Journal of Economic Behavior and Organization 238 (2025) 107238

Contents lists available at ScienceDirect

Journal of Economic Behavior and Organization

journal homepage: www.elsevier.com/locate/jebo

Research paper

Taxing transitions: Inheritance tax and family firm succession☆

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ARTICLE INFO

JEL classification:
H25
D25
J24

Keywords:
Inheritance taxation
Family firms
Preferential tax treatment
Estate taxation

ABSTRACT

In many OECD countries, family firms face lower or no succession taxes if they fulfill continuation requirements. We study the effects of such preferential treatment in a two-generation model. Preferential treatment of continued firms leads to more entrepreneurship and higher wages, as entrepreneurs invest more as they value passing on a larger firm. However, more low-ability heirs continue the firm, leading to efficiency losses. In the presence of financial frictions, richer (but less able) heirs may invest more than buyers from outside.

1. Introduction

In many countries, including the United States, the United Kingdom, France, or Germany, over half of the stock of private wealth is inherited (Alvaredo et al., 2017). Among the richest, the primary source of wealth is business wealth: In the United States, pass-through business and C-corporation equity account for 46% of the wealth of the top 1% (Smith et al., 2023); in Germany, business assets represent 50% of their wealth (Albers et al., 2025). When debating the use of inheritance taxation to redistribute wealth, the treatment of these business assets is thus a key question. While their contribution to wealth inequality is clear, others argue that inheritance taxes on family firms dampen entrepreneurship and founders' investment.

Among 22 OECD countries that tax inheritances or estates, only six treat closely held businesses similarly to other assets. The other 16 countries impose lower (or no) taxes under certain conditions by reducing tax rates, increasing exemptions, or applying tax caps (see Fig. 1). Most often, family firms must be continued for some time to be eligible for preferential tax treatment after succession (OECD, 2021).

The literature on optimal estate and inheritance taxation (e.g., Farhi and Werning, 2010, 2013; Piketty and Saez, 2013; Kopczuk, 2013) has focused on the optimal design of taxes imposed on all types of intergenerational transfers.[1] Whether inherited family firms should be treated differently has received little attention in this context. An exception is Grossmann and Strulik (2010), who analyze the desirability of preferential estate tax treatment for continued firms in a model with binary managerial ability. The fundamental trade-off in their model is between the transaction cost of selling post-succession firms to a world market and the efficiency cost of

☆ We would like to thank Alan Auerbach, Volker Grossmann, Andreas Haufler, Adam Lavecchia, Dominik Sachs, Dirk Schindler, and participants at the International Conference on Public Economic Theory in Marseille, the IIPF Annual Congress in Glasgow, the BGPE Workshop in Ingolstadt, and at seminars in Munich and Ingolstadt for helpful comments. Any remaining errors are our own. Philipp Krug worked on this project while visiting UC Berkeley; he gratefully acknowledges their hospitality as well as financial support by the Bavarian Graduate Program in Economics, Germany.

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[1] Cremer and Pestieau (2011) and Bastani and Waldenström (2020) survey this literature.

https://doi.org/10.1016/j.jebo.2025.107238
Received 19 December 2024; Received in revised form 7 July 2025; Accepted 3 September 2025
Available online 18 September 2025

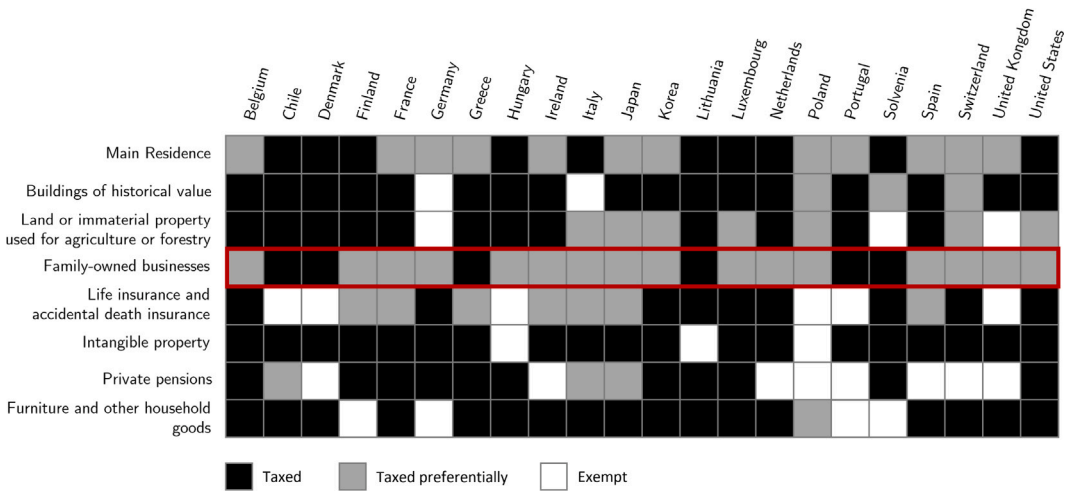

Fig. 1. Preferential tax treatment by asset type.
Note: Overview of assets with preferential inheritance tax treatment for the 22 OECD countries with an inheritance or estate tax.
Source: OECD (2021).

low-ability heirs continuing firms. Calibrating the model with German data, they find that a preferential tax treatment may reduce productivity, leading to negative impacts on macroeconomic performance.

In contrast to Grossmann and Strulik (2010), we model managerial ability as a continuous variable. This approach allows us to capture both the intensive margin (changes in capital and labor demands) and the extensive margin (changes in the number of firms in the market) due to inheritance taxation. Additionally, we explicitly model the domestic market for firms. This allows us to analyze how a favorable tax treatment of continued firms shifts the equilibrium in this market by increasing the price of firm licenses and reducing the number of firms sold. Further differences to Grossmann and Strulik (2010) are that we also incorporate financial frictions in our model and have two bequest motives: a 'joy-of-giving' motive and a 'capitalistic' motive that values keeping the firm within the family.

Our focus is on a positive analysis. We show that inheritance taxes on continued firms discourage entrepreneurship, which in turn lowers labor demand and reduces wages. A favorable tax treatment of continued firms is equivalent to an additional tax on firms sold by the heir. The heir, however, does not bear the entire tax burden. Instead, part of it is passed onto workers' descendants through lower wages and reduced labor demand.

In more detail, we set up a non-overlapping two-generation model of parents and children. Individuals differ in their ability to run a firm. Depending on their ability, parents choose their occupation to become an entrepreneur or a worker. Entrepreneurs bequeath their firms and cash to their children. Workers can only leave a cash bequest. Individuals benefit from bequeathing due to a joy-of-giving motive (Andreoni, 1990). In addition, entrepreneurs have a second bequest motive which we call "capitalistic". Entrepreneurs receive utility from knowing that their firm will continue to exist after their death. Utility may be higher if they anticipate their children will take over the firm and establish an entrepreneurial dynasty, rather than sell it. Children also choose their occupations. Heirs of a firm can either continue this firm or sell the firm and become a worker. Descendants of a worker can either be a worker or buy a firm and become an entrepreneur. Potentially, buyers operate firms less effectively than heirs, due to a loss of tacit knowledge or relationship-specific capital when a business is transferred outside the family.

The government uses inheritance taxation as the sole tax instrument and redistributes tax revenue as a lump-sum transfer to the children's generation. Inheritance tax rates may discriminate between different forms of bequests. The choice of tax rates has (heterogeneous) direct effects on individuals' utility but also impacts outcomes on the labor market and market for firms, adding indirect effects on individual utility. In addition to achieving (welfare-increasing) redistribution, taxes counteract different inefficiencies. Internalizing (potentially heterogeneous) positive externalities from bequeathing calls for lower tax rates.

In an extension, we add financial frictions: We assume that interest rates depend on the individual's equity. Financial frictions add a trade-off between managerial ability and cost of capital: Workers' children have to borrow more, and at higher interest rates, when acquiring a firm than entrepreneurs' children. This lowers demand for firms in the second generation. As the equilibrium price for firms decreases, a larger share of entrepreneurs' children continue the inherited firm. As both financial frictions and the preferential treatment distort the occupational choice in the same direction, financial frictions weaken the case for preferential treatment of continued firms.

Our model aligns with empirical evidence showing that heirs are less-suited managers on average. Bennedsen et al. (2007) find a negative causal effect of family transitions on operating profitability using Danish data. Pérez-González (2006) shows similar effects using data on individual CEOs. Studying the Fortune 500, Villalonga and Amit (2006) find that firm value decreases when second-generation CEOs are in office. Also for medium-sized firms, bad management practices closely connected to lower profitability are more prevalent if the eldest son takes over (Bloom and van Reenen, 2007). Adams et al. (2018) find that CEOs from Swedish

companies differ in cognitive, non-cognitive, and physical characteristics from the rest of the population and that these characteristics strongly predict CEO compensation. However, these traits are less pronounced among CEOs from the founding family who are not the founder.

In addition, as in our model, empirical evidence confirms that higher succession taxes lead to the sale of businesses (Tsoutsoura, 2015; Brunetti, 2006). Tsoutsoura (2015) finds a strong positive effect of preferential succession taxes on firm continuation within the family, exploiting that Greece lowered taxes on intrafamily transfers of businesses in 2002. Moreover, the study underlines the importance of financial frictions: Higher transfer taxes lead to a stronger decline in investments for those firms with lower debt capacity.

The paper proceeds as follows. Section 2 presents our model framework. Section 3 describes the model equilibria. Section 4 analyzes the effects of the taxation, first in the symmetric case of taxing all assets at the same rate and then turning to the effects of differential inheritance taxation. Section 5 introduces financial frictions to the model and discusses welfare effects. Section 6 concludes.

2. Model framework

2.1. Demographics and abilities

We consider an economy with dynasties of two generations, namely parents and children. All parents live only in period $t = 1$; each parent has one child; all children live only in period $t = 2$. We normalize the mass of both generations to $M \equiv 1$ each. Individuals in both generations differ in their managerial ability γ to run a firm but have a uniform ability as an employee. This assumption captures that entrepreneurial skills are a specific talent and do not necessarily translate into higher wages as an employee.[2]

Parents choose their occupation based on their ability. They either become an entrepreneur E or a worker W. Entrepreneurs bequeath their firms, and potentially cash, to their children. Workers can only leave a cash bequest. Children again choose their occupation. Heirs of a firm can either continue this firm — we also call them entrepreneurs — or sell the firm and become a worker. Descendants of a worker can either be a worker, too, or buy a firm and become an entrepreneur. We assume that buyers operate firms less effectively than heirs due to a loss of tacit knowledge or relationship-specific capital when a business is transferred outside the family. This is captured by a productivity discount $\psi \leq 1$: a buyer with managerial ability γ operates the firm as if their effective ability were $\psi\gamma$, while heirs operate at full ability γ.

