1141 2021

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ISSN: 1864-6689 (online)

German Socio-Economic Panel (SOEP)
DIW Berlin
Mohrenstrasse 58
10117 Berlin, Germany

Contact: soeppapers@diw.de

Pension Wealth and the Gender Wealth Gap

Karla Cordova[*], Markus Grabka[†]
Eva Sierminska[‡]

June 2021

Abstract

We examine the gender wealth gap with a focus on pension wealth and statutory pension rights. By taking into account employment characteristics of women and men, we are able and identify the extent to which the redistributive effect of pension rights reduces the gap. The empirical basis of this examination is the Socio-Economic Panel (SOEP), which is one of the few datasets where information on wealth as well as on pension entitlements is collected at the individual level. Pension wealth data is available for 2012 only. Individual level wealth data allows to analyze the gender wealth gap between women and men across all households. Due to the longitudinal character of the underlying data, detailed information on employment trajectories and family related events (such as childbirth, marriage, divorce, widowhood, etc.), which can have an effect on (public) pension entitlements are considered.

JEL: H55, D31, J16
Keywords: Gender Wealth Gap, pension entitlements, Germany, redistribution, SOEP[1]

[*]University of Arizona, karlacodova@email.arizona.edu
[†]DIW Berlin, mgrabka@diw.de
[‡]LISER, DIW Berlin, IZA and GLO, eva.sierminska@liser.lu
[1]Socio-Economic Panel (SOEP)

1 Introduction

Employment is an important determinant of private wealth. It is not only a building block of wealth via income related savings, but it also enables the accrual of pension rights, as most pension systems are earnings related. Curiously enough while the raw average gender wealth gap in Germany in 2012 is 31,000 Euros using individual net worth data for all men and women, the gap increases to more than 66,000 Euro when pension wealth (the present value of all accumulated pension entitlements from the statutory as well as the occupational pension's scheme) is added. Private pension plans play a relatively small role in the German pension system and are a standard component of net worth, while public pension wealth has yet to be considered in the analysis of the gender wealth gap.

In this paper, we examine the gender wealth gap with a focus on pension wealth and statutory pension rights. By taking into account employment characteristics of women and men, we are able to identify the extent to which the redistributive effect of pension rights reduces the gap. The empirical basis of this examination is the Socio-Economic Panel (SOEP), which is one of the few datasets where information on wealth as well as on pension entitlements is collected at the individual level. Pension wealth data is available for 2012 only. Individual level wealth data allows to analyze the gender wealth gap between women and men across all households. Due to the longitudinal character of the underlying data, detailed information on employment trajectories and family related events (such as childbirth, marriage, divorce, widowhood, etc., which can have an effect on (public) pension entitlements are considered.

This paper is-as far as we know- the first that considers pension wealth to analyze the gender wealth gap. Pension wealth consists of three components: statutory public, occupational and private pensions. The latter component is already considered in the standard measure of net worth, while information about pension entitlements from statutory and occupational pension schemes are typically not collected in wealth surveys and thus had been neglected in the analysis of the gender wealth gap. The distinction between private pensions on the one side and statutory public and occupational pensions on the other side is necessary for several reasons. While private pensions are based solely on a voluntary investment decision by an individual, who could also have invested in financial assets (e.g. stocks), statutory pensions are based on compulsory membership for employees subject to social security contributions. Occupational pensions are also tied to employment, but they are additionally dependent on whether an employer offers or makes them available to employees. Furthermore, both statutory and occupational pensions, cannot be sold or used as collateral, meaning that the usual wealth functions are not fulfilled except for the security function. Despite this, as Bönke et al. (2019) for Germany showed employee save large amounts in both statutory pubic and occupational pension scheme which need to be considered

when analyzing the gender wealth gap.

We first characterize gender differences in net wealth and then present an augmented measure of private wealth, which includes pension wealth. We then decompose the gender wealth gap using the Oaxaca-Blinder decomposition (Oaxaca, 1973; Blinder, 1973) at the mean and throughout the parts of the distribution following Firpo et al. (2009). Then we examine the pension wealth distributions by type and test the robustness of our results conducting the estimations for different subsamples.

The structure of the paper is as follows. Section 2 reviews the literature on the gender pension wealth gap and Section 3 covers the characteristics of the German pension system. Section 4 discusses the data and is followed by the framework in Section 5 and Section 6 empirical strategy. In Section 7 we provide a descriptive analysis of the wealth data and individual characteristics. The results for the mean and detailed decomposition are found in Section 8 for each of the wealth aggregates, as well as the different pension types and Section 9 includes robustness checks for different subsamples. Finally, we conclude in Section 10 and discuss possible policy implications and future steps.

2 The gender gap in pension wealth

Research on gender differences in private or pension wealth is usually confronted with the problem of lacking individual-level wealth data. Thus, so far only a limited number of papers analyze the gender gap in private wealth or pension wealth. One of the few exceptions of population representative surveys collecting wealth information at the individual level is the German SOEP. Several papers make use of this survey to describe gender differences in wealth levels or wealth changes including Frick et al. (2007), Sierminska et al. (2010), Grabka et al. (2015), Lersch (2017a, 2017b), Boertien and Lersch (2021), and Kapelle and Baxter (2021). These authors show that there is a significant gender gap in private wealth in Germany, not only between single men and women, but even within married couples.

