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## The Gender (Tax) Gap in Parental Transfers.

## **Evidence from Administrative Inheritance and Gift Tax Data**

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data

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**Abstract** 

This study examines how inheritance and gift tax systems in combination with gendered parental transfer behavior strengthen gender wealth inequalities. Gender differences in transfers can be reproduced if men benefit differently than women from tax exemptions. This might happen when men and women receive different types of assets where only some are taxexempted. To investigate gendered parental transfer behavior and gender differences in tax rates, we draw on German administrative inheritance and gift tax data. Women were less likely than men to receive tax-relevant parental transfers, the value of the transfers were lower, and women and men differed in the asset types they received. Moreover, we identify a gender tax gap of 2% for inheritances and 22% for gifts. Our analyses suggest that men benefit more from tax exemptions on business assets. This study adds the tax system as yet another factor

**Keywords**: wealth, gender inequality, taxation, family, generations, stratification, Germany JEL classification: J16 economics of gender, D64 intergenerational transfers, H220 Taxation and Subsidies: Incidence

implicated in the reproduction of gender wealth inequalities.

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## 1 Introduction

Wealth is key to understanding economic inequality today. It is distributed unequally and increasingly decisive in shaping socio-economic status (Hällsten and Thaning, 2022; Killewald et al., 2017). Moreover, wealth is not only implicated in the reproduction of social stratification—it is also central to our understanding of gender inequality (Deere and Doss, 2006). Ample research has documented that, on average, women own less wealth than men (Ruel and Hauser, 2012; Kukk et al., 2022; Sierminska et al., 2010). Despite an uptick in female labor market attachment in the past decades, women keep earning less than men, and are therefore less likely to accumulate wealth from savings. Yet a growing share of wealth is not generated from savings but received in transfers. In fact, more than half of the total private wealth stock is passed on from generation to generation in the form of inheritances, bequests, and gifts (Alvaredo et al., 2017). Given women's disadvantage in labor market returns, wealth transfers play a more significant role in wealth accumulation for women than for men (Deere and Doss, 2006).

Intergenerational transfers and their taxation are part of a highly contested social and political arena (Beckert, 2004). Countries regulate the rights of testators to allocate their property, the claims of relatives to the deceased's property, and the state's rights to appropriate the property of deceased citizens in the form of taxes. It is here, in the inheritance tax system, where privilege and power are institutionalized. Usually, tax rates and schedules are determined by various personal circumstances and asset characteristics. Notably, the final tax payment is often the result of myriad exemptions in tax law. For instance, some benefit from generous tax exemptions on family business transfers while others do not. Although most modern tax systems are written gender-neutral, tax systems may exhibit *implicit* gender bias, for example, if men and women benefit differently from tax exemptions due to gendered economic behavior (Stotsky, 1996).

Despite the central role of taxes in the political discussion about reducing wealth inequality (Schechtl and Tisch, 2023), tax policy lurks only in the background of sociological studies on wealth and stratification (Spilerman, 2022). This study investigates gender wealth inequalities from the perspective of fiscal policy. We aim to bring together the literature on the gender wealth gap, intergenerational transfers, as well as taxes and gender equity to examine the following question: How does the inheritance and gift tax system in combination with gendered parental transfer behavior shape gender inequalities in wealth? We argue that

modern gift and inheritance tax rules contribute to the gendered distribution of wealth because men tend to receive tax-exempted transfers more than women. For example, most countries treat the transmission of family businesses preferentially—and most business heirs are men.

Why should we care about inheritance and gift taxes' role in gender wealth inequalities? Building on previous literature, we argue that owning wealth means more than simply being better off. Wealth entails several social, economic, and political functions (Fessler and Schürz, 2018a; Spilerman, 2000). Wealth provides security. It can serve as a buffer against adverse income shocks. Wealth can generate income and bring prestige and status. At the top, wealth may buy economic and political influence. The gendered ownership of a society's wealth stock, therefore, does not only affect the well-being of women but also perpetuates a gendered social order (Deere and Doss, 2006). To develop measures for the establishment of more gender equality, we first need to understand the constraints that women face to accumulate wealth. Prior research showed that these constraints are manifold and need to be investigated and tackled individually (Chang, 2010). Among the various obstacles, fiscal policy is a neglected one. Because of the central role of transfers for wealth accumulation, we argue it is vital to study how parents' transfer behavior in interaction with the tax system shapes gender differences in parental transfers. The tax system may ultimately reproduce gender wealth inequality and serve as a guardian of privileged access to status and power.

To empirically study to what extent parental transfers are gendered and to what extent the tax system exhibits an implicit gender bias, we draw on German gift and inheritance tax records that cover the entirety of tax-relevant parental wealth transfers between 2007 and 2020 (N = 511,034). We apply two different methodological approaches. First, we document gender differences in parental transfers and in the effective tax rates. Most importantly, we identify what we call the *gender tax gap* in parental transfers, following the well-established gender pay gap and gender wealth gap. Second, to shed light on the conditions of this gap, we estimate ordinary least square regressions predicting the effective tax rate by characteristics of both the donor and the receiver of the respective transfer.

Our analyses show that women were less likely than men to receive tax-relevant parental transfers, the value of the transfers received by women were lower, and women and men differed in the asset types they received. Regarding taxes, we identified a gender tax gap in inheritances of 2% to the disadvantage of women. Controlling for the percentile rank in the transfer distribution, the absolute difference between women's and men's effective inheritance tax rate was 0.08 percentage points. For gifts, we identified a gender tax gap of 22%. In absolute

terms, women paid on average 0.55 percentage points more than men on received gifts of similar value. Our regression analyses and descriptives statistics about gendered parental transfers provide insights into explanations of these gaps. Gender differences in the asset types of transfers seem to partly explain the gender gaps in the effective gift tax rate. Furthermore, we show that the gender tax gap in parental transfers increased along the transfer distribution and was larger if the donor was male.