Fig. 2 illustrates the different types of individuals. We assume that managerial ability is distributed according to a Pareto distribution with minimum value $\underline{\gamma} > 0$ and shape value $\epsilon > 1$ such that the density function is $f(\gamma) = \frac{\epsilon \underline{\gamma}^{\epsilon}}{\gamma^{\epsilon+1}}$.[3] This distribution applies to ability in the first generation, ability among descendants of entrepreneurs, and ability among descendants of workers. Hence, we assume that ability is uncorrelated across generations of dynasties. Individuals in the first generation with ability γ_1^* are indifferent between the two occupations. The same holds for workers' children with ability γ_{2W}^* and entrepreneurs' children with ability γ_{2E}^*. Individuals with a higher ability maximize their utility by running a firm; those with a lower ability prefer to be employees.

The timing of the model unfolds as follows: In the parent generation, individuals first make their occupational choice. Entrepreneurs then determine their optimal levels of labor and capital, and wages adjust to clear the labor market. Next, production takes place, with entrepreneurs receiving profits and workers earning wages. All individuals then consume and decide on their bequests.

At the beginning of the second period, all members of the second generation makes their occupational choices. Some firms are sold, and firm license prices adjust to ensure the firm market clears. Inheritance taxes are paid. Subsequently, entrepreneurs choose their optimal levels of labor and capital, determining the labor market-clearing wage. Production follows, and firms are dissolved as the model ends. Entrepreneurs and workers are paid out and fully consume their income.

2.2. Labor and capital market

Firms demand labor L and capital K according to their production function. We assume that the labor supply by workers is inelastic and that each worker provides one unit of labor. We call the wage in period 1 w_1 and in period 2 w_2. We refer to market clearing wages as w_1^* and w_2^*. Firms can borrow capital on an international capital market at the rate r.

[2] In line with this assumption, Kucel and Vilalta-Bufi (2016) find that wages of employees do not reward entrepreneurial competencies in Spain.

[3] Thus, there are a large number of small firms and a small number of large firms. See e.g. Axtell (2001) for similar findings for the distribution of firm size in the US.

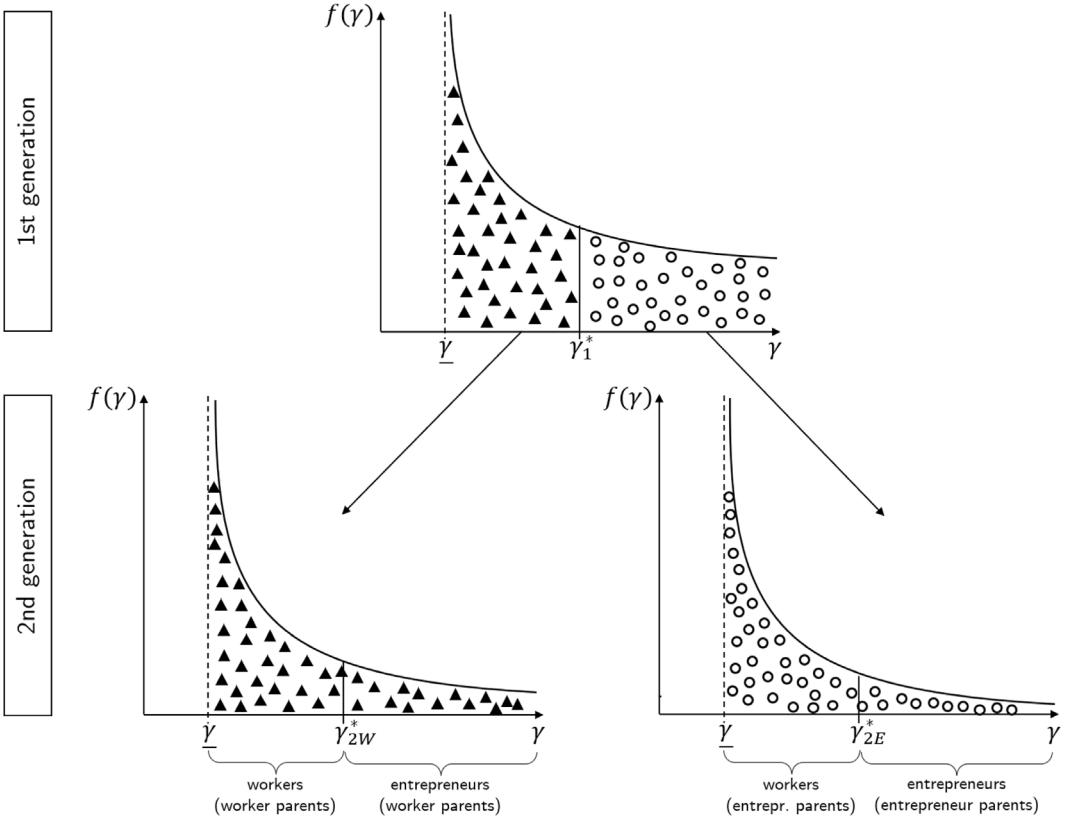

Fig. 2. Types of individuals.
Note: The upper graph shows the ability distribution in the first generation. Triangles illustrate dynasties in which parents become workers since their ability is lower than the cutoff ability γ_1^*. Circles illustrate dynasties in which parents become entrepreneurs since their ability is higher than the cutoff ability γ_1^*. The bottom left graph shows the ability distribution of workers' children and the bottom right graph shows the ability distribution of entrepreneurs' children. Children with lower abilities than the respective cutoffs γ_{2W}^* and γ_{2E}^* become workers, children with higher ability become entrepreneurs. The cutoffs γ_1^*, γ_{2W}^*, γ_{2E}^* do not necessarily coincide.

2.3. Firms

To account for differences in firm productivity depending on whether a firm is continued or newly acquired, we define effective ability $\tilde{\gamma}$. Entrepreneurs who inherit a firm operate it at full ability, i.e., $\tilde{\gamma} = \gamma$, while buyers who acquire a firm operate it with reduced productivity due to a loss of tacit knowledge or relationship-specific capital, i.e., $\tilde{\gamma} = \psi\gamma$ with $\psi \leq 1$.

Firms use a Cobb–Douglas technology to produce output $y(\tilde{\gamma}) = \tilde{\gamma} L^{\alpha} K^{\beta}$ with a price per unit normalized to one and $\alpha + \beta < 1$.[4] Diminishing returns to each input are consistent with empirical observations of firm production. The entrepreneurs effective ability $\tilde{\gamma}$ enters the production function as total factor productivity. We assume that capital depreciates at rate δ. The firm's profit is thus

$$\pi(\tilde{\gamma}, w) = \tilde{\gamma} L^{\alpha} K^{\beta} - wL - (r+\delta)K, \tag{1}$$

with $w \in \{w_1, w_2\}$.

Profit-maximizing input choices are

$$L^*(\tilde{\gamma}, w) = \left[\tilde{\gamma}\left(\frac{\alpha}{w}\right)^{1-\beta}\left(\frac{\beta}{r+\delta}\right)^{\beta}\right]^{\frac{1}{1-\alpha-\beta}}, \tag{2a}$$

$$K^*(\tilde{\gamma}, w) = \left[\tilde{\gamma}\left(\frac{\alpha}{w}\right)^{\alpha}\left(\frac{\beta}{r+\delta}\right)^{1-\alpha}\right]^{\frac{1}{1-\alpha-\beta}}. \tag{2b}$$

We denote maximized profit by $\pi^*(\tilde{\gamma}, w)$. In our model, entrepreneurs who inherit a firm operate it using their full managerial ability, i.e. $\tilde{\gamma} = \gamma$. In contrast, individuals who acquire a firm from outside the family operate at a productivity discount: their effective ability

[4] Since we assume inelastic labor supply for reasons of simplicity, we need decreasing economies of scale to limit optimal firm size.

$\tilde{\gamma}$ is $\psi\gamma$, where $\psi \leq 1$. Hence, when evaluating profits and input choices for firm buyers, we use $\pi^*(\psi\gamma, w)$, $L^*(\psi\gamma, w)$, and $K^*(\psi\gamma, w)$. Heirs, by contrast, use $\pi^*(\gamma, w)$ and the corresponding input choices.

In addition to labor and capital, a firm needs a license to operate. It can acquire this license in period 1 at price P_1. One can think of the price paid for such a license as reflecting the set-up costs of a firm. Entrepreneurs can pass on the license to their children. However, the number of licenses is constant over both generations, so individuals cannot found new firms in the second period; in the first period the number of firms (and thus licenses) is determined endogenously. This is because government regulation[5] or the availability of natural resources limits market entry. Modeling these licenses will ensure that firms operate profitably, which is essential for analyzing the impact of taxation. Workers' descendants can buy existing licenses offered by entrepreneurs' descendants at price P_2. We refer to the market clearing price as P_2^*.

2.4. Government

The government uses inheritance taxation as the sole tax instrument and redistributes tax revenue as a lump-sum transfer T to the children's generation.[6] Inheritance tax rates may discriminate between different forms of bequests. The government taxes cash bequests at rate τ_c. Firms continued by the heirs are taxed at rate τ_{fc}, and firms sold by the heirs are taxed at rate τ_{fs}. These tax rates only apply to the firm license, while profit is taxed as cash.[7]

2.5. Individual optimization in the 1st generation

Individuals in the first generation choose the occupation that maximizes expected utility based on their individual ability γ. Workers and entrepreneurs both receive utility from their own consumption and from bequeathing to their children. A worker's utility function is

$$U^W = (1-\theta)\ln C^W + \theta \ln\left(B^W(1-\tau_c)\right), \tag{3}$$

where C^W is the worker's consumption and B^W the bequest left to the child. θ captures the degree of the joy-of-giving bequest motive. In contrast to pure altruism, this motive does not consider the children's utility but reflects purely the pleasure of helping, i.e., the "warm glow". Denoting the share of income bequeathed to the child by σ^W, we can write $B^W = \sigma^W w_1$ and $C^W = (1-\sigma^W)w_1$. Maximizing utility shows that it is optimal to bequeath an income share $\sigma^{W,*} = \theta$.