The main driver of the gender gap in private wealth are differences in labour market participation and earning levels. Individuals that work in stable, full-time, higher prestige occupations will consistently earn greater income (and have higher permanent income), which will improve their ability to save (Ruel and Hauser, 2013). Lower labour market participation rate of women, their lower working hours, the glass ceiling and the still existing gender pay gap, impairs the wealth accumulation for women (Warren et al., 2001). Moreover, women and men tend to cluster in occupations with different earning levels.

Besides labour market differences, men and women show different levels of returns from their investments. This is the result of diverging risk preferences and different wealth portfolios accordingly (Sunden and Surette, 1998; Chang, 2010; Lersch, 2017b). For example, women are significantly less likely to own business assets (e.g. Austen et al. 2014). But there are also significant differences in owning property. As Goldsmith-Pinkham and Shue (2020) argue, the gender gap in housing returns can explain 30% of the gender gap in wealth accumulation at retirement. Women and men also have different access to credit (Alesina et al., 2013) and mortgages (e.g. Goldsmith-Pinkham and Shue 2020), which differentiates their ability to accumulate additional wealth. Additionally, financial literacy influences investment decisions (Huston, 2010; Lusardi and Mitchell, 2008) and it has been shown that women have lower financial knowledge than men, which leads them to have more conservative investments patterns and thus relatively lower returns compared to men (Almenberg and Dreber, 2015).

Another aspect that could affect wealth levels are marital status transitions. The dissolution of marriage is negatively related to the accumulation of wealth over time and effect sizes are similar for men and women. However, the dissolution of cohabiting unions comes along with wealth losses for women but not for men (Boertien and Lersch, 2021). In addition, parenthood, within or outside of marriage, has a negative effect on women's employment and wages and thus impairs their individual wealth accumulation (Yamokoski and Keister, 2006; Lersch, 2017b).

The presentation so far relates to drivers of gender differences in private wealth. When it comes to gender differences in pension wealth similar but also additional aspects come to sight. At first, a large number of papers investigate membership in occupational or private pension plans. Rõõm et al. (2021) show that in the Euro area more men than women own pension wealth from DC pension plans. The raw gap in the value of pension wealth is 65% of the mean value of women's pension wealth, which is considerably larger than the average gender wage gap in Europe. When the authors control for observable characteristics this gap reduces to 9%. The by far higher value of occupational pension wealth for men is also confirmed for Switzerland by Kuhn (2020).

Gender differences in private pension wealth are more pronounced. Not only women contribute less to private pension schemes (e.g. Foster and Smetherham (2013), Gardiner et al. (2016)), the gender gap in mean values is also significantly large. Johnson et al. (1999), for example disclose that median pension wealth for full-time workers on the current job was 76% greater for men than for women. Differences in age, occupational position, earnings level, working hours or having dependent children in the household account for most of the gender gap in pension wealth.

For statutory pensions the general picture is rather different. Although public pension systems are typically earnings related and thus the gender pay gap must be translated into a gender pension gap, there are several redistribution elements in favor of women

that dampen the effect. For Switzerland Kuhn (2020) alludes, that women tend to have higher pension wealth from statutory pensions. This is due to a weak relationship between earnings and pension levels in the first pillar in the Swiss case. In other countries the contribution ceiling is in favor of women as less women reach earnings above the threshold. In addition, statutory pension schemes usually have strong redistribution elements for the benefit of women. This is in particular true for family related child credits, which have the strongest effect on reducing the gender pension wealth gap in for example the Norwegian pension scheme (Halvorsen and Pedersen, 2019). In the German case another redistributive element is the time spent in parental leave, which is usually claimed by women.

3 The German Pension System

The German pension system has three pillars. The first pillar is the statutory pension insurance such as statutory PAYG, civil servant, and liberal profession pensions. The second pillar consists of company pension plans. In both pillars, the insured acquire pension entitlements throughout their working careers. Following the principle of equivalence, pension entitlements from the first and second pillars are proportionate to overall life-cycle earnings during the active phase of working life. The third pillar covers private voluntary insurance plans.

First Pillar: Mandatory Public-Pension Scheme

About three-quarters of the German working-age population (20-65 years)[2] is typically insured through the statuary pension insurance (GRV: Gesetzliche Rentenversicherung), which at retirement provides a monthly pension that closely relates to the sum of earnings subject to compulsory insurance from contribution periods. For example, if earnings in a given year coincide with the average earnings of all employed workers in the same year (50 percent of the national average), 1.0 (0.5) remuneration points are credited. An individual is vested in their pension plan after having contributed for 60 months (or 5 years). Pension credits can also be earned during non-contribution periods. Pension credit can be granted for a limited time period due to the following reasons (i) sickness, rehabilitation, studies of higher education; (ii) military services or detention due to political reasons; (iii) child-raising or care for family members e.g., if a parent withdraws from the labour market after the birth of a child; and (iv) finally when unemployed and receiving unemployment benefits.