This study's main contribution is introducing the tax system as another factor contributing to gender wealth inequalities. Most prior research focused on labor market characteristics such as earnings or occupational classes and family processes such as intergenerational transfers to explain the gender wealth gap (Schneebaum et al., 2018; Sierminska et al., 2010; Tisch and Gutfleisch, 2022; Ruel and Hauser, 2012; Waitkus and Minkus, 2021). Only recently, scholars have started to study the role of legal professionals in the production of gender wealth inequalities (Bessière, 2022; Bessière and Gollac, 2023). We complement this literature by highlighting that systematically gendered individual behaviors create implicit gender bias in taxation, reproducing gender wealth inequalities.

## 2 Wealth, Intergenerational Transfers, and Gender

In the following, we highlight how intergenerational transfers increasingly determine wealth levels, socio-economic status, and wealth functions. We then argue that intergenerational transfers are decisive for understanding gender wealth inequality and gendered access to security, prestige, and power.

#### 2.1 Intergenerational Transfers

Wealth transfers are distributed even more unequally than total wealth (Nolan et al., 2021). Across several OECD countries, low-income households are persistently less likely to receive an inheritance, and if they do, the amount received is less (Morelli et al., 2021). Fessler and Schürz (2018b) estimate that only one-third of households receive an inheritance. At the same time, receiving an inheritance raises a household's wealth position by about 14 percentiles of the national net wealth distribution. Therefore, the easiest way to richness is simple: become an heir (Korom, 2018; Semyonov and Lewin-Epstein, 2013).

Inherited wealth as a fraction of total wealth has increased over the last decades. That is, a rapidly growing share of the wealth stock is passed from generation to generation, leading to an increasing detachment of individual labor effort and wealth possessions (Alvaredo et al., 2017; Piketty and Zucman, 2015). It is estimated that inherited wealth accounts for between 50

and 60 percent of the entire private wealth stock in affluent countries, such as France, Germany, the United Kingdom, and the United States (Alvaredo et al., 2017).

Because of their increasing relevance in determining wealth positions, intergenerational transfers are vital in shaping individual access to wealth functions. Who gets to enjoy the economic security of having a wealth buffer in the event of income loss, who shrugs off skyrocketing rentals by owning their home, who can obtain the social status that comes with expensive makes and goods, and ultimately, who can yield influence in economic and political decision-making? Each aspect becomes a function of not only who earns and saves income but who receives substantive *transfers* of wealth.

We follow the argumentation of Bessière and Gollac (2023) that the stratifying power of intergenerational transfers is not only implicated in the vertical ordering of individuals. It also entails an essential dimension of horizontal, and ultimately intersectional, disadvantage in life chances: wealth transfers are key in understanding gender wealth inequality.

## 2.2 On the Reproduction of the Gender Wealth Gap

Women own less wealth than men. The gender gap in wealth has been convincingly documented across many countries (Deere and Doss, 2006; Frémeaux and Leturcq, 2020; Ruel and Hauser, 2012; Sierminska et al., 2010; Bessière, 2022). It is worth noting, however, that just as wealth in general, gender wealth gaps differ along the wealth distribution. That is, the average gender difference in wealth is primarily determined by gender wealth inequality at the top of the distribution (Schneebaum et al., 2018).

What drives the gender wealth gap? Previous research pointed to gender differences in labor market attachment: Women earn less than men. Women are less likely to achieve managerial positions (Christofides et al., 2013), women are particularly underrepresented in top income positions (Yavorsky et al., 2019), women are more likely to reduce paid labor after childbirth (Musick et al., 2020). In short: sticky floors and glass ceilings prevent women from achieving similar career progress compared to their male pendants (Bishu and Alkadry, 2017). Thus, women will be less able to accumulate wealth from savings (Ruel and Hauser, 2012). Yet this focus on gendered labor market returns masks the significance of wealth transfers for the gender wealth gap. Given the female disadvantage in accumulating wealth from labor earnings, wealth transfers are often seen as particularly decisive for women's wealth attainment (Deere and Doss, 2006).

Prior research showed that gifts are more unequally distributed among women and men than inheritances (Light and McGarry, 2004; Dunn and Phillips, 1997). McGarry (2016) and

Loxton (2019) find that although daughters and sons tend to receive similar total amounts, daughters receive financial gifts at higher rates in the US. This, however, holds only for unmarried daughters. In contrast, daughters in France, Germany, and Korea receive fewer financial transfers and smaller amounts than sons (Wong, 2013; Leopold and Schneider, 2011; Deindl and Isengard, 2011; Bessière and Gollac, 2023). Furthermore, Leopold and Schneider (2011) for Germany and Bessière and Gollac (2023) for France show that women and men receive different asset types.

If the importance of inherited wealth for wealth accumulation is increasing and women are less likely to accrue wealth from surplus income, then intergenerational wealth transfers are pivotal in determining gendered access to wealth especially at the top of the distribution. Yet it would be foolish to assume the political arena—legal requirements or tax regulations—not to be implicated in shaping gendered wealth transfers. Ultimately, the result of political and economic powers held by top-wealth holders might manifest in the hidden, cryptic rules of intergenerational transmission of wealth. While explicit regulation against women's succession to the top is highly uncommon nowadays, implicit patterns might still serve to uphold a particular gendered order (Bessière and Gollac, 2023).

Bessière and Gollac (2023) illustrate impressively how notaries and lawyers contribute to the gender wealth gap by applying *reversed accounting*. That is, instead of calculating the rightful share for each heir of an estate first and only then divide the assets and calculate potential compensations, notaries make the structuring assets such as a business or a family home the keystone of all calculations: First it is decided who will receive the structuring assets and then acceptable compensations are negotiated often to the disadvantage of women (Bessière and Gollac, 2023, p. 114). We broadly follow their approach of studying the law in practice and try to shed light on the state's role—embodied in the taxation of intergenerational transfers—in reproducing gendered access to wealth. We do so by arguing that the combination of gendered parental transfer behavior and the tax system ultimately is a guardian of the gendered gateway to security, status, and power.