Entrepreneurs have two different bequest motives. First, they also bequeath due to a joy-of-giving motive. In addition, they have a second motive which we call "capitalistic": Founders receive utility from bequeathing a firm that continues to exist after their death.[8] Utility may be higher if they anticipate their child will continue the firm instead of selling it. However, we assume that a founder does not know whether their child will continue the firm or not at the time when they found the firm.[9] Instead, they maximize expected utility by relying on the assumed probability p that the child continues the firm.[10] An entrepreneurs' expected utility is

$$\begin{aligned} U^E(\gamma) = {} & p\left[(1-\theta)\ln C^E + \theta\ln\left(B^E(1-\tau_c)\right) + \eta\ln\left(P_1\left(1-\tau_{fc}\right)\right)\right] \\ & + (1-p)\left[(1-\theta)\ln C^E + \theta\ln\left(B^E(1-\tau_c)\right) + \eta\varrho\ln\left(P_1\left(1-\tau_{fs}\right)\right)\right]. \end{aligned} \tag{4}$$

The first line describes the entrepreneur's utility if the child continues the firm, weighted by probability p. Parameter $\eta > 0$ captures the capitalistic bequest motive. It depends on the value of the firm at the end of the first period, as this is the value that is known to the decedent. The second line depicts the entrepreneur's utility if the child sells the firm. Parameter $0 \leq \varrho \leq 1$ reflects the parent's preference for the child to continue the firm. For $\varrho = 0$, the capitalistic motive only applies to firms that remain in the family hand. For $\varrho = 1$, the capitalistic motive is concerned with the firm's continued existence, whether it remains in the family's hand or not.[11]

Entrepreneurs bequeath a share σ^E of the firm's profit. We can thus express the cash bequest and consumption as

$$B^E = \sigma^E\left[\pi - (1+r)P_1\right] \quad \text{and} \quad C^E = \left(1-\sigma^E\right)\left[\pi - (1+r)P_1\right], \tag{5}$$

respectively. Profit π depends on the founder's ability γ and the wage in period 1, w_1. To set up the firm, founders have to buy a license at the price P_1. They have to borrow at rate r to finance the license. Entrepreneurs maximize their expected utility by choosing σ^E, L, and K optimally. Profit-maximizing input choices are also utility-maximizing. The optimal profit share to be bequeathed is

[5] In many countries, this is the case e.g. for cabs or doctor's practices.

[6] Since we assume that each parent has one child, inheritance and estate taxation coincide. In the case of estate taxation, the donor carries the tax liability, which is based on the total estate. In the case of inheritance taxation, the recipient carries the tax liability.

[7] Without this assumption, entrepreneurs could put their cash in the firm to profit from lower tax rates for firms. In reality, complex rules limiting preferential treatment to active business assets restrict such behavior.

[8] See for example the extended horizon argument by James (1999) as well as Bertrand and Schoar (2006) for anecdotal evidence.

[9] Usually, people start a business either before children are born or when children are young.

[10] Different tax treatment of continued and sold firm could potentially influence the parent's assessment of the probability that the child continues the firm. We exclude this channel of tax effects in our model to improve analytical tractability.

[11] We assume $P_1(1-\tau_{fc}), P_1(1-\tau_{fs}) > 1$ so that the capitalistic term has a positive utility contribution.

$\sigma^{E,*} = \theta$ and hence coincides with the labor income share to be bequeathed by workers. Still, the bequest size can be different since labor income w_1 and profit $\pi(\gamma, w_1)$ are different for most individuals.

The different tax rates affect individuals' utility levels through different channels, either directly as a component of the indirect utility function or indirectly as a determinant of the equilibrium wage and, in consequence, also of the firms' profits.

Lemma 1. *Let V^W and $V^E(\gamma)$ be the indirect utility of workers and entrepreneurs, respectively. The direct effects of taxation on the utility of the two groups are:*

- *An increase in the cash tax rate τ_c reduces the utility of workers and entrepreneurs equally strongly, i.e., $\frac{\partial V^W}{\partial \tau_c} = \frac{\partial V^E}{\partial \tau_c} < 0$. The effect is stronger the stronger the joy-of-giving motive is, i.e., $\frac{\partial^2 V^W}{\partial \tau_c \partial \theta} = \frac{\partial^2 V^E}{\partial \tau_c \partial \theta} < 0$.*
- *An increase in the tax rate on continued firms, τ_{fc}, and an increase in the tax rate on sold firms, τ_{fs}, reduces the utility of entrepreneurs, i.e., $\frac{\partial V^E}{\partial \tau_{fc}}, \frac{\partial V^E}{\partial \tau_{fs}} < 0$. The effects are stronger the stronger the capitalistic bequest motive is, i.e., $\frac{\partial^2 V^E}{\partial \tau_{fc} \partial \eta}, \frac{\partial^2 V^E}{\partial \tau_{fs} \partial \eta} < 0$. The effect of an increase in τ_{fs} is also stronger the stronger the preference for firm continuation is, i.e. $\frac{\partial^2 V^E}{\partial \tau_{fs} \partial \varrho} < 0$.*
- *The effect of a change in tax rate τ_{fc} on utility decreases with increasing probability of firm continuation, i.e., $\frac{\partial^2 V^E}{\partial \tau_{fc} \partial p} < 0$. In contrast, the effect of a change in tax rate τ_{fs} increases with increasing probability of firm continuation, i.e., $\frac{\partial^2 V^E}{\partial \tau_{fs} \partial p} > 0$.*

Proof. See Appendix A.1.

As tax revenue is not redistributed within the first generation, the utility of affected individuals decreases when tax rates increase. These adverse effects are stronger when the related bequest motives are stronger. A stronger joy-of-giving motive exacerbates the tax rate's negative effect on cash bequests for both workers and entrepreneurs. Similarly, a stronger capitalistic motive leads to a stronger negative effect of the tax rate on continued firms and the tax rate on sold firms. In addition to the bequest motives, the probability of firm continuation by the child influences the effect of tax rates on utility. The higher the probability that a child continues the firm, the stronger the effect of an increase in the tax rate on continued firms on utility since it is more likely that this higher tax rate will apply. The same argument holds vice versa for the tax rate on sold firms.

2.6. Individual optimization in the 2nd generation

Individuals in the second generation choose the occupation that maximizes their utility. Therefore, there are four different types of individuals: A worker's child can choose to also become a worker or to become an entrepreneur by buying a firm license. An entrepreneur's child can continue the inherited firm or sell the license and become a worker instead. Individuals in the second generation consume all of their income.

Workers' descendants. Workers' children receive a cash bequest B^W. If the child decides to become a worker, their utility is

$$U_W^W = \ln C_W^W = \ln\left(w_2 + (1-\tau_c)(1+r)B^W + T\right). \tag{6}$$

The total budget consists of labor income w_2, the net-of-tax bequest including interest $(1+r)(1-\tau_c)B^W$ taxed at rate τ_c and the lump-sum transfer T.[12] Alternatively, workers' children may decide to become entrepreneurs with utility

$$U_E^W(\gamma) = \ln C_E^W = \ln\left(\pi(\psi\gamma, w_2) + (1-\tau_c)(1+r)B^W - (1+r)P_2 + T\right). \tag{7}$$

Workers' children that become entrepreneurs get the firm's profit $\pi(\psi\gamma, w_2)$, the net-of-tax bequest, the lump-sum transfer, and have to pay $(1+r)P_2$ for the firm (license) including interest.[13] We assume that buyers operate firms less effectively than heirs, due to a loss of tacit knowledge or relationship-specific capital. This is captured by a parameter $\psi \leq 1$, such that a buyer with ability γ earns profits $\pi(\psi\gamma, w_2)$, while an heir earns $\pi(\gamma, w_2)$.

Workers' descendants who buy a firm maximize utility by maximizing the firm's profit through optimal input choice $L^*(\psi\gamma, w_2), K^*(\psi\gamma, w_2)$. We define indirect utility $V_E^W(\psi\gamma) = U_E^W\left(L^*(\psi\gamma, w_2), K^*(\psi\gamma, w_2); \gamma, w_2\right)$.

Entrepreneurs' descendants. Entrepreneurs' children receive a cash bequest B^E. If the child decides to continue the firm, the utility function is

$$U_E^E(\gamma) = \ln C_E^E = \ln\left(\pi(\gamma, w_2) + (1-\tau_c)(1+r)B^E - \tau_{fc}(1+r)P_2 + T\right). \tag{8}$$

The heir has to pay taxes on the cash bequest at rate τ_c and on the market value of the firm license at rate τ_{fc}. We define indirect utility $V_E^E(\gamma) = U_E^E(L^*(\gamma, w_2), K^*(\gamma, w_2); \gamma, w_2)$. The utility function of a firm heir who decides to become a worker is

$$U_W^E = \ln C_W^E = \ln\left(w_2 + (1-\tau_c)(1+r)B^E + (1-\tau_{fs})(1+r)P_2 + T\right). \tag{9}$$

The heir receives price P_2 for the sale of the license, which is taxed at rate τ_{fs}.

[12] Note that we assume that the tax liability has to be paid at the beginning of the period. The net-of-tax bequest can then earn interest for the duration of period 2.

[13] They can, of course, also use cash to buy the license. However, as they also receive interest on the cash they own, this is equivalent in the main model without financial frictions.

3. Model equilibria

3.1. Equilibrium in the 1st generation

Given the framework outlined above, we can now define the equilibrium in each generation. The equilibrium in the first generation is given by

1. the ability threshold γ_1^* that divides the population into workers ($\gamma < \gamma_1^*$) and entrepreneurs ($\gamma > \gamma_1^*$),
2. the wage rate w_1^*,
3. entrepreneurial labor demands $L^*(\gamma, w_1^*)$ and capital demands $K^*(\gamma, w_1^*)$, $\forall \gamma > \gamma_1^*$,
4. bequest shares $\sigma^{W,*}, \sigma^{E,*}$,

such that, given government taxes, the following conditions on individual behavior and labor markets hold.