The statutory pension has different redistributive elements, which ex- and implicitly

[2]The retirement age has been raised step-wise from 65 to 67. The phase-in started with individuals born in 1947 and has been increased by one month per birth cohort and reached 67 for individuals born after 1963.

favor women during non-contributory periods (such as due to pregnancy, maternity or parental leave). The most relevant one is parental leave. A person (either the father or mother) who is doing child care gain 3 (2) earning points in the GRV for children born after (before) 1992 independent of the previous labour income. As typically women earn less than men, they usually profit more from these periods than men. For women who did not participate in the labour market before pregnancy this benefit alone amounts to 95.67 (287.01) Euro for one (three) child(-ren) in 2019 compared to an average of 890 Euro gross pension for all retirees in Germany in the GRV.

First Pillar: Civil Servants Pension Scheme

Roughly, 5 % of the work-force in Germany are civil servants. The civil servant pension scheme depends on the overall tenure and average salaries in the last position as a civil servant held for at least tow years. Each year of full time-service awards 0.01793375 replacement points up to a 0.7175 maximum. It is possible to receive both a statuary pension and a civil-servant pension though deductions apply. For child rearing periods a child-rearing supplement is granted comparable to the one in the GRV.

First Pillar: Mandatory Pension Scheme for Liberal Professions

Liberal professions have a separate yet, compulsory pension scheme according to the laws of the Laender for about 85 liberal professions such as architects, chartered accountants, dentists, lawyers, notaries, pharmacists, physicians and psychotherapists. These schemes provide old age pensions, disability benefits and survivors' benefits. Entitlements are highly individual and are difficult to determine by simple rules. Liberal professions comprise roughly 3,5% of the work force. Members of the liberal professions scheme can also apply for child-rearing supplement in the GRV and thus profit from this redistribution element.

Second Pillar: Occupational Pension Schemes

Occupational pension schemes are granted by the company to its employees on a voluntary basis. There are at least five different pensions plans in Germany. They comprise defined benefit, defined contributions and also contributions with minimum benefit. In 2011, about 56 % of the compulsorily insured employees aged 25 and 65 are covered by the programs (BMAS (2012)). Child rearing credits are only granted for employees in the public sector.[3]

In 2011 among retired individuals 65 and older, about 90% received statutory pensions, 25 % occupational pensions, only 5% civil servants and 1% liberal profession pensions. Since the early 2000s income conversion can be used for old age provision in the occupation scheme and so their relevance increased in recent years. Thus, in 2015 among

[3]The details of these different pension plans are well discussed in Bönke et al. (2019).

retired individuals 65 and older, 26% now receive private occupational pensions. See Table 1 below. In our SOEP sample, 87% of individuals are accumulating statutory pension wealth, 8% civil servant pensions, and 30% occupational pensions.

Table 1: Mean Pensions and Share of Persons with Own Pensions age of 65 and over Comparison to Share of Persons with Pensions in Sample

	Gross per month mean	Share of recipients (in %)	Gross per month mean(2015)	Share of recipients (in %)(2015)	Our sample (in %)
Statutory Pensions	890	90	960	90	87
Civil Servant	2 714	5	2873	10	8
Liberal Profession	2 140	1	2270	1	n.a.
Occupational Pension					30
Occup Pen (Private)	491	15	511	26	
Occup Pen (Public)	315	10	291	10	

Notes: Monthly means and share of recipients source Bönke et al. (2019) from BMAS 2010, SOEPv35 own calculations, and BMAS (2016) . Our sample source is SOEPv30 and includes non-retired 25 to 60 years old. We can not distinguish between private and public occupational pensions.

4 Data

We use the 2012 and 2013 waves of the Socio-Economic Panel (SOEP) (see Goebel et al., 2018) . SOEP is an on-going longitudinal survey of individuals living in private households in Germany.[4] The 2012 wave includes the wealth module, which collects information on ten different asset and debt components separately for each adult in the household. These include: property wealth (and associated debt), building loan contracts, financial assets (such as savings accounts, bonds, shares, or investments),[5] private insurance policies, collectibles (in the form of gold, jewelry, coins, or valuable collections, etc.), net business assets (gross business assets minus debts) and on the debt side consumer credits and mortgages. For wealth components that are held jointly, the individual share is requested. In 2013, SOEP respondents were asked for the first time to report current pension entitlements based on the official annual information provided by their insurer for the year 2012. Using this information, pension wealth is calculated based on the so-called "accrual method" (see Wolff, 2015) as the expected capitalized value of entitlements. Our primary dependent variable is augmented wealth, the sum of pension wealth and net wealth, which is the sum of assets minus total debts. Besides wealth and pension information, individual characteristics and information about the employment history is used, which is described in Appendix A.

[4]Exhaustive details can be found here: https://http://companion.soep.de/ .

[5]Note that assets in checking accounts and cash money are not explicitly retrieved, but may be included in financial assets. Credit card debts - although relevant e.g., in the U.S. - play no relevant role in Germany.