## 3 Taxation

### 3.1 Taxation and Gender Equity

When studying gender and the state, feminist research has focused on the role of social policies contributing to the social reproduction of gender inequality (Orloff, 1996). One often neglected institutional factor in the debate about gender inequality is fiscal policy, including taxation

(Grown, 2010). Tax systems reflect a plethora of decisions that are based on economic constraints, political power, fairness considerations, and ideologies, including gender ideology. Tax systems may exhibit both explicit and implicit gender bias (Stotsky, 1996). Explicit gender bias arises if tax law treats men and women differently. Implicit gender bias occurs if tax law has different implications for women and men because of gendered social arrangements and economic behavior (Stotsky, 1996). Both forms of biases might be exhibited in direct (e.g., income, wealth, estate or inheritance taxes) as well as indirect taxes (e.g., value-added taxes or selected excises).

A tax system might exhibit explicit gender bias if it specifies specific tax-free allowances depending on the sex of the taxpayer. For example, until 1984, a married man was entitled to a larger tax-free allowance than a married woman in the Netherlands (Stotsky, 1996). Although most European tax systems have removed these explicit gender biases, some tax systems with this bias still exist outside Europe. For example, in Morocco, married men are entitled to take tax-free allowances for dependent spouses, but married women must prove that they are the heads of their households to receive these allowances (Grown, 2010). The explicitly different treatment of women and men was often used to incentivize a specific behavior. For example, until 2012, the Indian tax system exhibits explicit bias in favor of women to incentivize women's labor market participation. Women could receive a higher exemption for income tax than men (Coelho et al., 2022).

More often, tax systems exhibit implicit gender bias. For example, value-added taxes may exhibit implicit gender bias if certain goods are exempted or taxed at a reduced rate. Higher tax rates on alcohol and tobacco, for example, implicitly discriminate against men who disproportionately consume these goods (Grown, 2010). Thus, implicit biases may result from gender differences in consumption patterns reflecting specific gendered behavior.

Whereas explicit biases can be identified easily by studying tax law, implicit gender biases are more difficult to detect and require statistical analyses of tax incidences. Prior literature focused on gender biases in income taxes and whether joint filing versus individual filing systems produces inequality between family types and genders (Schwarz, 2012; Schechtl, 2021a). Studies on gender bias in inheritance taxation, however, are lacking. Similarly to gender bias in the value-added taxes induced by gender differences in consumption behavior, inheritance and gift tax systems might exhibit implicit gender bias if women and men receive different types of assets subject to different tax exemptions. To better understand whereby

implicit gender biases could occur, we summarize the general design elements of inheritance taxes in the following.

#### 3.2 Taxation of Intergenerational Wealth Transfers

The inheritance tax system embodies social, economic, and historical ideas of how the intergenerational transmission of wealth in society should take place (Beckert, 2004). Naturally, the scope and design of tax systems are always an arena of notorious political debate and a core battleground of interest groups and parties (Campbell, 1993). Yet the taxation of intergenerational wealth transfers might be a particularly contested domain because of the high stakes implicated for wealthy families (Beckert, 2022). Ultimately, this is where the transmission of status and influence to the offspring—and the family's legacy—is secured.

Wealth transfer taxes are genuinely difficult to understand. Usually, tax rates and schedules are determined by various personal circumstances and asset characteristics. Most importantly, however, the final tax payment is often the result of myriad exemptions in tax law. Although wealth is arguably transferred easier to the next generation when compared to education or occupation, it is not trivial to navigate the pitfalls and loopholes of the tax code when transferring wealth. Those who know—or have access to knowledge networks such as lawyers and family offices—about specific clauses entrenched in the tax system will most likely benefit (Tait, 2019). Previous research on navigating asset separation in marital dissolution processes suggests that access to such tacit knowledge is gendered (Bessière, 2022).

Yet not all wealth transfers are treated equally. In many countries, it makes a difference if wealth is transferred upon death (i.e., as an inheritance) or during a lifetime (i.e., as a gift) (OECD, 2021). Usually, countries permit some gift annuity that can be transferred without much scrutiny. On the other hand, inheritance, and bequests are often regulated more thoroughly, with most systems trying to ensure a minimum share for every offspring and a complete ascertainment of assets and goods. A key challenge for wealthy testators is thus the correct timing of wealth transmission.

But time is not the only dimension to keep in mind. Not all *transfers* are treated equally because not all *wealth* is created equally. Wealth can take many forms, such as cash, real estate, land, or businesses. And different asset types are treated differently by the tax authorities. To be clear, the monetary amount matters as lower transfers are usually exempted, and tax rates increase progressively (Drometer et al., 2018; Schechtl, 2021b). Moreover, because taxes are higher on distant kinship and non-relatives, the relationship between the testator and beneficiary is also implicated. But asset types of gifts and inheritances even matter everything else equal.

The family home is commonly exempted from wealth transfer taxes. More specifically, many countries allow the parents' home to be transferred to the children without accruing tax—or at least have an additional exempted amount for such purpose (OECD, 2021). For instance, France, Germany, Spain, and the United Kingdom all have some preferential treatment of the primary residence (Causa et al., 2020). Lower or inexistent taxes on transferring the family home are also supported by public opinion (Gross et al., 2017). Yet owner-occupied housing is not the only asset category that can be transmitted (almost) tax-free to the next generation.

