impending repeal of the federal tax and provided a compromise between high-tax and low-tax states, it only effectively harmonized the minimum state tax and did relatively little to simplify the remainder of the tax code. From the federal perspective, it is therefore preferable to implement the tax at the federal level only and to allocate the revenue among the states, along the lines of the proposal of Dwan and Ruth (1960). However, it is important to keep in mind the historic circumstances that led to the state tax credit solution: Even though opposition and suspicion against central government was arguably higher in the US in the beginning of the 20th century than it is in today's Europe, it is practically certain that a European tax would face fierce opposition from some states. It is true that opposing countries may be convinced by adapting the distribution key of a purely federal system, but is is also conceivable that a compromise on the degree of centralization may be necessary to push the tax through. That being said, states should fall for the illusion of being truly independent from the federal government, even though it is them who enact and enforce the law in the end. With tax competition lurking around the corner, they are still reliant on a higher level of government to prevent a downward cycle, and also the state tax credit may not be written in stone, as the US experience shows: The federal government giveth, and the federal government taketh away.

Types of Taxation

Even if a country decides to tax wealth, the question of which type of tax to employ is a difficult one. A capital income tax has the benefit of making sure that the tax base will never be hit (if this is so desired), whereas net wealth tax and transfer taxes may offset the inefficiencies of taxation by creating incentives to employ one's assets in the best way. Guvenen et al. (2019) make this point for the annual net wealth tax, and although the taxation of wealth transfers at death are but a compounded version of them, it is not clear whether the same reasoning applies: The wealth will still increase over the holder's lifetime if the return is positive, no matter how small; and the estate tax may be less salient. On the other hand, if it is less salient, this may also mean that the impact on the saving behavior of the holders may be smaller. However, Piketty and Saez (2012) make a cogent argument in favor of a mixture of annual and transfer taxation, arguing that this compensates for the risk of an uncertain future since property prices may develop in either direction. However, the optimal mix of wealth taxation is beyond the scope of this work.

Suppose the policymakers decide that there should be a decease tax, then there is a range of different options that they could implement. The main choice is between an estate and inheritance taxation,[26] which, in principle, are relatively similar to their effect. In general, to avoid the concentration of wealth that a single person holds, an inheritance tax makes more sense because it encourages to spread the bequests among several heirs. However, this no longer holds true if one considers the family as an entity. Also, recipients of small shares of taxable estates may be fully exempt, unlike under an estate tax regime. An estate tax, although indifferent to whoever receives which share of it, is arguably easier to handle for the tax authorities and minimizes overhead efforts because the number of heirs does not increase the number of returns to be filed.

More important than the choice between which type of decease tax to employ, however, is the choice of the complementary taxes. The US experience has shown that a decease tax on its own leaves a lot of leeway for wealthy residents to circumvent it by giving before death. Therefore, any form of decease taxation should go hand in hand with a similar gift tax, the exemptions of which need to be carefully considered and best brought into accordance with the decease tax. The same goes for a generation-skipping tax. If (at least one of) the aim is to curb the build-up of excessively large fortunes in the hands of few over time, the tax system needs to be as comprehensive as possible.

[26] An "accession tax" that treats inheritances as income, as described above, could also be an option, although it might be preferential to distinguish between inherited wealth and earned income. Therefore, the discussion focuses on the two main forms employed in the US during the last century.

Tracking Tax Evasion and Evaluation

Tax avoidance and evasion techniques are continuously evolving, and it is impossible to create legislation that may never be circumvent. It is therefore important to closely track the developments in the field and to "put out the fires" as they appear by patching the law. On this occasion, the European Union has already taken action by introducing the European Tax Observatory, whose goal this is precisely.

Installments, Deferral, and Special Valuations

In comparison to annual wealth taxes, decease taxes need only be paid when the holder of the assets dies. As seen in Table (2) above, this implies a relatively high liability even for schedules that may seem rather low when compared to their equivalent annual taxes. Without any accommodation to the estates of predominantly illiquid assets, this can lead to defaults and fire sales, which is a particularly emotional issue when it comes to businesses and farms, and it is not by chance that this possibility is heavily used by opponents of death taxes.[27] It is therefore advisable to allow illiquid estates to defer payment of the tax and to allow payment in installments, to distribute the burden over time and prevent those situations, as the US federal estate tax does.