The focus of our sample is the working-age non-retired population aged 25 to 60 years old. Following Sierminska et al. (2019), we top and bottom code wealth variables at 99.9 and 0.1 percent respectively. Missing values are corrected with multiple imputation techniques (see Grabka and Westermeier, 2015).

5 Framework

We introduce the concept of augmented wealth into the standard framework on examining difference in wealth accumulation. Augmented wealth (AW) is the sum of net worth and pension wealth.

$$AW_{t+1} = NW_{t+1} + PW_{t+1} \tag{1}$$

Net worth in period $t+1$ (NW_{t+1}) is the sum of assets (less debt) and income less consumption in period t augmented by the return on investments. In other words,

$$NW_{t+1} = (1+r)(NW_t + Y_t - C_t) \tag{2}$$

where in period t, assets are NW_t, income Y_t, consumption C_t, and return on investments r, besides interest and dividends r also includes a change in the value of assets.

The literature provides evidence of gender differences in labour market attachment, income, risk preference, and household structure, which affect asset and wealth accumulation. Differences in income on the other hand, affect both private wealth accumulation and pension entitlements directly since the latter are determined by years in the labour market and the wage level. (See Section 2.)

Pension wealth (PW) is the sum of all present value of pensions entitlements (PV_p) (Bönke et al., 2019) and is calculated using the "accrual method" discussed in Wolff (2015).

$$PW_{t+1} = \sum_p PV_p = \sum_p \sum_{t=0}^{T-a} s_{a,t} \frac{1}{(1+i)^t} pension_t^p \tag{3}$$

where $s_{a,t}$ is the probability of a person of age a in year 2012 surviving until year t, $T-a$ the remaining maximum lifespan differentiated by sex and birth cohort provided by official statistics; i is the constant discount rate, here a rate of 3% following Bönke et al. (2019)[6] and $pension_t^p$ is the pension entitlement from pension scheme p. When comparing average gross pension entitlements collect by SOEP to information from the statutory public pension insurance and occupational pension schemes, a high overlap

[6]We follow the analyses by Bönke et al. (2019) and Wolff (2015) by using a discount rate of 3%. The robustness of result to using different discount rates is found in the former.

can be observed (see Bönke et al., 2019).

6 Empirical Strategy

We follow the previous literature on the determinants of wealth distributions by gender in our analysis (Sierminska et al., 2019) and define employment types (experience in years full-time and part-time employment), current occupation, industry, size of company, education level, presence of children in the household and pension entitlement types (Frick and Grabka, 2013).

We decompose the wealth gap using the Oaxaca-Blinder (OB) method (Oaxaca, 1973; Blinder, 1973) at the mean. The specification for the Oaxaca decomposition (Blinder, 1973; Oaxaca, 1973) is as follows:

$$\Delta_{\overline{x}} = (\overline{X}^M - \overline{X}^F)\hat{\vartheta}^M + \overline{X}^M(\hat{\vartheta}^M - \hat{\vartheta}^F) \tag{4}$$

The first component captures the average wealth differences due to characteristics ("explained effect") or endowments and the second term captures the differences due to coefficients ("estimated effects") or returns to endowments.

Additionally, for the detailed decomposition of the gender wealth gaps across the wealth distribution, we use the technique introduced by Firpo, Fortin, Lemieux (FFL) (2009). The FFL decomposition examines differences across the wealth distribution by allowing differences between distributions to be decomposed. This method relies on the estimation of a regression where the dependent variable is replaced by a recentered influence function (RIF) and can be applied in a similar way as the Oaxaca decomposition to any distributional statistic.

The FFL specification for the wealth gap is as follows:

$$\Delta_{Q\tau} = (\overline{X}^M - \overline{X}^F)\hat{\vartheta}^M_{Q\tau} + \overline{X}^M(\hat{\vartheta}^M_{Q\tau} - \hat{\vartheta}^F_{Q\tau}) \tag{5}$$

where $\Delta_{Q\tau}$ refers to differences in quantile τ; $\overline{X}^M$ and $\overline{X}^F$ average observed characteristics; $\hat{\vartheta}^{M,F}_{Q\tau}$ coefficients obtained from the regression of the RIF variables of quantile $Q\tau$ on the set of variables for male and female.

The first term refers to the effect on the gap between distribution caused by differences in characteristics ("explained" portion) and the second term can be interpreted as differences in returns to those characteristics of each explanatory factor ("unexplained" portion). In the decomposition of the wealth equation, the determinants include individual demographic characteristics, labour market characteristics, and an indicator for

pension types (Appendix A). For the FFL decomposition we focus on the 25th, 50th, and 90th percentile.[7]

7 Descriptive Statistics

Table 2 provides a descriptive summary of mean and median wealth levels by gender. For all wealth components men exhibit higher values. The mean difference in net wealth holdings for our sample between men and females in working age is close to 29,000 euros, a smaller difference than the one found in Sierminska et al. (2019) for a similar data sample that includes older individuals. At the mean, including pension wealth in net wealth increases the mean gender wealth difference to almost 44,000 euros (augmented wealth). The gender wealth gap, measured as the mean difference between male and female wealth as a proportion of male wealth, is reduced from 33% to 27% by including pension wealth. This is due to the relatively smaller gender wealth gap (20%) in pension wealth. On average, the bulk of pension wealth for both males and females consists of statutory pension wealth, which also has the lowest proportionate wealth gap (at 10%). This is the result of the above described redistribution elements in the statutory public pension scheme. Given that no redistribution take place in occupational pension schemes the unconditional wealth gap is 46% in civil pension wealth and 37% in company pensions at the mean and thus higher than for net worth.