Business assets benefit from generous exemptions, too. Family firms are often treated preferentially because they employ workers and, thus, contribute to the overall health of the economy (Henrekson and Waldenström, 2016). A key argumentation here is that firms might have to lay off employees if they face a substantive tax burden when passing the ownership to the successor. Again, family-owned businesses are thus largely exempt or treated preferentially in almost all major developed economies. Typically, heirs must hold ownership for a minimum period after succession and maintain the workforce to be exempted from inheritance tax (OECD, 2021).

Not all wealth transfers are treated equally—but men and women are treated equally if they receive similar wealth transfers. So why would asset types and wealth transfer taxes matter for gender inequality, intergenerational transfers, and the gender wealth gap? We argue that the beneficial tax treatment in the transmission of assets implicitly favors men because they are more likely to receive tax-exempted assets. Prior research showed that daughters are less likely than sons to be chosen as heirs of the family business (Wang, 2010). We, therefore, expect differences in the asset types daughters and sons receive. If women receive cash while men receive tax-free asset types, the tax system would exhibit implicit gender bias and, thus, would increase the gender wealth gap even if men and women receive similar amounts of total wealth.

## 4 Data and Method

#### 4.1 Data

To examine gendered parental transfer behavior and gender differences in taxes on these transfers, we draw on administrative inheritance and gift tax data in Germany. The advantage of administrative tax data is that they cover all tax-relevant intergenerational transfers (inter vivos gifts and inheritances) between 2007 and 2020. Only official tax data provide the opportunity to examine gendered tax incidences directly.

The data cover not only the amount (in Euros) and the type of transfers (inheritance versus gift) but also the amount of transfer separately for each asset type (real estate, land, business, and other assets), the amount of tax exemptions, the amount of taxes, and sociodemographic characteristics of both the donor and the receiver (e.g., gender, birth date, family relationship between donor and receiver). The tax authorities need the information on the amount of wealth transfers separately for each asset type because the German tax system - just like in many other countries - specifies both personal tax exemptions and factual tax exemptions. The former applies to the taxable person. For example, the German inheritance tax system determines that individuals may receive every ten years 400,000 Euros from each parent tax-free, regardless of whether it is received as inter vivos transfer or inheritance. The factual tax exemption applies to the taxable object such as a family business, forest land, furniture, or the family home. The German inheritance and gift tax system offers generous tax exemptions for business assets such as agriculture and forestry and shares in partnerships and corporations (Bach and Mertz, 2016).

Something to consider is that these administrative data do not inform about the absolute number and volume of transfers because only those transfers are assessed, which the tax authorities expect to be tax-relevant. Transfers below the tax allowances are checked by the tax authorities but not necessarily assessed. Combining a national representative survey (SOEP) and the administrative data, Bach et al. (2014) estimate that the administrative data cover 31% of all transfers accounting for 73% of the total transferred wealth in 2010. This highlights the skewed distribution of transfers.

Because we are interested in gender differences in taxes on intergenerational transfers and tax exemptions vary by the relationship status between donor and receiver, we restrict our sample to parental transfers. Between 2007 and 2020, the tax authorities filed 513,130 cases of transfers from parents to their children. Due to some missing values on the value of actual assessed taxes, our sample decreases to 511,034 parental transfers. From those, 271,087 were gifts and 239,947 were inheritances.

#### 4.2 Variables

We use the value of the transfers before taxes to examine gender differences in the average and total amount of parental transfers. To measure gender differences in taxes on parental transfers, we calculated the effective tax rate for each transfer by dividing the actual assessed tax by the transfer value before any deduction. We further use variables indicating the value of the

different asset types making up the transfer. We differentiate between business, land, real estate, financial wealth, and other wealth.

For most descriptive analyses, we pool the years 2007 to 2020 but use the assessment year as control variable in the regressions. Although socio-demographic variables are sparse in the tax data, we can use the gender of the donor and the gender of the receiver (female or male), the donor's age and the receiver's age, and a dummy variable indicating if the receiver lives in the eastern part of Germany.

### 4.3 Analytical approach

This study aims at advancing the explanations of gender wealth inequalities by introducing the tax system as yet another factor. Empirically, we aim to examine gender differences in parental transfers and to identify the gender tax gap in parental transfers in Germany. Although we focus on Germany, we argue that similar patterns can be expected in other countries as tax exemptions such as business exemptions are common across the OECD (OECD, 2021).

Our analytical approach comprises three steps. First, we descriptively explore gender differences in parental transfers. We not only look at gender differences at the mean but also explore gender differences in the number of transfers and the total sum of tax-relevant transfers. Furthermore, we examine if women and men receive different types of assets. When interpreting the results, it is important to consider that the data cover only the top of the parental wealth distribution, namely the tax-relevant transfers.

Second, we identify gender gaps in transfer taxes by comparing the effective tax rate of women and men. We do this at the mean but also along the parental transfer distribution. The effective tax rate measures the average rate at which wealth transfers are taxed. We further examine to what extent the inheritance and gift taxes amplifies gender differences in transfers.

Third, we use multi-variable ordinary least squares regressions to analyze how individual characteristics relate to the average effective tax rate. Here we aim to better understand the gender tax gap. We differentiate between inheritance tax and gift tax in all analyses.

## 5 Results

## 5.1 Gender differences in parental transfers

To better understand gender differences in parental transfers, Table 1 depicts the average amount, the number of transfers, and the total sum of transfers pooled over the years 2007 to

2020, separately for gifts and inheritances. The last two columns represent measures of gender differences. We show both the ratio (calculated as male divided by female) as well as the gap (difference between female and male divided by male). On average the value of gifts women received is 10% smaller than the value of gifts men received. The average gender inheritance gap is smaller and amounts to 7%. Importantly, women did not only receive transfers with smaller amounts but were also less likely to receive a tax-relevant transfer at all. Men received 1.4 times as many gifts as women and 1.1 times as many inheritances as women. Thus, gender differences were less pronounced for inheritances compared to gifts. Looking at the total sum, women received 37% less in tax-relevant gifts and 13% less in tax-relevant inheritances over the years 2007 to 2020.