First, all individuals maximize utility by choosing their occupation. The share to bequeath $\sigma^{W,*}$ maximizes a worker's utility. The share to bequeath $\sigma^{W,*}$ and production factor inputs $L^*(\gamma, w_1^*), K^*(\gamma, w_1^*)$ maximize an entrepreneur's utility. Thus, it must hold that

$$V^E(\gamma_1^*, w_1^*) = V^W(w_1^*). \tag{10}$$

Second, the labor market clears, i.e., total labor demand by entrepreneurs equals total labor supply by workers:[14]

$$\lim_{\bar{\gamma}\to\infty} \int_{\gamma_1^*}^{\bar{\gamma}} L(\gamma, w_1^*) f(\gamma) d\gamma = \int_{\underline{\gamma}}^{\gamma_1^*} f(\gamma) d\gamma. \tag{11}$$

We can solve Eq. (10) for γ_1^* and Eq. (11) for w_1^* (see Appendix A.2). Both equations together implicitly define the threshold ability γ_1^* and the market-clearing wage w_1^* in the first generation. Individuals with $\gamma < \gamma_1^*$ become workers, and individuals with $\gamma > \gamma_1^*$ become entrepreneurs.

3.2. Equilibrium in the 2nd generation

The equilibrium in the second generation is given by

1. the ability threshold γ_{2W}^* that divides the population of workers' descendants into workers ($\gamma < \gamma_{2W}^*$) and entrepreneurs ($\gamma > \gamma_{2W}^*$), as well as the ability threshold γ_{2E}^* that divides the population of entrepreneurs' descendants into workers ($\gamma < \gamma_{2E}^*$) and entrepreneurs ($\gamma > \gamma_{2E}^*$),
2. entrepreneurial labor and capital demands, which depend on effective managerial ability: heirs operate firms at full ability γ and demand $L^*(\gamma, w_2^*)$ and $K^*(\gamma, w_2^*)$, while buyers operate firms with discounted ability $\psi\gamma$ and demand $L^*(\psi\gamma, w_2^*)$ and $K^*(\psi\gamma, w_2^*)$, for all $\gamma > \gamma_{2W}^*$ and $\gamma > \gamma_{2E}^*$,
3. the wage rate w_2^*,
4. the price for firm licenses P_2^*,

First, all individuals maximize utility by choosing their occupation. Entrepreneurs choose production factor inputs to maximize profits. Hence, it must hold that

$$V_E^W(\gamma_{2W}^*, w_2^*) = U_W^W(w_2^*) \quad \text{and} \quad V_E^E(\gamma_{2E}^*, w_2^*) = U_W^E(w_2^*). \tag{12}$$

Second, the labor market clears, i.e., total labor demand by entrepreneurs equals total labor supply by workers:

$$\begin{aligned} &\left(\frac{\underline{\gamma}}{\gamma_1^*}\right)^{\epsilon} \lim_{\bar{\gamma}\to\infty} \int_{\gamma_{2E}^*}^{\bar{\gamma}} L(\gamma, w_2^*) f(\gamma) d\gamma + \left(1 - \left(\frac{\underline{\gamma}}{\gamma_1^*}\right)^{\epsilon}\right) \lim_{\bar{\gamma}\to\infty} \int_{\gamma_{2W}^*}^{\bar{\gamma}} L(\psi\gamma, w_2^*) f(\gamma) d\gamma \\ &= \left(\frac{\underline{\gamma}}{\gamma_1^*}\right)^{\epsilon} \int_{\underline{\gamma}}^{\gamma_{2E}^*} f(\gamma) d\gamma + \left(1 - \left(\frac{\underline{\gamma}}{\gamma_1^*}\right)^{\epsilon}\right) \int_{\underline{\gamma}}^{\gamma_{2W}^*} f(\gamma) d\gamma. \end{aligned} \tag{13}$$

The first line represents the total labor demand by entrepreneurs, where heirs demand $L(\gamma, w_2^*)$ and buyers demand $L(\psi\gamma, w_2^*)$. The second line represents the total labor supply by workers. In each line, the first term refers to the group of entrepreneurs' children, and the second term refers to the group of workers' children.

Third, the market for operating licenses clears, i.e. the supply of firm licenses equals the demand for firm licenses:

$$\left(\frac{\underline{\gamma}}{\gamma_1^*}\right)^{\epsilon} \int_{\underline{\gamma}}^{\gamma_{2E}^*} f(\gamma) d\gamma = \left(1 - \left(\frac{\underline{\gamma}}{\gamma_1^*}\right)^{\epsilon}\right) \int_{\gamma_{2W}^*}^{\bar{\gamma}} f(\gamma) d\gamma. \tag{14}$$

The lower the ability of buyers (i.e., the lower ψ), the lower is their willingness to pay for a license. This lowers equilibrium license demand and, all else equal, reduces the license price P_2.

[14] To make sure that the integral converges, we assume $\epsilon > (1 - \alpha - \beta)^{-1}$.

4. Effects of taxation

4.1. Effects in the 1st generation

The direct effects of taxation on the individuals' utility levels discussed in Lemma 1 also affect the equilibrium ability threshold γ_1^* and the labor market clearing wage w_1^*. Implicitly differentiating the system of equations consisting of the equilibrium conditions (10) and (11) with respect to the three different tax rates allows us to analyze the effect of taxation on market outcomes.

Proposition 1. *The ability cutoff and the wage are independent of the cash tax rate τ_c. If the tax rates on continued or sold firms increase, the ability cutoff rises and the equilibrium wage decreases, i.e.,*

$$\frac{d\gamma_1^*}{d\tau_{fc}}, \frac{d\gamma_1^*}{d\tau_{fs}} > 0 \quad \textit{and} \quad \frac{dw_1^*}{d\tau_{fc}}, \frac{dw_1^*}{d\tau_{fs}} < 0. \tag{15}$$

Proof. See Appendix A.2.

Changes in the cash tax rate affect both groups in the same way. Therefore, the tax rate is irrelevant to occupational choice and does not influence the ability cutoff and labor market outcomes. In contrast, both tax rates on firms affect the equilibrium: When founding a firm, parents do not yet know whether their child will continue the firm. Thus, both tax rates enter their optimization problem. Depending on the probability that the child will continue the firm and on the preference parameter ϱ, the effects of τ_{fc} and τ_{fs} on equilibrium outcomes may differ in size but always go in the same direction. Higher tax rates reduce the incentive to found a firm because of the capitalistic bequest motive. Consequently, more individuals prefer to become a worker: the higher the tax rates, the higher the ability cutoff.

Distorting the occupational choice has consequences for the labor market: A higher ability cutoff increases aggregate labor supply and decreases aggregate labor demand, decreasing the market-clearing wage.

4.2. Intergenerational effects: Benchmark case with uniform taxation

Inheritance taxation may also affect outcomes for the second generation. First, we consider a benchmark case where the government uses a uniform inheritance tax rate on firms, i.e. $\tau_{fc} = \tau_{fs}$, and buyers operate firms at full productivity, i.e. $\psi = 1$.

Proposition 2. *Assume a uniform inheritance tax rate on firms, i.e. $\tau_{fc} = \tau_{fs}$, and no productivity discount for buyers, i.e. $\psi = 1$. Then ability thresholds in both generations are equal, i.e. $\gamma_1^* = \gamma_{2E}^* = \gamma_{2W}^*$, and labor market clearing wages are equal, i.e. $w_1^* = w_2^*$. For $\eta = 0$, the market-clearing prices on the firm market also coincide, i.e. $P_2^* = P_1$. For $\eta > 0$, the price in the second generation is lower, i.e. $P_2^* < P_1$.*

Proof. See Appendix A.3.

Without a capitalistic bequest motive, ability cutoffs in the group of workers' descendants and entrepreneurs' descendants coincide and are the same as the cutoff in the parents' generation.[15] Consequently, labor demand and supply are identical in both generations (and, therefore, the equilibrium wage). The marginal buyer of a firm license thus has the same willingness to pay as the marginal entrepreneur in the parent's generation. Therefore, license prices in both periods also coincide. These results hold independently of the taxation of cash bequests if tax rates for continued and sold firms are the same.

When introducing the capitalistic bequest motive in addition to the joy-of-giving motive, market outcomes only partly coincide across the two generations. While all ability cutoffs coincide and wages are still identical in both generations, the license price in the second generation is lower, i.e., $P_2^* < P_1$. In the first generation, an individual with ability γ_1^* is indifferent between both occupations at the license price P_1. An individual with the same ability in the second generation is indifferent between the two occupations at a lower license price, as there is no additional incentive to manage a firm through a capitalistic bequest motive.[16] The price difference becomes larger for a stronger capitalistic motive.

4.3. Intergenerational effects: Differential taxation

We will rely on simulations to analyze the effect of tax rate differentials on occupational choice and market outcomes. In Fig. 3, we first investigate the case without a capitalistic bequest motive, i.e., $\eta = 0$, and without a productivity discount for buyers, i.e. $\psi = 1$. The horizontal axes in the three graphs show the tax rate on continued firms τ_{fc}. The tax rate on sold firms τ_{fs} is set to 0.4, so the left parts of the graphs reflect a preferential treatment of continued firms, and the right parts reflect a preferential treatment of sold firms.

[15] This result relies on the assumption that buyers operate firms at full productivity, i.e. $\psi = 1$. If buyers operate less effectively than heirs ($\psi < 1$), then ability thresholds and wages will generally differ across generations even under uniform taxation.

[16] This effect is limited to the market for firms and does not lead to different ability cutoffs because the number of firms in our model is the same in both generations.