At the median, the effects are similar-although at a lower level- with a difference between males and females of almost 8,800 euros in net wealth and of 20,600 euros for augmented wealth due to the 12,000 euro gap in pension wealth (6,000 euros for statutory pensions). The median wealth for the remaining pension types is zero.

Table 2: Summary Wealth and Pension Wealth by Gender

	Male(Mean)	Female(Mean)	Diff.	Gap (M-F)/M	Male(Median)	Female(Median)	Diff.
Net Wealth	87,760	58,853	28,907	0.33	20,700	11,912	8,788
Augmented Wealth	162,809	119,271	43,538	0.27	88,845	68,236	20,609
Pension Wealth	74,811	60,205	14,607	0.20	47,902	35,725	12,176
Statutory	52,101	46,934	5,168	0.10	34,355	28,254	6,101
Civil	10,915	5,887	5,028	0.46	0	0	0
Company	11,795	7,384	4,411	0.37	0	0	0

Notes: Sample SOEPv30 2012 and 2013 restricted to include individuals ages between 25 and 60. Means were calculated using the multiply imputed wealth data and sample weights. Differences in means are male mean minus female mean. Augmented wealth is the sum of net wealth plus the present value of total pensions. Pension Wealth is the sum of Statutory, Civil, and Company pension wealth that each individual has. The wealth gap is the ratio of male female mean difference over male mean wealth ((male-female)/male). All differences are statistically significant with $p < 0.001$ except for Company pensions, which is significant with $p < 0.01$. All wealth variables are top and bottom coded at 99.9 and 0.1 percent respectively.

[7]We refrain from decomposing the gap at the 10th percentile as net worth is zero at this point of the distribution.

The demographic characteristics for men, women and the whole sample are included in Table 3 and A2. On average, females are younger, more likely to be immigrants, have more children, and have a child 16 or younger living in their household. Compared to males, more females are married, divorced, or widowed. In contrast, males are more likely to be cohabiting or single. Males are also more likely to be from East Germany. In terms of education, most of our sample has lower vocational education, with males slightly more likely to be in this category than females.

Labour market differences between males and females are more noticeable than their demographic differences. In terms of occupations, males are more likely than women to be trainees, self-employed, blue-collar workers or civil servants (both high and low levels). Females are more likely to hold white-collar occupations than males and are also more likely not to be employed.

Labour market experience is measured as the total years spend either in full-time or part-time employment. On average, males have spent 18 years working full-time and slightly less than a year part-time. Females have, on average, just 11 years of full-time working experience but five years of part-time experience. These differences in experience are important when explaining both the net wealth and augmented wealth gender gap.[8]

In our sample, females have a higher probability than males of having accumulated wealth from statutory pension rights (88% vs. 85%), which can be explained by a higher share of self-employed men who are not bound to the statutory scheme and women more often apply for child rearing supplement in the GRV. For occupational pensions we observe no relevant differences across gender as for both groups about 27% hold these pension types. In contrary civil servant pension as more common among men with a share of 8 % compared to almost 6 % for women.[9] (see also Appendix Table A2).

Table 4 shows the distribution of wealth by net wealth deciles and net wealth and statutory pension as a share of augmented wealth for women and men. On average net worth and pension wealth contribute and equal share of about 45% to augmented wealth for both sexes. Up the distribution, statutory pensions play a diminishing role. Pensions are the only contributor to augmented wealth in the 2nd decile. Across all deciles men have higher levels of wealth (all types) except in the 4th decile, where the reverse is true. Comparing pension wealth from the statutory pension scheme to net worth instead of augmented wealth, emphasizes the relative importance of that wealth

[8]The Appendix Table A2 shows that men are substantially more likely to work in manufacturing and construction, compared to women, while women in wholesale and retail trade and health and social work. The distribution across company size is quite even between genders.

[9]A finding which corresponds to external statistics e.g. from the Federal Ministry of the interior, building and Community (https://www.bmi.bund.de/DE/themen/oeffentlicher-dienst/zahlen-daten-fakten/zahlen-daten-fakten-node.html).

Table 3: Descriptive Statistics Sample Means for Male, Females, and Total Sample.