Table 1 Gender differences in tax relevant parental transfers, 2007-2020

	Statistic	Female	Male	Ratio (male/female)	Gap (((female-male)/male)*100)
Gift	mean	1004463.98	1115012.93	1.11	-9.91
Inheritance	mean	772266.90	828004.81	1.07	-6.73
Gift	N	112547.00	160483.00	1.43	-29.87
Inheritance	N	115639.00	124461.00	1.08	-7.09
Gift	sum	117310465326.59	186390339335.89	1.59	-37.06
Inheritance	sum	88705896524.37	102293945810.52	1.15	-13.28

Notes: Inheritance and gift tax statistics, Research Data Centres of the Statistical Offices of the Federation and the Federal States, 2007-2020.

We now turn to gender differences in the type of assets women and men received. Figure 1 depicts the gender ratio in the number of transfers which include specific asset types. In addition, Appendix 1 and Appendix 2 show gender differences in the mean value and total sum for each asset type for gifts and inheritances respectively. Women and men differed in the asset type they received. For gifts, men were especially more likely to receive forest/land (ratio = 2.76), business wealth (ratio = 2.11), financial wealth (ratio = 2.11) compared to women. Gender differences were less pronounced for real estate and other wealth (ratio = 1.32 and ratio = 1.35). For inheritances, gender differences are much smaller for all assets types. Nevertheless, women in particularly received less forest/land, business wealth, and financial wealth. Those are the asset types which benefit from generous tax exemptions.

**Business** Real estate Financial wealth Gender ratio in number of transfers (male/female) 2.5 • 2.11 2.11 2.0 1.5 1.32 1.17 1.13 1.09 inheritance Forrest / Land Other 2.78 2.5 2.0 1.35 1.12 ▲ 1.08 1.0 inheritance gift inheritance

Figure 1 Gender ratios in number of parental transfers including specific wealth components (2007-2020)

Notes: Inheritance and gift tax statistics, Research Data Centres of the Statistical Offices of the Federation and the Federal States, 2007-2020.

## 5.2 Gender tax gaps in parental transfers

We now turn to examining gender differences in the effective tax rate. Table 2 shows that on average women paid both higher taxes on inheritances and on gifts. For gifts, the tax rates are smaller than for inheritances. Women paid on average 3,02% on gifts and 4.42% on inheritances, whereas men paid 2.49% on gifts and 4.35% on inheritances. In other words, the gender tax gap in gifts amounts to 22% and the gender tax gap in inheritances amounts to 2%. But does this gender tax gap vary along the transfer distribution? In other words, do women pay more taxes than men at similar transfer levels?

Table 2 Gender differences in effective tax rates

	Female	Male	Ratio (male/female)	Gap (((female-male)/male)*100)
Average effective tax rate, gifts	3.02	2.49	0.82	21.53
Average effective tax rate, inheritance	4.42	4.35	0.98	1.69

Notes: Inheritance and gift tax statistics, Research Data Centres of the Statistical Offices of the Federation and the Federal States, 2007-2020.

To answer these questions, Figure 2 and Figure 3 depict the local polynomial smooth of the effective tax rate on the distribution of tax-relevant parental inheritances and gifts by the gender of the receiver, respectively. Overall, the inheritance tax distribution reveals a clear progressive pattern. That is, higher-valued inheritances get taxed at higher rates. The picture changes when looking at gift taxes which indicate a wave-like distribution. Generally, inheritance taxes are higher than gift taxes across the entire distribution.

Figure 2 shows hardly any gender differences in the effective tax rate for inheritances, except at the top of the inheritance distribution. Women in the upper 20% of the inheritance distribution have a statistically significant higher effective inheritance tax rate than men. However, if we look at gifts (Figure 3), we identify a substantial gender gap in the effective gift tax rate along the whole parental gift distribution. That is, at each percentile of the gift distribution women pay on average more taxes than men. This gap varies in size along the distribution.

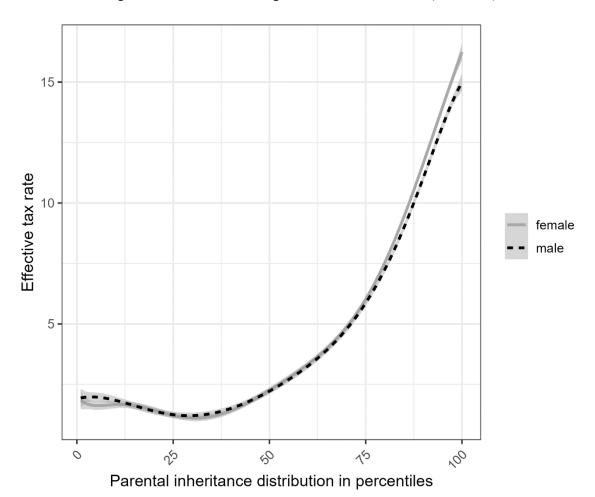


Figure 2 Effective tax rate along the inheritance distribution (2007-2020)

Notes: Inheritance and gift tax statistics, Research Data Centres of the Statistical Offices of the Federation and the Federal States, 2007-2020. Local polynomial smooth plot (polynomial degree=8). 95% confidence interval.