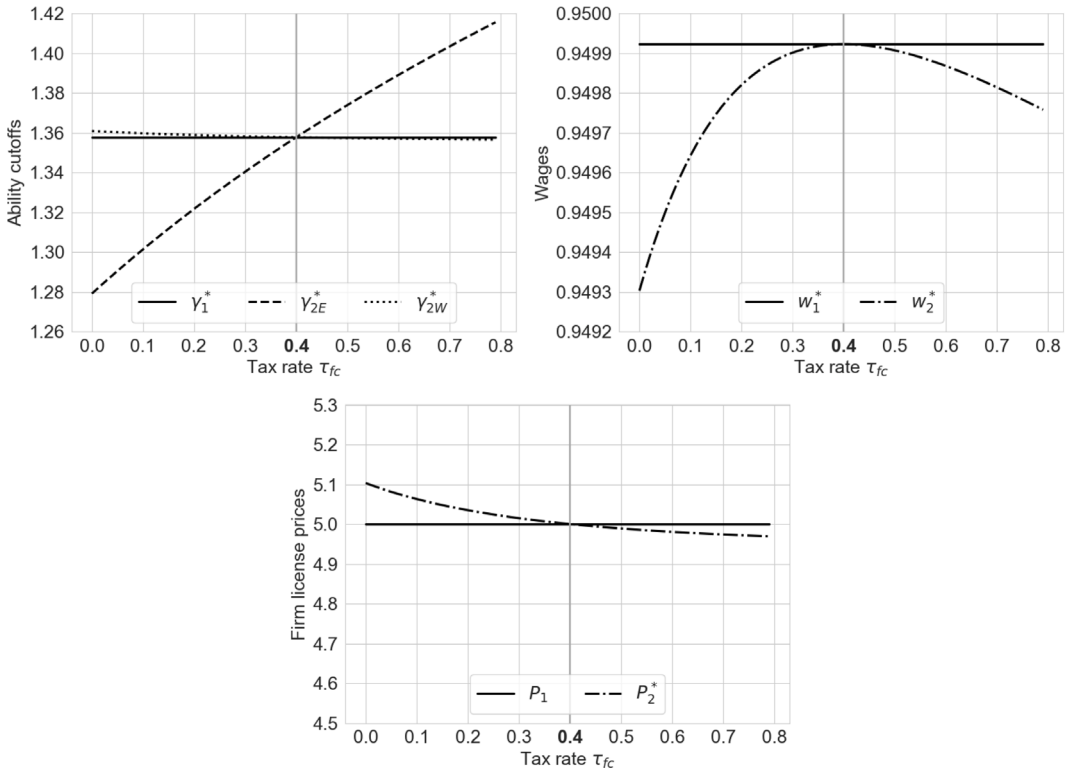

Fig. 3. Ability cutoffs, wages and prices for $\eta = 0$.
Note: This simulation uses 0.4 for the tax rate τ_{fs} and 5 for the license price P_1. Parameter values for the Pareto distribution are $\epsilon = 12, \underline{\gamma} = 1$. Parameters in the profit function are set to $\alpha = 0.4, \beta = 0.45$, $\delta = 0.1, r = 0.02$. Parameters in the utility functions are $\theta = 0.4, \eta = 0, p = 0.3$.

For $\tau_{fc} = \tau_{fs}$, the three plots show the results from Proposition 2. Ability cutoffs, wages, and license prices coincide in the two periods. The first plot shows how ability cutoffs change for different tax rate differentials. If $\tau_{fc} < \tau_{fs}$, i.e., in the left part of the plot, the ability cutoff among workers' descendants γ_{2W} is above the first generation cutoff γ_1 while the ability cutoff among entrepreneurs' descendants γ_{2E} is below. The lower tax rate on continued businesses increases the incentives to keep inherited firms and makes it worthwhile even for lower-ability heirs. The share of continued firms increases. In the case of $\tau_{fc} > \tau_{fs}$, i.e., in the right part of the plot, differential taxation increases incentives to sell inherited firms, which implies a higher ability cutoff for entrepreneurs' descendants. The cutoffs change differently for each group as they differ in size—there are many more workers than entrepreneurs.

To think about the effects of differential taxation on firm license and labor markets, we model the relationship between the two tax rates as $\tau_{fs} = (1 + \Delta)\tau_{fc}$, where Δ is positive if continued firms are taxed preferentially and negative if sold firms are taxed preferentially. In this sense, τ_{fc} functions as a commodity tax on bequests and $\Delta \cdot \tau_{fc}$ as a separate tax (or subsidy) on sold firms. On whom is the incidence of this additional tax? As the third plot shows, the market-clearing price P_2^* increases with decreasing τ_{fc} for a constant τ_{fs}, which is equivalent to increasing Δ. Hence, part of the additional tax burden is passed on to the firms' buyers.

Concerning the labor market, the upper right plot shows that the wage in the second generation is lower than in first generation if the two tax rates diverge. Since a tax differential distorts occupational choice, managerial ability is used less efficiently. This leads to a lower aggregate labor demand and lower wages.

Fig. 4 illustrates how outcomes change when buyers operate firms less effectively than heirs due to a loss of tacit knowledge or relationship-specific capital. We set the corresponding productivity discount parameter $\psi = 0.95$.

Comparing Figs. 4 to 3, we observe three main differences. First, the ability cutoff for workers' descendants, γ_{2W}, shifts to the right: they now require higher ability to justify entering entrepreneurship, since their productivity is discounted. Ability cutoffs now coincide not when tax rates are equal, but when continuation is slightly penalized. This implies that intergenerational ability correlation strengthens occupational sorting.

Second, wages in the second generation are significantly lower. Since fewer high-ability individuals buy firms and heirs with lower ability are more likely to continue, average firm size falls and labor demand declines.

Third, and somewhat unexpectedly, the firm license price P_2^* increases. This occurs because fewer heirs are willing to sell their firms, reducing the supply of licenses on the market. Despite lower buyer productivity, this supply scarcity drives up the market-clearing price.

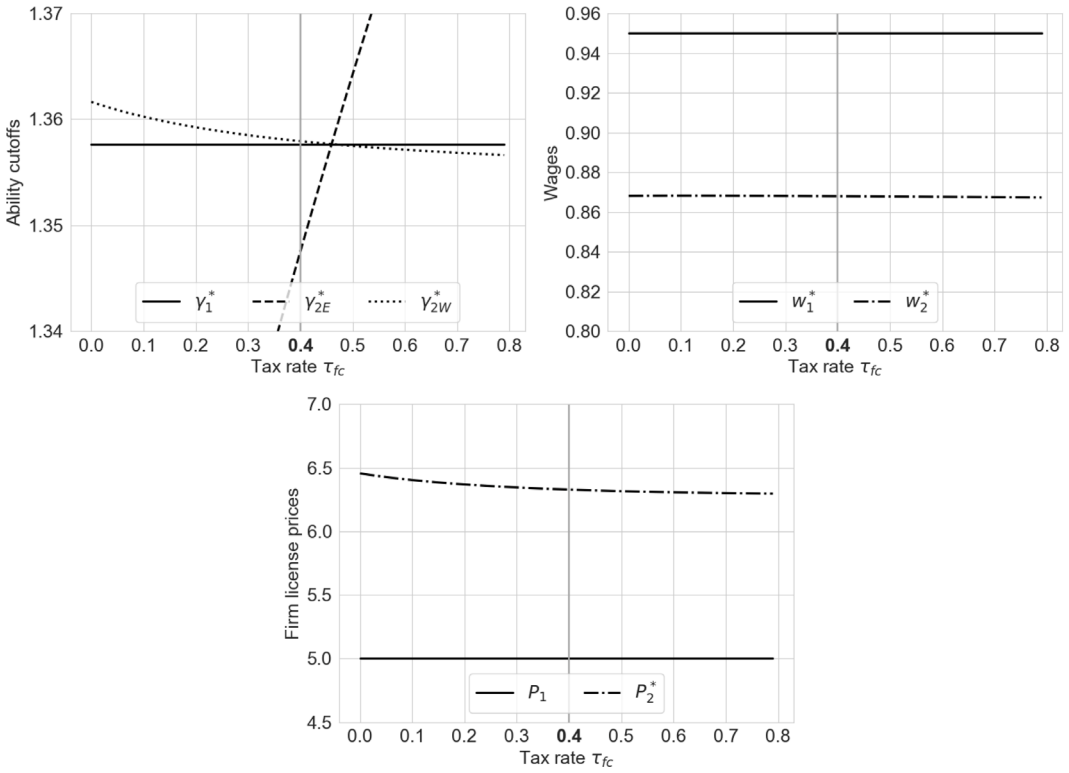

Fig. 4. Ability cutoffs, wages and prices for $\eta = 0$ and $\psi = 0.95$.
Note: This simulation uses 0.4 for the tax rate τ_{fs}, 5 for the license price P_1, and $\psi = 0.95$. Parameter values for the Pareto distribution are $\epsilon = 12, \gamma = 1$. Parameters in the profit function are set to $\alpha = 0.4, \beta = 0.45, \delta = 0.1, r = 0.02$. Parameters in the utility functions are $\theta = 0.4, \eta = 0, \overline{p} = 0.3$.

We now turn to the case of a positive capitalistic bequest motive ($\eta > 0$), while keeping $\psi = 1$, i.e., assuming no productivity difference between heirs and buyers, to isolate this channel.

Fig. 5 shows the same three plots when including the capitalistic bequest motive ($\eta > 0$). The ability cutoff and the wage in the first generation reflect the findings of Proposition 1. The ability cutoff increases with an increasing tax rate τ_{fc} (and constant τ_{fs}), and the wage decreases. As mentioned before, a higher tax implies that only individuals with a higher ability prefer being an entrepreneur. The lower number of firms (and, consequently, lower labor demand) implies that the labor market clears at a lower wage. When comparing ability cutoffs and wages over the two generations, the effects described in the case $\eta = 0$ still apply. Again, as discussed for the uniform tax case in Proposition 2, introducing the capitalist bequest motive impacts the market for firm licenses. The market clearing price P_2^* is consistently lower than P_1 for all tax differentials.[17]

In sum, differential taxation of continued and sold firms affects the occupational choices in the second generation, the allocation of talent across firms, and equilibrium outcomes in the labor and license markets. Preferential tax treatment for continued firms leads to more heirs taking over the family business, which can reduce allocative efficiency if lower-ability heirs replace higher-ability outside buyers. This concern is amplified when heirs enjoy a productivity advantage, as modeled via $\psi < 1$, because fewer firms are sold and license markets tighten. At the same time, the anticipation of preferential treatment increases the expected utility from founding a firm and thereby encourages entrepreneurship in the first generation. This boosts the number of firms, raises labor demand, and increases wages. In this sense, preferential tax treatment partially offsets the disincentive to entrepreneurship created by inheritance taxation. When the founder places a high value on firm continuation within the family (i.e., when ϱ is high), this channel becomes stronger and creates a second-best efficiency argument in favor of tax preferences for continued firms.

[17] The u-shaped form is the result of different overlapping effects. The number of firms decreases with increasing τ_{fc} and the additional tax burden Δ decreases with increasing τ_{fc}, as does the wage (which is the opportunity cost of buying a license).