	Male	Female	Total
Age	43.781	43.587	43.679
Immigrant	0.083	0.119	0.102
East	0.213	0.199	0.205
Children 5 and under	0.132	0.139	0.136
Children 6-15 year old	0.218	0.260	0.240
Children 16+ (in hh)	0.085	0.102	0.094
Number of Births	1.232	1.472	1.358
Married	0.522	0.547	0.535
Cohabiting	0.119	0.101	0.110
Single	0.238	0.180	0.208
Divorced/Separated	0.118	0.146	0.133
Widowed	0.002	0.026	0.014
Education			
Low Education	0.094	0.112	0.104
Lower Vocational	0.511	0.506	0.508
Upper Vocational	0.157	0.156	0.157
University	0.238	0.225	0.231
Occupation			
Not Employed	0.085	0.181	0.136
Trainee	0.028	0.023	0.026
Self-employed	0.100	0.067	0.083
White Collar	0.435	0.542	0.491
Blue Collar	0.287	0.143	0.211
Civil Servant Low	0.024	0.010	0.016
Civil Servant High	0.041	0.034	0.037
Experience, in Years			
Experience, Years Full-time	18.046	11.101	14.396
Experience, Years Part-time	0.984	5.117	3.156
Experience, Years Unemployed	1.236	1.193	1.213
Pension Rights			
Has Statutory Pensions	0.847	0.883	0.866
Has Civil Servant Pension	0.080	0.055	0.067
Has Occupational Pension	0.274	0.268	0.271
Observations	3946	4741	8409

Source: SOEPv30 2012 and 2013. The sample includes non-retired individuals between 25 and 60 years old. Sample weights are used. Variables are described in Appendix A.

component for women with a share of 80% which is significantly higher than for men with only 59%.

Table 4: Distribution of wealth by net wealth deciles for males and females.

	Mean (in Euros)				Share of Augmented Wealth (%)			
Decile	Net Wealth	Total Pension	Augmented Wealth	Statutory Pension	NW	TP	SP	CP
Male								
1	-17,125	54,920	37,515	43,797	81	19	5	8
2	-54	50,243	50,189	45,984	0	87	82	4
3	319	35,593	35,912	32,404	16	84	79	5
4	3,149	39,106	42,759	33,067	25	75	66	5
5	10,701	56,261	66,961	43,666	32	68	56	7
6	23,642	64,809	90,984	46,851	42	57	45	8
7	46,488	74,825	121,313	54,027	48	52	40	7
8	84,232	102,099	186,501	62,149	55	45	32	7
9	142,056	111,553	253,609	66,816	63	37	25	6
10	480,916	125,601	606,102	72,610	76	24	15	4
Overall	87,760	74,811	162,809	52,101	44	53	43	6
Female								
1	-14,982	47,340	32,693	37,857	87	14	6	6
2	-47	49,650	49,718	45,704	0	92	87	4
3	307	33,424	33,731	29,904	13	87	77	8
4	3,320	40,308	43,628	35,253	27	73	65	5
5	10,459	46,426	56,885	36,111	36	64	53	8
6	24,265	54,387	78,652	40,706	44	56	44	7
7	47,537	65,990	113,539	51,927	53	47	39	5
8	84,209	77,382	161,592	55,144	60	40	31	4
9	140,676	90,106	231,522	65,964	67	33	26	4
10	371,214	99,384	471,661	66,185	79	21	15	3
Overall	58,853	60,205	119,271	46,934	44	55	47	5

Source: SOEPv30 2012 and 2013. The sample includes non-retired individuals between 25 and 60 years old. NW, TP, SP, CP refer to net wealth, total pension, statutory pension, and company pension as shares of augmented wealth. Sample size is 4181 for males and 4984 for females.

8 Results

8.1 Gender Wealth Gap Decomposition

We apply two different approaches to decompose the wealth gaps. First, we estimate equation 4, a standard Oaxaca-Blinder decomposition in the literature. This decomposition concentrates on the mean of the wealth variables, and we estimate it separately for net wealth, augmented wealth, and pension wealth. The specifications include the complete set of control variables, as listed in Appendix A.[10] Table 5 shows

[10]We also present an alternative specification, which includes inheritances in Table A9, the results do not change significantly in terms of the size of the gap. The net wealth and augmented wealth gap

the estimated gender gap in percentage in terms of males' wealth, the estimated male and female wealth, the differences, and the explained and unexplained portions of the differences. The full Oaxaca-Blinder decomposition of the gender wealth gaps is in Appendix Table A5. The discussion focuses on statistically significant factors. Accounting for pension wealth in the measure of net worth decreases the gender wealth gap from 37.6% in terms of males net wealth to 28.8%. In other words, the wealth gap narrowed after accounting for pension wealth although the absolute difference increased.

Differences in characteristics explain around a third of the gender difference in net wealth while the unexplained component, the returns to those characteristics, account for around two thirds of the difference. Appendix Table A5 indicates that the most important components for the explained portion of the gap are differences in self-employment, work experience, having a white collar occupation, company size, being divorced and not being employed. The differences in working part-time, not being employed, having a white collar occupation and the size of a company favor women and help close the gap. In contrast, differences in being self-employed, being divorced, years worked full-time and being unemployed favor men. The characteristics that contribute positively to the unexplained component (the returns) are having attended university and being self-employment. The negative returns of the unexplained component are being from East Germany which reflects the historical bad wealth accumulation situation in this region before reunification. In augmented wealth decomposition, the share of the explained portion increases to more than half, given that pension wealth is highly correlated to life time earnings. The main differences from the net wealth decomposition due to characteristics are differences in industries, which favor men.