But it is also worthwhile considering the height of the burden under these circumstances. Sometimes, it may be preferable if the tax burden of some assets did not depend on their actual, current market value. The Special Use Valuation of the US federal estate tax system, which allows closely-held businesses and farms to value their equipment by the value of their current use up to a certain amount, is an example of such a provision, with the aim of shielding them from a tax burden that does not correspond to the value and the return they actually obtain. This could also be extended to other domains, for instance land conservation: If someone owns a patch of uninhabited land that may be converted to building land, but she chooses to keep the land idle, thereby providing a public good by preventing the sealing of the soil surface and maintaining the habitat of flora and fauna, this could be encouraged (or rather, not discouraged) by using a discounted value for the land instead of the market value, ie. the value that could be achieved if the land were sold to a property developer. However, this may need to be combined with a commitment of the heir to keep it this way for a certain period of time, since she may think differently about the use of the land and might sell or build on the land shortly after the transfer.

Bracket Creep

The tax brackets of the schedule should indexed to prices in order to keep the reach of the tax stable over time. This goes in both directions: On the one hand, a fixed schedule will target more and more estates and, inadvertently or not, reach the middle class, as has happened in the US prior to 1976 (see Figure 13). But regular corrections of the exemption amounts or bracket limits may also invite politicians to overcompensate and narrow the tax base too much. Although this could arguably be desired by a change in the electorate's preferences, by and large, a stable tax schedule may be preferential.

[27] See eg. the Bush (1999) speech already mentioned above, or Trump in an interview in 2015 (On The Issues, 2021).

Stability and Continuity

One reason it is difficult to measure the impact of an estate tax on the behavior of individuals is that the wealth at the time of death is the result of a lifetime's worth of decision: If the estate tax were repealed tomorrow, this would not change the capital an individual has accumulated to this day. From an efficiency point of view, it might be optimal to continuously downplay the estate tax so as to minimize the impact it has on the individuals decisions. But uncertainty about the future tax rates could also decrease the incentive to accumulate capital. By discussing the tax with as broad group of a political spectrum as feasible and by indexing brackets and other absolute values in the law, thereby making the legislation "low maintenance", policymakers can promote stability and provide individuals with at least some degree of certainty.

6 Conclusion

The United States have had a vivid history of decease taxation. They have seen different institutional systems with taxes on the federal and state level of government. They have seen taxes enacted for revenue, either in peacetime or war, but redistribution and fairness have often been just as important justifications. They have seen a broad estate tax that has targeted almost 10 % of the estates in the 1970s, and now a narrow one that only 2 out of 10,000 estates actually have to pay. The tax itself has seen various attempts of repeal, in the very beginning, when World War I was over and there was no more justification for the federal government to occupy what was then the realm of the states, until recent decades when opposition went closer along party lines, and one successful repeal, but it has nonetheless survived. The legislation has been just as diverse: The rate schedule has been flattened, the exempted amount increased and indexed to inflation, the state tax credit established and abolished, and loopholes have been closed. Not always has there been a theoretical underpinning for the changes, and it seems as though often times they have not even received due attention before the law had become effective and the consequences obvious. But despite all the back and forth that the US decease taxation system has lived through in the last 100 years, one can still find provisions that prevailed and derive lessons for other policymakers that wish to go in the same direction. In particular tax evasion and avoidance as well as potentially detrimental effects on small and medium-sized businesses and farms need so be considered with great attention, as they should be avoided for the sake of our economies and therefore usually provide the best fuel for opponents of such a tax.

The main provision that this work has looked at was the state tax credit that defined the US system from 1924 to 2005. It was a trade-off that determined the relation of the states and the federal government in the field, contributed to some limited harmonization, but it also created a tangled web of legislation and entailed certain overhead costs, which does not make it the first-best choice for economic efficiency, but potentially the only choice due to political feasibility.

Unlike the US, the EU currently does not engage in union-wide wealth taxation, but the high and increasing inequality in the distribution of wealth and the increased government spending during the ongoing sanitary crisis mark a time when such a tax could be made a part of an efficient and equitable tax system that can contribute to public coffers. If the EU ever considers doing so, it is well-advised to glimpse across the Atlantic in order to learn from the tos and fros of the US experience.

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