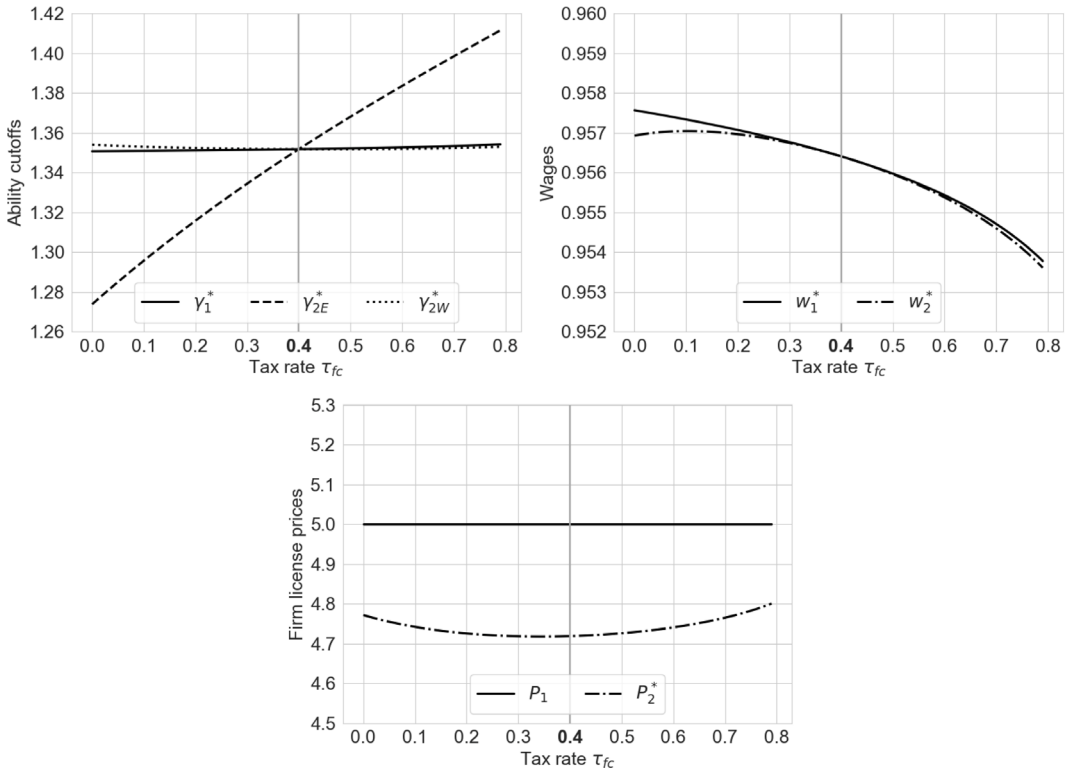

Fig. 5. Ability cutoffs, wages and prices for $\eta > 0$.
Note: This simulation uses 0.4 for the tax rate τ_{fs} and 5 for the license price P_1. Parameter values for the Pareto distribution are $\epsilon = 12, \underline{\gamma} = 1$. Parameters in the profit function are set to $\alpha = 0.4, \beta = 0.45, \delta = 0.1, r = 0.02$. Parameters in the utility functions are $\theta = 0.4, \eta = 0.5, \rho = 0.5, p = 0.3$.

5. Discussion

5.1. Financial frictions

Interest rates vary with a variety of firm characteristics. An important one within our model framework is the capital structure of firms.[18] Firms with a high debt level may pay higher interest rates on debt as they have a higher risk of financial distress.[19]

A firm's debt level in the second period of our model depends on four aspects. (1) Required capital K^* for production, which follows from profit maximization and depends on individual ability; (2) for workers' children, the cost of acquiring a firm (license); (3) the inherited funds; and (4) the inheritance tax rate.

While lenders on the international capital market cannot observe managerial ability, they can discriminate against borrowers with higher debt levels. We now introduce two different interest rates $r_h > r_l$, to account for heterogeneity in borrowing costs.[20] We assume that the higher interest rate will be paid by workers' descendants who acquire a firm in the second period, while the lower rate r_l applies for all other borrowers.[21]

How does the model change with financial frictions? To better understand these effects, we repeat the simulations from Fig. 5 with financial frictions. To isolate the impact of financial frictions, we keep the productivity parameter at $\psi = 1$, so that buyers and heirs operate firms with the same effective ability. This allows a direct comparison with Fig. 5.

[18] Another determinant of the cost of debt are agency conflicts. Anderson et al. (2003) show that founding family ownership leads to lower cost of debt because of lower agency cost. However, they find evidence that if founder descendants hold the CEO position, firm performance is worse, counteracting the first effect.

[19] Expected default costs are an important determinant of the total costs of debt (van Binsbergen et al., 2010). They find that having too much debt (relative to the optimum) on the balance sheet leads to an asymmetrically higher cost than having too little debt.

[20] To keep the model tractable, we do not model separately lending by the firm and lending by the individual, nor do we distinguish between lending and borrowing rates. An individual that pays r_l (r_h) for borrowing also earns r_l (r_h) on deposits.

[21] Depending on firms' profits, wage levels, bequest motives and firm prices it is certainly possible that not all workers' descendants who acquire a firm have higher financing needs than all entrepreneurs' children who continue the inherited firm. Insofar, this assumption is a simplification.

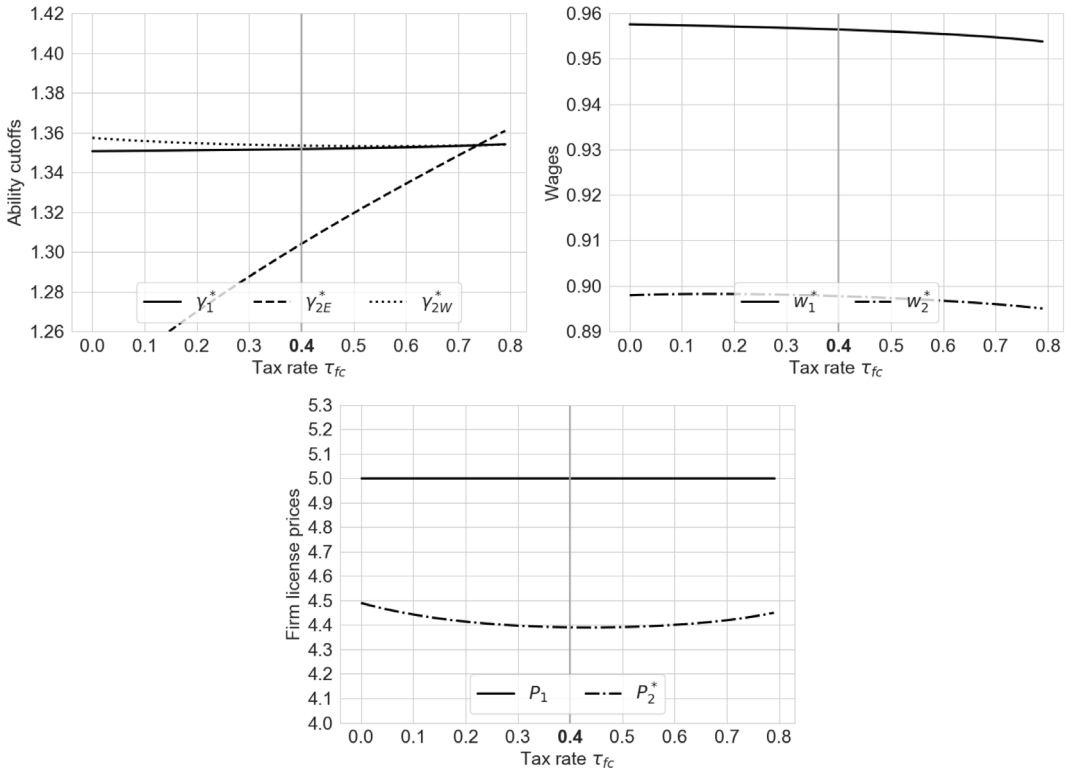

Fig. 6. Ability cutoffs, wages and prices with financial frictions.
Note: This simulation uses 0.4 for the tax rate τ_{fs} and 5 for the license price P_1. Parameter values for the Pareto distribution are $\epsilon = 12$, $\underline{\gamma} = 1$. Parameters in the profit function are set to $\alpha = 0.4$, $\beta = 0.45$, $\delta = 0.1$, $\psi = 1$, $r_l = 0.02$, and $r_h = 0.03$. Parameters in the utility functions are $\theta = 0.4$, $\eta = 0.5$, $\varrho = 0.5$, $p = 0.3$.

Comparing the results in Fig. 6 with Fig. 5 shows three substantial changes: Financial frictions imply that more entrepreneurs' children continue the firm (lower γ_{2E}^*), that wages for workers in the second generation (w_2^*) are lower, and that the market price for firms in the second generation (P_2^*) is lower.

How can we explain these changes? As workers' children now face both a productivity disadvantage (through $\psi < 1$) and higher interest rates, it becomes even less attractive for them to buy a firm. The resulting lower demand for firm licenses implies a lower market-clearing price. As a result, fewer entrepreneurs' children sell their firms. As a consequences, the average entrepreneur in the second generation has a lower ability, and therefore a smaller firm which requires less labor input. Due to the higher financing cost, firms headed by worker's children are also smaller, again lowering labor demand. These two effects lead to substantially lower wages in the model with financial frictions.

Inheritance taxes exacerbate these effects, as they reduce the equity available to individuals in the second generation. Thus, the negative effect of inheritance taxes on utility is higher when interest rates are higher. For workers, this is because taxes are due at the beginning of the period and thus reduce wealth that earns interest. For entrepreneurs, any tax on the inheritance implies higher financing needs for the company. This borrowing becomes more expensive with a higher interest rate.[22]

Proposition 3. *Higher interest rates exacerbate the negative direct effects of all inheritance tax rates ($\tau_c, \tau_{fc}, \tau_{fs}$) on children's utility.*

Proof. See Appendix A.4.

Taxing continued firms at a lower rate than sold firms, i.e., $\tau_{fc} < \tau_{fs}$, increases the share of firms continued by the heir, who face lower interest rates. However, at the same time, the average ability of firm owners may decrease, leading to an adverse effect on output. Consider the following illustrative example: By marginally increasing the tax differential $\tau_{fs} - \tau_{fc}$, a firm owned by an heir with ability γ_l (paying interest rate r_l) will no longer be sold to a worker's descendant with raw ability γ_h (paying interest rate r_h), who operates the firm at effective ability $\psi\gamma_h$. Since the firm owner now differs in both effective productivity and financing cost, the profit-maximizing firm size changes accordingly.

[22] Holtz-Eakin et al. (1994a,b) in addition find that frictions in the form of liquidity constraints for entrepreneurs are more severe for those who do not possess private funds, e.g., from bequests received.