The Oaxaca-Blinder decomposition of pension wealth gap shows that differences are almost fully due to differences in characteristics. Differences in having children, self-employment, white collar, and years of experience as a part-time employee help close the gap in pension wealth for women as in particular having children bears a strong redistribution element. The coefficient on the size of the company flips since and increases the size of the gap in pension wealth.

The second approach we utilize to estimate the gender wealth gap is the detailed decomposition for the whole distribution. We estimate equation 5 using the FFL recentered influence function decomposition method for the 25th, 50th, and 90th percentile. The results from these are summarized in Table 6. The complete results can be found in Appendix Tables A6, A7, and A8. These estimations also include the full set of control variables. The largest gap is at the bottom of the net wealth distribution (55.4%), narrowing down to 36.2% at the median and 28.3% at the 90th percentile.

increases slightly at the median in absolute terms. Inheritance is significant in explaining the gap at the top of the distribution favoring men. Yet the returns to inheritances are in favor of women at the 25th and 50th percentile.

Table 5: Oaxaca-Blinder Decomposition at Means of the Gender Wealth Gap, Pension Wealth, and Augmented Wealth.

	Full Sample 25-60 years old		
	Net Wealth	**Augmented Wealth**	**Pension Wealth**
Gap (%)	37.6 %	28.8 %	15.8 %
Male	125688.7***	209879.7***	84278.3***
	(5590.0)	(5998.1)	(1602.2)
Female	78386.7***	149507.4***	70922.6***
	(2704.0)	(3239.4)	(1287.9)
Difference	47302.0***	60372.2***	13355.7***
	(6209.7)	(6817.0)	(2055.7)
Explained	17704.1***	35092.5***	17290.7***
	(4073.5)	(4765.1)	(1757.8)
Unexplained	29597.9***	25279.8***	-3935.1*
	(5937.9)	(6489.3)	(1809.2)
Observations	7221	7221	7221

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

Notes: Estimated using the SOEPv30 2012 and 2013 sample including individuals ages between 25 and 60 and sample weights. Percentages in terms of males. Decomposition estimated using the full set of controls described in Appendix A. The wealth gap is calculated in terms of males.

In contrast to net wealth, the pension wealth distribution has a significantly smaller wealth gap at the bottom of the distribution of 7.2% at the 25th percentile, increasing to a somewhat wider gap of 10.3% at the median and 17.2% at the 90th percentile of the distribution. Thus, including pension wealth to net wealth in the augmented wealth measure decreases the gap at the bottom of the distribution to 14% and 18.4% at the bottom 25th percentile and 50th percentile, respectively. But at the 90th percentile, the gender wealth gap remain at the same level with 29 % in augmented wealth. This is where the smallest share of pension wealth constitutes augmented wealth (as per Table 4) and the net worth gap is the largest. Note, this is the top of the wealth distribution for which we have data; it is hard to obtain information for the actual top of the wealth distribution.[11]

The differences in net wealth between males and females vary across the distribution, and so do the contributions of the explained and unexplained components of the decomposition. The overall differences in characteristics contribute positively to the gap across the distribution and explain over half of the differences of the net wealth distributions. The differences in returns, or the unexplained component, favor females with a negative contribution to the difference, especially at the median and 90th percentile.

In both net worth and augmented wealth, at the bottom of the distribution, the un-

[11]In the most recent SOEP data a new sub-sample of top-share holders are drawn to fill the gap at the upper end of the wealth distribution. However, for this most recent sample no information about pension wealth is collected (See Schröder et al. (2019).)

explained components, which favors females substantially contributes to reducing the gap. Yet, at the top of the distribution, the differences in characteristics account for most of the gap. The statistically significant returns negatively contributing include: not being employed and industry. At the top, only the returns to being widowed help close the gap and experience in part-time employment. Differences in characteristics contributing to the gap include: self employment (+), white collar occupations (-), industry (+25th, +50th), company size (-90th), being divorced (+25th, +50th), being widowed (+90th), experience working full-time (+), part-time (+90th) and being unemployed (+20th, +50th). Thus to decrease the gap in characteristics more women would need to be self-employed, in more similar industries as men, not lose as a result of divorce or widowhood and have similar experience working full-time and part-time.

8.2 Decomposition by Pension Entitlements

Our main contribution in this paper is including pension wealth data to have a more accurate picture of the material well-being of men and women and subsequently to draw a more detailed picture about the gender wealth gap. Next, we study each of the pension entitlements distributions separately.

Table 7 includes the decomposition estimates for equation 4 for each pension type. The mean decomposition includes the full set of control variables. Around 87% of our sample has some type of statutory pension wealth-it should be noted that pension entitlements are only granted after at least 5 years of contribution payments. There is an estimated 8.1% gender gap in statutory pensions, 24.6% in civil pensions, and 35.1% in company pensions. The relatively small gap in statutory pension can be explained by mainly two aspects: first, the contribution ceiling which limits the accumulation of earning points in the public scheme for men in particular and second, the redistribution elements from which women profit more than men. Civil servant pensions are only held by 8% of our sample; the difference in characteristics explains almost all of the gap in civil pensions. In this scheme men more often hold higher professional positions which lead to this gap. The biggest gender pension gap is in company pensions. Company pension wealth is positive for 30% of our sample. The gap of 35.1% has an explained component that accounts for 3/5 of the gap and an unexplained component that accounts for 2/5 of the gap, both favor men. Company pensions are typically granted by larger companies with higher earnings levels and industries with a higher share of male workers and there is no upper contribution ceiling which might dampen pension entitlements (and consequently, the gap).