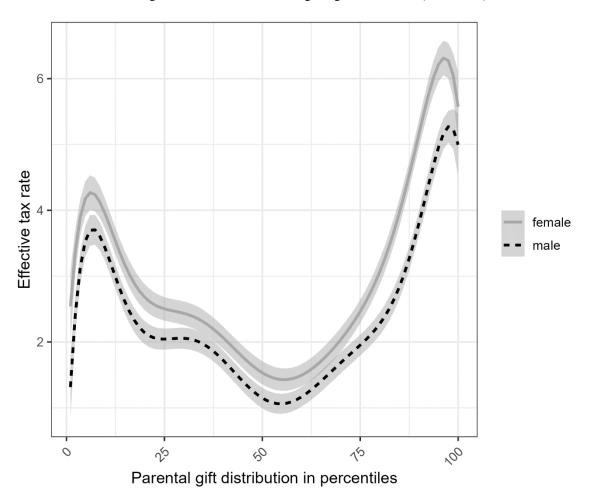


Figure 3 Effective tax rate along the gift distribution (2007-2020)

Notes: Inheritance and gift tax statistics, Research Data Centres of the Statistical Offices of the Federation and the Federal States, 2007-2020. Local polynomial smooth plot (polynomial degree=8). 95% confidence interval.

To understand to what extent the inheritance tax system contributes to a widening of the gender transfer gap, we compare gender differences in the sums of transfers before and after taxes (Table 3). The gap increases slightly for both inheritances and gifts. The gender gap in the total amount of tax-relevant gifts increases from 37.06% to 37.31%. The gender gap in the total amount of tax-relevant inheritances increases from 13.28% to 13.39%. For a more intuitive interpretation, let us look at one example. At the eighth decile, women and men received on average about 500.000 Euros in gifts. The average gift tax rate for women at the eight decile was 2,65% and for men 2,00%. Therefore, women paid on average about 13.250 Euros, while men paid only 10.000 Euros. At this decile, the tax system increased the gender transfer gap by 3.250 Euros or about one tenth of the estimated gender wealth gap in Germany (Sierminska et al., 2010).

Table 3 Gender differences before and after tax, 2007-2020

	Female	Male	Ratio (male/female)	Gap (((female-male)/male)*100)
Gifts, sum before tax	117310465326.59	186390339335.89	1.59	-37.06
Gifts, sum after tax	114357976286.34	182424185221.06	1.60	-37.31
Inheritances, sum before tax	88705896524.37	102293945810.52	1.15	-13.28
Inheritances, sum after tax	79705007459.28	92030713934.12	1.15	-13.39

Notes: Inheritance and gift tax statistics, Research Data Centres of the Statistical Offices of the Federation and the Federal States, 2007-2020.

## 5.3 Regression results

How can we explain the gender tax gap in parental transfers? Effective tax rates depend both on the value of the transfer (as higher transfers are taxed at higher rates) and on the asset type of the transfer (as tax exemptions vary by asset type). The German tax system is progressive; it taxes transfers with higher values more than transfers with lower values. Therefore, men and women might differ in their average inheritance tax rates simply because they receive different amounts from their parents. Another explanation is gender differences in the type of transfers, with men benefitting from higher tax exemptions because they are more likely to receive largely exempted assets, such as business wealth. To understand the gender tax gap better, we estimated multivariable regression.

Table 4 and Table 5 display the results of ordinary least squares regressions. Model 1 (M1) includes only a dummy variable indicating if the receiver is female (=1) or male (=0) and a continuous variable indicating in which percentile the transfer lies. Including the latter gives a sense of tax progressivity, as the tax rate should increase with transfer value. Our model thus compares men's and women's effective tax burdens holding constant the level of wealth transfer. In Model 2 (M2), we further include dummy variables for each asset type, the age of the donor and receiver, the gender of the donor, a dummy variable indicating if the receiver lives in a western state of Germany, and interactions of all variables with the gender dummy for the receiver.

We start with interpreting the regression specifying the effective gift tax rate as the dependent variable. Controlling only for the wealth transfer percentile rank, the average gender gap in the effective gift tax rate amounts to 0.55 percentage points. Thus, on average, women's effective tax rate at similar wealth transfer levels is 0.55 percentage points higher than men's (M1). Once we control for all other variables (M2), this average gap decreases to 0.35 percentage points but stays statistically significant.

For each percentile, the average effective tax rate is predicted to increase by 0.01 percentage points, thus indicating tax progressivity. Interestingly, we find a statistically significant interaction term of progressivity and gender of the receiver. Progressivity is higher for female compared to male receivers. In other words, the gender gap in effective gift tax rates increases along the transfer distribution, with women at the top of the distribution having the highest disadvantage compared to men receiving similar wealth transfers. This has been highlighted already in the bivariate Figure 3.

Table 4 Regression result: effective gift tax

	MI		M2	
	b	se	b	se
Receiver female	0.549***	0.02	0.480**	0.17
Gifts, percentile	0.0113***	0.00	0.0287***	0.00
Business (indicator)			-2.138***	0.05
Business (indicator) * Receiver female			-0.448***	0.08
Land (indicator)			-1.260***	0.05
Land (indicator) * Receiver female			0.0853	0.09
Other wealth (indicator)			1.235***	0.04
Other wealth (indicator) * Receiver female			0.127	0.08
Estate (indicator)			-1.147***	0.04
Estate (indicator) * Receiver female			-0.752***	0.08
Donor female			0.0220	0.03
Donor female * Receiver female			-0.338***	0.05
Age (receiver)			0.0656***	0.00
Age (receiver) * Receiver female			-0.0102***	0.00
Age (donor)			0.00333**	0.00
Age (donor) * Receiver female			0.00848***	0.00
West			0.659***	0.05
West * Receiver female			-0.188*	0.08
Gifts, percentile * Receiver female			0.00719***	0.00
Intercept	2.812***	0.05	-0.623***	0.12
N	271087		255949	
$\mathbb{R}^2$	0.02		0.11	
Gender Gap	0.549		0.348	
p value (Gender Gap)	0.00		0.00	

Notes: Inheritance and gift tax statistics, Research Data Centres of the Statistical Offices of the Federation and the Federal States, 2007-2020. Results of OLS regression controlling for year of assessment.