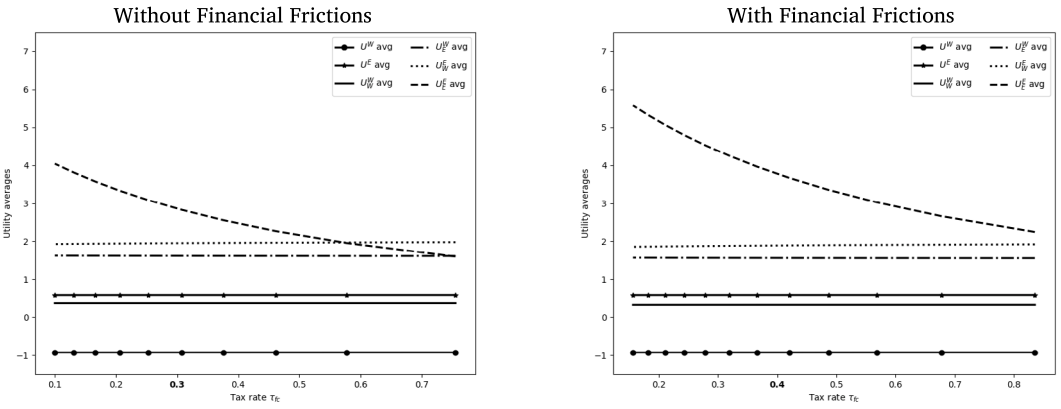

Fig. 7. Utility averages by group.
Note: Tax revenue is kept constant, with $\tau_{fc} = \tau_c = \tau_{fs} = 0.4$ as starting point. Parameter values for the Pareto distribution are $\epsilon = 12$ and $\underline{\gamma} = 1$. Parameters in the profit function are set to $\alpha = 0.4, \beta = 0.45$, $\delta = 0.1$, $\psi = 1$. The license price is $P_1 = 5$. Parameters in the utility functions are $\theta = 0.4, \eta = 0.5, \rho = 0.5$, and $p = 0.3$. In the left panel (without financial frictions), $r = 0.02$, in the right panel (with financial frictions), $r_l = 0.02$ and $r_h = 0.03$.

The intervention increases total income for the firm's owner and employees, i.e.,

$$\pi^*\left(\gamma_l, r_l\right) + w_2 L^*(\gamma_l, r_l) > \pi^*\left(\psi\gamma_h, r_h\right) + w_2 L^*(\psi\gamma_h, r_h), \tag{16}$$

if

$$\frac{\gamma_l}{\gamma_h} < \psi \cdot \left(\frac{r_l + \delta}{r_h + \delta}\right)^{\beta}. \tag{17}$$

This condition shows that a lower-ability heir can be a more efficient firm operator than a higher-ability buyer if the financing advantage is strong enough and the buyer suffers a productivity loss due to $\psi < 1$. As ψ decreases, the buyer's effective ability falls, making it more likely that the heir — despite having lower raw ability — achieves higher overall output and profits. Thus, the presence of both financial and productivity frictions strengthens the case for preferential tax treatment of continued firms, as these frictions jointly imply that firm transfers may involve efficiency losses.

These considerations provide an additional efficiency-based rationale for differentiating inheritance tax rates: When heirs face lower financing costs than outside buyers, allocating firms to heirs can lead to higher firm-level profits and lower financing distortions. Preferential tax treatment for continued firms can thus correct an otherwise inefficient allocation caused by asymmetric credit conditions. As shown in Eq. (17), the desirability of such tax differentiation depends on both the ability distribution and the interest rate spread. In parameter regions where financial frictions are strong, this mechanism can outweigh the cost of reduced sorting, supporting preferential treatment on efficiency grounds.

5.2. Welfare effects

To evaluate the welfare implications of preferential inheritance tax treatment, we now simulate a series of equal-yield tax reforms. In each case, we fix the tax rate on sold firms (τ_{fs}) and the cash bequest tax (τ_c) at different values, and endogenously determine the tax rate on continued firms (τ_{fc}) such that government revenue remains constant. Keeping revenues fixed allows us to isolate the structural effects of inheritance tax differentiation, removing any level effects due to changes in total tax revenue. Appendix A.5 shows the implied tax rates on continued firms for each simulation point. As only a small share of individuals become entrepreneurs (and an even smaller share continues the firm) the revenue impact of τ_{fc} is limited. Consequently, small changes in τ_c and τ_{fs} require large adjustments in τ_{fc} to keep government revenue constant.

We start by analyzing the effects of inheritance taxation on the average utility of individuals belonging to the different groups (noting that inheritance taxation also affects the size of the groups). Afterwards, we turn to the aggregate welfare effects.

Fig. 7 depicts the average utility for all groups in the first and second generation as a function of the tax rate on continued firms. The left panel shows the main model, the right panel the extended model with financial frictions.[23]

First, consider the utility of individuals in the first generation in the model without financial frictions (left panel). A favorable tax treatment of continued firms increases the utility of entrepreneurs in the first generation (U^E). On average, entrepreneurs have

[23] To simplify the presentation and enhance comparability, we do not include productivity frictions in these simulations, but set $\psi = 1$. As shown in Section 4.3, the effects of $\psi < 1$ are qualitatively similar to those of financial frictions and primarily affect sorting in the second generation. For tractability and clarity, we thus focus here on financial frictions as the key source of heterogeneity.

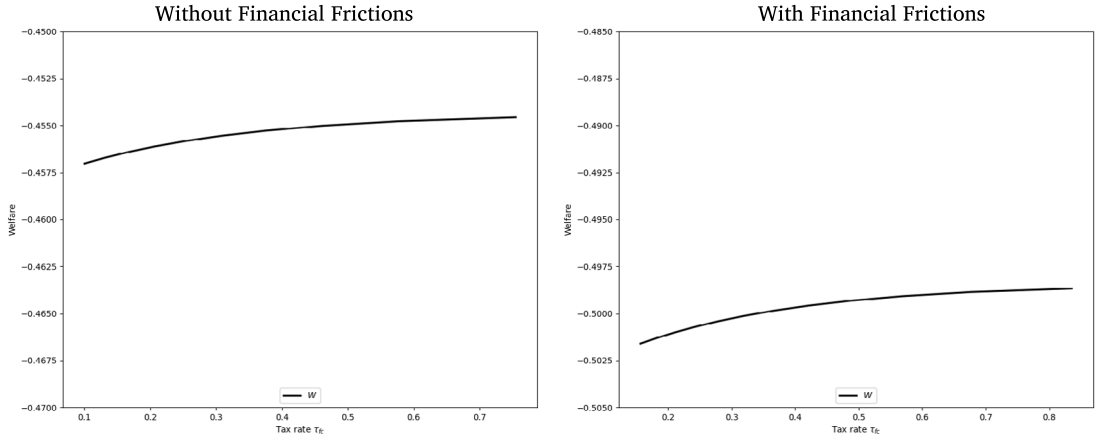

Fig. 8. Aggregate welfare under equal-yield tax reforms.
Note: Tax revenue is kept constant, with $\tau_{fc} = \tau_c = \tau_{fs} = 0.4$ as starting point. Parameters for the Pareto distribution are $\epsilon = 12$ and $\underline{\gamma} = 1$. The profit function uses $\alpha = 0.4$, $\beta = 0.45$, $\delta = 0.1$, and $\psi = 1$. The license price is $P_1 = 5$. Utility parameters are $\theta = 0.4$, $\eta = 0.5$, $\rho = 0.5$, and $p = 0.3$. In the left panel, $r = 0.02$ (no financial frictions); in the right panel, $r_l = 0.02$ and $r_h = 0.03$ (financial frictions).

a higher utility than workers—a return to their higher ability. They anticipate the tax, and it negatively affects their utility via the capitalistic bequest motives.[24] The tax on continued firms does not affect workers in the first generation (U^W) directly. However, a preferential tax treatment implies that more individuals become entrepreneurs, and the higher number of firms increases labor demand and thus wages. Fig. 7 shows that this effect is small, however.

Let us now turn to workers' children. Those who also become workers (U_W^W) are not directly affected by a preferential tax treatment of firms, but only via the — comparatively small — labor market effects and lower transfers. This group has the lowest utility in the second generation, as both parent and child have low ability draws. The workers' children with high ability draws become entrepreneurs (U_E^W). The effect of the favorable tax treatment on their utility is also small, it arises because the tax rate affects the license price.

The advantageous (or disadvantageous) treatment of continued firms directly impacts those children of entrepreneurs who continue the firm. Their utility (U_E^E) is strongly decreasing in the tax rate τ_{fc}. In contrast, entrepreneurs' children that become workers (U_W^E) have a higher utility on average when there is a higher tax on continued firms. With high taxes on continued firms, even those inheriting relatively large firms now choose to sell the firm. Thus, this group now has a higher average ability.

Turning to the simulation with financial frictions (right panel), it becomes clear that the overall pattern remains very similar. Worker's children who become entrepreneurs face higher interest rates and thus have lower utility. The simulation shows that this effect is small, however. In contrast, entrepreneurs' children who also become entrepreneurs have a higher utility (U_E^E) than in the absence of financial frictions. As seen in Section 5.1, as fewer workers' children purchase a firm, the average firm has a less-able owner, and thus total labor demand is lower. Wages fall, benefiting entrepreneurs. With financial frictions, entrepreneurs' children have a higher utility (even though also lower-ability heirs continue the firm).

Should the government differentiate inheritance tax rates between continued and sold firms? To explore this question further, we simulate total welfare in our model economy under a series of equal-yield tax reforms. We use a simple utilitarian social welfare function with equal weights, summing across the utilities of all individuals in both generations. Fig. 8 reports the results for the model without financial frictions (left panel) and with financial frictions (right panel). In both simulations, inheritance taxes are adjusted only to reallocate the tax burden, keeping overall inheritance tax revenue constant.

Across both panels, we find that aggregate welfare increases as the tax rate on continued firms becomes less favorable, i.e., as τ_{fc} rises. This implies that — holding revenue constant — a preferential tax treatment for continued firms is welfare-reducing.

With financial frictions (right panel), the level of aggregate welfare is lower overall, consistent with the reduced efficiency from credit constraints. However, the pattern of welfare gains from reducing tax differentiation persists. Even though financial frictions introduce an efficiency argument in favor of keeping firms in family hands, the broader misallocation of talent still dominates: continuing firms with lower-ability heirs remains distortionary at the margin.[25]

These results are naturally sensitive to the welfare criterion and to the relative weights placed on individuals in different groups.[26] In general, entrepreneurs benefit from a beneficial tax treatment on continued firms. The tax advantage for continued firms also lowers total financing costs. On the other hand, differentiating tax rates creates distortions in the labor market and the market for

[24] In contrast, the tax rate on cash bequests τ_c affects utility via the joy-of-giving motive.