The negative coefficients of business, land, and estate transfers reflect the large exemptions in the German tax system. We did not find gender differences in the relationship between receiving land and other assets and effective gift tax rates. This indicates that land and other transfers do not contribute to the explanation of the gender gift tax gap. However, the coefficients for the interaction terms of estate and business assets are negative and statistically significant. This indicates that the gender gift tax gap decreases if business assets or estates are part of the transfer. In other words, gender differences are smaller (for business assets) or even reverse (for estates) if the transfer includes business assets or estates. Thus, our results indicate that gender differences in the asset types of the gift explain parts of the gender gift tax gap. Men and women benefit differently from tax exemptions because they receive different assets leading to the gender tax gap.

Looking at socio-demographic characteristics, we found that the gender tax gap in gifts is smaller if the donor is female and decreases with the receiver's age. However, the gender tax gap in gifts increases with the age of the donor. Surprisingly, the gender gap is smaller in the western parts of Germany compared to the eastern states. These results indicate that the tax system, in interaction with the donor's characteristics, reproduces gender wealth inequality. Especially transfers from male donors seem to contribute to the gender tax gap in gifts.

We now turn to the interpretation of Table 5, depicting the regression results predicting the effective inheritance tax. The gender gap in the effective tax rate at the mean amounts to 0.08 percentage points, controlling for the percentile rank of the transfer. In other words, women's average effective inheritance tax rate is 0.08 percentage points higher than men's. Although statistically significant, this gap is comparatively small (the gender gift tax gap was 0.55 percentage points). Once we adjusted for the other variables, the gap decreased to 0.07 but stayed statistically significant.

Examining progressivity, we found that for each percentile, the average effective inheritance tax rate increases by 0.12 percentage points, indicating higher progressivity than for gifts. Again, we find a statistically significant interaction term of progressivity and gender of the receiver, indicating that the gender gap in the inheritance tax rate increases with higher transfers, which is in line with the bivariate results in Figure 2.

Table 5 Regression result: effective inheritance tax

	MI		M2	
	ь	se	b	se
Receiver female	0.0804***	0.02	-0.0708	0.18
Inheritance, percentile	0.119***	0.00	0.119***	0.00
Business (indicator)			-0.558***	0.04
Business (indicator) * Receiver female			0.463***	0.06
Land (indicator)			-0.311***	0.04
Land (indicator) * Receiver female			0.223***	0.05
Other wealth (indicator)			0.822***	0.05
Other wealth (indicator) * Receiver female			-0.378***	0.08
Estate (indicator)			-1.386***	0.03
Estate (indicator) * Receiver female			-0.0885	0.05
Donor female			-0.114***	0.03
Donor female * Receiver female			-0.0548	0.04
Age (receiver)			-0.0115***	0.00
Age (receiver) * Receiver female			-0.00309	0.00
Age (donor)			0.0276***	0.00
Age (donor) * Receiver female			0.00216	0.00
West			0.117	0.06
West * Receiver female			0.0355	0.09
Gifts, percentile * Receiver female			0.00849***	0.00
Intercept	-0.883***	0.04	-2.210***	0.13
N	239947		229733	
$\mathbb{R}^2$	0.38		0.39	
Gender Gap	0.080		0.070	
p value (Gender Gap) 0.00		0.	00	

Notes: Inheritance and gift tax statistics, Research Data Centres of the Statistical Offices of the Federation and the Federal States, 2007-2020. Results of OLS regression controlling for year of assessment.

The negative business, land, and real estate coefficients reflect the tax exemptions. Our results differ from our findings on effective gift tax rates regarding the interaction terms with

the gender of the receiver. Here, we did not find gender differences in the relationship between receiving real estate and effective inheritance tax rates. In contrast, the coefficients for the interaction terms with land and business assets are positive and statistically significant. The coefficient for the interaction term with other assets is negative and statistically significant. This indicates that for transfers comprising business and land, gender differences in the effective inheritance tax rate tend to be larger (and to the advantage of women) but smaller for transfers including other assets (and to the disadvantage of women). We did not find evidence that the socio-demographic characteristics of the donor and the receiver are related to the gender inheritance tax gap.

## 6 Discussion

Wealth is distributed unequally between households and countries but also between social groups such as race, class, and gender. Besides savings from labor income, wealth transfers play a decisive role in wealth accumulation. Given women's weaker attachment to the labor market, wealth transfers might be particularly decisive for women's wealth accumulation (Deere and Doss, 2006). Therefore, this study focused on gender as a stratifying factor for wealth transfers. In many countries, wealth transfers are subject to taxation (gift, inheritance, or estate taxes). Whereas wealth taxes tend to decrease wealth inequality between households, it is unclear how taxes on transfers are linked to gender wealth inequality (Jakobsen et al., 2020). Therefore, this study asked how the inheritance and gift tax system in combination with gendered parental transfer behavior shape gender inequalities in parental transfers.

Answering the call for more sociological studies on the relationships between tax policy, wealth, and stratification (Spilerman, 2022), we empirically examined not only gendered parental transfer behavior but also gender differences in inheritance and gift tax incidences by studying effective tax rates with German administrative tax data (2007-2020). We find that women are less likely to receive tax-relevant parental transfers and that the value of the transfers are lower, too. Additionally, women and men differ in the type of assets they received with men receiving especially more business wealth. Moreover, we showed that the inheritance and gift tax system reproduces gender inequalities in parental transfers. We identified a gender tax gap in inheritances of 2%. In absolute terms, women's effective inheritance tax rate is 0.08 percentage points higher than men's adjusted for the transfer's percentile rank. For gifts, we identified a gender tax gap of 22%. Adjusted for the transfer's percentile rank, women's rate was, on average, 0.55 percentage points higher than men's. Regression analyses provided

evidence that gender differences in the asset types included in the transfer contribute to explaining the gender tax gaps in gifts. Moreover, we showed that the gender tax gap increases along the transfer distribution for both gifts and inheritances. The gender tax gap in gifts was larger if the donor was male compared to female.