[25] When varying the tax rate on continued firms while keeping the other tax rates constant (i.e., varying tax revenue), the Pigouvian argument against inheritance taxes dominates and lower taxes on continued firms become favorable.

[26] See, e.g., Fleurbaey et al. (2022) on how different welfare weights yield very different tax prescriptions for accidental bequests.

firms. Although the simulations show that these distortions are small on an individual level, they apply to the whole population and can thus entail substantial welfare losses. Redistributive arguments also tend to speak in favor of the less preferential (or even a disadvantageous) treatment of continued firms, as the richest individuals are the most likely to bear the tax.

5.3. Correlated abilities across generations

Our baseline model assumes that managerial ability is uncorrelated across generations. While this simplifies the analysis and ensures analytical tractability, it is admittedly a strong assumption. In real-world settings, there is some degree of intergenerational correlation in entrepreneurial or managerial talent, due to both genetic and environmental factors.

If we relaxed this assumption and allowed for positively correlated abilities across generations, several mechanisms in the model would change. First, firm founders would have a more precise expectation of their child's ability. In particular, if a parent knows they have high managerial ability, they would consider it more likely that their child will also have high ability. As a result, the expected probability p that the child continues the firm would increase with the founder's own ability. This, in turn, would strengthen the incentive to found a firm due to the founder's capitalistic bequest motive. Thus, we would expect more entry and higher equilibrium wages.

Second, with a positive correlation in abilities, preferential tax treatment of continued firms may lead to better sorting in equilibrium. That is, if high-ability parents are more likely to have high-ability children, then tax incentives induce firm continuation more often in dynasties with above-average ability. This would mitigate one of the key efficiency concerns in our model—namely, that low-ability heirs continue firms simply due to tax reasons. As long as the correlation is not perfect, however, some misallocation remains: there will still be cases where an heir continues a firm despite having lower ability than potential buyers.

Third, introducing correlation in abilities would likely increase wealth and ability concentration across generations. If high-ability entrepreneurs are more likely to produce high-ability heirs, and these heirs are also more likely to inherit and continue large firms, then the joint distribution of ability and inherited wealth becomes more unequal. In turn, this strengthens the redistributive motive for inheritance taxation. Compared to the baseline, the Pigouvian argument for tax subsidies to continued firms becomes weaker, and the optimal tax rate on continued firms would likely be higher (similar to Krug, 2022).

Overall, while relaxing the assumption of uncorrelated abilities would require a more complex model, the qualitative implications of our main results remain robust as long as the correlation is imperfect. Preferential treatment of continued firms still leads to some inefficiency through distorted occupational choices, although this distortion likely becomes smaller. However, the increase in inequality across generations would strengthen the case for taxing inherited firms, including those that remain in the family.

6. Conclusion

Most OECD countries with an inheritance or estate tax treat continued family firms preferentially. This feature of tax legislation has significant redistributive and efficiency effects.

We show that favorable treatment of continued firms encourages entrepreneurship but also leads to less-suited heirs continuing firms at the cost of better-suited descendants of workers. The favorable tax treatment can be interpreted as an additional tax on firms sold by the heir. The heir, however, does not bear the entire tax burden but instead passes part of it onto the descendants of workers via a higher price for sold firms. In consequence, not only direct effects of taxation on individuals' utility levels exist, but changes in the outcomes of the labor market and the market for firms also add indirect effects.

Moreover, we show that financial frictions change the redistributive effects of inheritance taxation and add an efficiency aspect. Preferential treatment can increase efficiency as firms remain in the hands of those with lower financing costs. It would, however, decrease equality of opportunity, as it makes it more difficult to acquire a firm.

Whether encouraging heirs to continue inherited firms is desirable may also depend on differences between family firms and non-family firms that are beyond the scope of our model. Research documents that family firms cope differently with crises (Ding et al., 2021; Lins et al., 2013) and uncertain political environments (Amore and Minichilli, 2018) than non-family firms. Moreover, family firms offer higher job security to their employees, which comes at the cost of lower compensation (Ellul et al., 2018; Bjuggren, 2015; Bassanini et al., 2013). Preferential rates also offer tax avoidance opportunities (Escobar et al., 2023).

Declaration of competing interest

The authors declare that there is no conflict of interest regarding the publication of this paper. No financial or personal relationships have influenced the outcomes of this work.

Appendix A. Supplementary data

Supplementary material related to this article can be found online at https://doi.org/10.1016/j.jebo.2025.107238.

Data availability

No data was used for the research described in the article.

References

Adams, R., Keloharju, M., Knüpfer, S., 2018. Are CEOs Born leaders? Lessons from traits of a million individuals. J. Financ. Econ. 130 (2), 392–408.

Albers, T., Bartels, C., Schularick, M., 2025. Wealth and its distribution in Germany, 1895-2018. J. European Econ. Assoc. forthcoming.

Alvaredo, F., Garbinti, B., Piketty, T., 2017. On the share of inheritance in aggregate wealth: Europe and the USA, 1900–2010. Economica 84 (334), 239–260.

Amore, M.D., Minichilli, A., 2018. Local Political Uncertainty, Family Control, and Investment Behavior. J. Financ. Quant. Anal. 53 (4), 1781–1804.

Anderson, R.C., Mansi, S.A., Reeb, D.M., 2003. Founding family ownership and the agency cost of debt. J. Financ. Econ. 68 (2), 263–285.

Andreoni, J., 1990. Impure altruism and donations to public goods: A theory of warm-glow giving. Econ. J. 100 (401), 464–477,

Axtell, R.L., 2001. Zipf distribution of U.S. firm sizes. Science 293 (5536), 1818–1820,

Bassanini, A., Breda, T., Caroli, E., Rebérioux, A., 2013. Working in family firms: Paid less but more secure? Evidence from french matched employer-employee data. Ind. Labor Relations Rev. 66 (2), 433–466.

Bastani, S., Waldenström, D., 2020. How should capital be taxed? J. Econ. Surv. 34 (4), 812–846.

Bennedsen, M., Nielsen, K.M., Pérez-González, F., Wolfenzon, D., 2007. Inside the family firm: The role of families in succession decisions and performance. Q. J. Econ. 122 (2), 647–691.

Bertrand, M., Schoar, A., 2006. The role of family in family firms. J. Econ. Perspect. 20 (2), 73–96.

Bjuggren, C.M., 2015. Sensitivity to shocks and implicit employment protection in family firms. J. Econ. Behav. Organ. 119, 18–31.

Bloom, N., van Reenen, J., 2007. Measuring and explaining management practices across firms and cuntries. Q. J. Econ. 122 (4), 1351–1408,

Brunetti, M.J., 2006. The estate tax and the demise of the family business. J. Public Econ. 90 (10–11), 1975–1993,

Cremer, H., Pestieau, P., 2011. The tax treatment of intergenerational wealth transfers. CESifo Econ. Stud. 57 (2), 365–401.

Ding, W., Levine, R., Lin, C., Xie, W., 2021. Corporate immunity to the COVID-19 pandemic. J. Financ. Econ. 141 (2), 802–830.

Ellul, A., Pagano, M., Schivardi, F., 2018. Employment and wage insurance within firms: Worldwide evidence. Rev. Financ. Stud. 31 (4), 1298–1340.

Escobar, S., Ohlsson, H., Selin, H., 2023. Giving to the children or the taxman? Lessons from a Swedish inheritance tax loophole. Eur. Econ. Rev. 153, 104382.

Farhi, E., Werning, I., 2010. Progressive estate taxation. Q. J. Econ. 125 (2), 635–673.

Farhi, E., Werning, I., 2013. Estate taxation with altruism heterogeneity. Am. Econ. Rev.: Pap. Proc. 103 (3), 489–495.

Fleurbaey, M., Leroux, M.-L., Pestieau, P., Ponthiere, G., Zuber, S., 2022. Premature deaths, accidental bequests, and fairness. Scand. J. Econ. 124 (3), 709–743.

Grossmann, V., Strulik, H., 2010. Should continued family firms face lower taxes than other estates? J. Public Econ. 94 (1–2), 87–101,

Holtz-Eakin, D., Joulfaian, D., Rosen, H.S., 1994a. Entrepreneurial decisions and liquidity constraints. RAND J. Econ. 25 (2), 334–347.

Holtz-Eakin, D., Joulfaian, D., Rosen, H.S., 1994b. Sticking it out: Entrepreneurial survival and liquidity constraints. J. Political Econ. 102 (1), 53–75.

James, H.S., 1999. Owner as manager, extended horizons and the family firm. Int. J. Econ. Bus. 21 (1), 41–55.

Kopczuk, W., 2013. Incentive effects of inheritances and optimal estate taxation. Am. Econ. Rev.: Pap. Proc. 103 (3), 472–477,

Krug, P., 2022. Optimal estate taxation: More (about) heterogeneity across dynasties. Finanz.: Public Financ. Anal. 78 (4), 470–487, Published online: 17 May 2022.

Kucel, A., Vilalta-Bufi, M., 2016. Entrepreneurial skills and wage employment. Int. J. Manpow. 37 (3), 556–588.

Lins, K.V., Volpin, P., Wagner, H.F., 2013. Does family control matter? International evidence from the 2008–2009 financial crisis. Rev. Financ. Stud. 26 (10), 2583–2619.

OECD, 2021. Inheritance taxation in OECD countries. OECD Publ..

Pérez-González, F., 2006. Inherited control and firm performance. Am. Econ. Rev. 96 (5), 1559–1588.

Piketty, T., Saez, E., 2013. A theory of optimal inheritance taxation. Econometrica 81 (5), 1851–1886.

Smith, M., Zidar, O., Zwick, E., 2023. Top wealth in America: New estimates under heterogeneous returns. Q. J. Econ. 183 (1), 515–573.

Tsoutsoura, M., 2015. The effect of succession taxes on family firm investment: Evidence from a natural experiment. J. Financ. 70 (2), 649–688.

van Binsbergen, J.H., Graham, J.R., Yang, J., 2010. The cost of debt. J. Financ. 65 (6), 2089–2136.

Villalonga, B., Amit, R., 2006. How do family ownership, control and management affect firm value? J. Financ. Econ. 80 (2), 385–417.