By providing evidence for implicit gender bias to the disadvantage of women in the German inheritance and gift tax system, this study contributes to the literature on taxation and gender equity, which has until now primarily focused on income taxes (Coelho et al., 2022; Grown, 2010). Our findings relate to prior research arguing that gender differences in capital income in interaction with the typically lower taxation of capital income contribute to gender wealth inequality (Coelho et al., 2022). Adding to this literature, we showed that implicit gender bias arises in inheritance tax systems if transfer behavior is gendered. In other words, parents' gendered transfer behavior in interaction with the tax system reproduces gender inequalities in parental transfers, shaping the gender wealth gap. For example, the large tax exemptions on business wealth, which men are more likely to receive, reduce men's tax rates on gifts more than women's. Besides gender differences in the asset type of the transfer, gendered attitudes towards paying taxes and tax evasion, as well as tax consultancy, might also play a role in gendered tax incidences. Although prior research has already started to examine the role of tax adviser in reproducing gender wealth inequalities in France (Bessière and Gollac, 2023), we still lack knowledge about to what extent gendered tax consultancy or gendered tax evasion affect the gender wealth gap in different countries. These are avenues for future research in taxation and gender equity.

This study also contributes to the discussion about the gender wealth gap by introducing the tax system as yet another factor in the explanation of the gender wealth gap. More specifically, we theoretically discussed how inheritance and gift tax systems might exhibit implicit gender bias (Stotsky, 1996) and empirically identified gender tax gaps for the German inheritance and gift tax system. If women, compared to men, have to pay higher tax rates on their transfers even if they receive equal amounts of wealth, this results in increases in gender wealth inequalities, in particular, because transfers seem to be more critical for women's than men's wealth accumulation. Because tax exemptions are high for close relatives, the consequences of the implicit gender bias most likely only affect the gender wealth gap at the top of the wealth distribution. Considering the functions of wealth, implicit gender bias in inheritance tax systems may help reproduce the gendered distribution of power. To summarize, our study highlighted that inheritance tax systems might have unintended consequences for

gender wealth equality, especially at the top, due to gendered economic behavior of the previous generation.

This study identified a gender tax gap in parental transfers in Germany, but are the findings transferable to other countries? The German inheritance tax system is comparable to the systems in many other countries. Most inheritance and gift tax systems provide highly preferential treatment for transfers to close relatives and tax exemptions for specific assets such as business wealth (OECD, 2021). Germany differs from other Western countries regarding the prevalence of the traditional gender ideology, which might shape gendered transfer behavior. Although couple's labor division in Germany is often characterized by a "malebreadwinner/female part-time carer" model, traditional gender ideology is still more widespread in Germany compared to other countries (Rosenfeld, Trappe, & Gornick, 2004). However, considering prior evidence that gender wealth inequalities are strongest at the top of the wealth distribution for different European countries (Schneebaum et al., 2018), we expect gender differences in transfer also to be especially pronounced at the top in other countries which might relate again with a gender tax gap. Furthermore, gender differences in the likelihood of receiving the family business have been found for different countries (Wong, 2013). In future studies, gendered parental transfer behavior and the gender tax gap should be scrutinized in other countries. Country-comparative studies may further help to understand the gendered implications of inheritance tax systems.

This study suggests that a fair inheritance tax system must take gender into account. It is therefore crucial to assess to what extent taxes on financial transfers (estate, inheritance, gift taxes) reduce or exacerbate gender inequities and whether they exhibit implicit or explicit gender bias. Policymakers are, thus, advised to consider the gendered implication of the tax design when reforming inheritance and gift tax systems.

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8 Appendix

Appendix 1 Gender differences by asset type, gifts

			male	female	ratio
Business	Gift	mean	2485104.94	3326318.40	0.75
Real estate	Gift	mean	356479.27	376763.69	0.95
Financial wealth	Gift	mean	2304612.12	2585625.80	0.89
Forrest / Land	Gift	mean	210894.95	130445.50	1.62
Other	Gift	mean	806515.24	645882.10	1.25
Business	Gift	N	37446.00	17762.00	2.11
Real estate	Gift	N	65317.00	49555.00	1.32
Financial wealth	Gift	N	19632.00	9285.00	2.11
Forrest / Land	Gift	N	16972.00	6114.00	2.78
Other	Gift	N	70138.00	51854.00	1.35
Business	Gift	sum	93057239738.85	59082067404.27	1.58
Real estate	Gift	sum	23284156318.14	18670524807.00	1.25
Financial wealth	Gift	sum	45244145065.88	24007535544.95	1.88
Forrest / Land	Gift	sum	3579309170.60	797543768.00	4.49
Other	Gift	sum	56567366097.83	33491570272.27	1.69

Appendix 2 Gender differences by asset type, inheritances

labels_component	satzart	name	male	female	ratio
Business	Inheritance	mean	718995.85	646580.35	1.11
Real estate	Inheritance	mean	367375.65	361585.76	1.02
Financial wealth	Inheritance	mean	1008618.61	630345.38	1.60
Forrest / Land	Inheritance	mean	39581.83	28070.34	1.41
Other	Inheritance	mean	531816.61	487486.81	1.09
Business	Inheritance	N	19053.00	16298.00	1.17
Real estate	Inheritance	N	91104.00	83925.00	1.09
Financial wealth	Inheritance	N	7768.00	6876.00	1.13
Forrest / Land	Inheritance	N	19225.00	17169.00	1.12
Other	Inheritance	N	113717.00	105622.00	1.08
Business	Inheritance	sum	13699027899.21	10537966547.29	1.30
Real estate	Inheritance	sum	33469391481.60	30346085158.23	1.10
Financial wealth	Inheritance	sum	7834949397.96	4334254862.54	1.81
Forrest / Land	Inheritance	sum	760960587.22	481939639.81	1.58
Other	Inheritance	sum	60476589863.03	51489331386.57	1.17