Table 8 includes the estimates of the RIF decomposition for statutory pension at the 25th, 50th and 90th percentile of its distribution. At the 25th percentile the gender wealth gap changes to the disadvantage of men with a value of -5.3 %. Up to the age of

Table 6: RIF-OAXACA Decomposition of Gender Gap, population 25-60.

	(1) **Q25**	(2) **Q50**	(3) **Q90**
Net Wealth			
Gap(%)	55.4%	36.2%	28.3%
Male	4,961.09***	43,149.19***	279,665.85***
Female	2,214.22**	27,537.61***	200,608.21***
Difference	2,746.87*	15,611.58***	79,057.65***
Explained	10,850.66***	29,084.30***	141,945.79***
Unexplained	-8,103.79**	-13,472.72**	-62,888.15**
Augmented Wealth			
Gap(%)	14%	18.4%	29.6%
Male	44,123.79***	119,579.36***	464,720.42***
Female	37,955.28***	97,570.54***	327,059.57***
Difference	6,168.51*	22,008.82***	137,660.85***
Explained	25,873.05***	56,935.77***	163,896.52***
Unexplained	-19,704.54***	-34,926.95***	-26,235.67
Pension Wealth			
Gap(%)	7.2%	10.3%	17.2%
Male	22,103.75***	56,528.92***	186,937.30***
Female	20,522.60***	50,687.42***	154,754.72***
Difference	1,581.16	5,841.51**	32,182.58***
Explained	8,707.27***	22,223.02***	36,742.32***
Unexplained	-7,126.12***	-16,381.51***	-4,559.74

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

Notes: Estimated using the SOEPv30 2012 and 2013 sample including individuals ages between 25 and 60 and sample weights. Percentages in terms of males.

Table 7: Oaxaca-Blinder Decomposition at Means of the Statutory Pension Wealth Gap, Civil Pension Wealth, and Company Pension Wealth.

	(1) **Statutory**	(2) **Civil**	(3) **Company**
Gap (%)	8.1%	24.6%	35.1%
Male	54,812.182***	13,437.453***	16,028.639***
Female	50,388.703***	10,135.088***	10,398.812***
Difference	4,423.479***	3,302.366*	5,629.827***
Explained	11,041.520***	3,064.942**	3,184.275***
Unexplained	-6,618.041***	237.424	2,445.553*
Observations	8687	8687	8687

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

Notes: Estimated using the SOEPv30 2012 and 2013 sample including individuals ages between 25 and 60. Pension wealth variables are top and bottom coded at 99.9 and 0.1%. Decomposition estimated separately for each wealth variable. The statutory pension wealth decomposition includes the full set of controls Variables described in Appendix A.

30 years, there are only small differences in the labor market attachment for men and women in Germany and even the gender pay gap is low. The pension advantage for women in the lower alf of the pension wealth distribution is predomenantely the result of pension entitlements due to child rearing. At the median, there is a gap of 8.2% due to differences in characteristics favoring males - because mainly the gender pay gap become more relevant - and the returns on those characteristics favoring females in statutory pension accumulation. At the 90th percentile, the gap slightly grows to 11.7%. The difference in characteristics in this case play a larger role and the returns, which reduce the difference are smaller than at the other points of the distribution.

9 Robustness

We estimate gender wealth gap decomposition on restricted samples to check the robustness of our results. First, we limit the sample by age cohort. In younger cohorts, women participate more actively in the labour market thus, given that labour market variables play a major role in explaining the gap for pension wealth, the gap is expected to be smaller for the younger cohort. The results in Table 9 indicate that the gap for net wealth is larger at 46.7%, while it is in fact smaller for pension wealth (8%). This small gap for pension wealth points to the importance of the redistributive elements in the statutory pension scheme. The relatively large gap for net worth may suggest differences in the shares of the self-employed. Since the majority of wealth is held by

Table 8: RIF Decomposition of Statutory Pension Wealth Gap.

	Statutory Q25	**Statutory Q50**	**Statutory Q90**
Gap (%)	-5.3%	8.2%	11.7%
Male	12,738.474***	40,149.696***	131,503.079***
Female	13,407.631***	36,847.412***	116,128.349***
Difference	-669.157	3,302.284*	15,374.730***
Explained	4,318.307**	15,701.940***	17,572.469*
Unexplained	-4,987.464**	-12,399.656***	-2,197.739

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

Notes: Estimated using the SOEPv30 2012 and 2013 sample including individuals ages between 25 and 60. Pension wealth variables are top and bottom coded at 99.9 and 0.1%. Decomposition estimated separately for each wealth variable. The statutory pension wealth decomposition includes the full set of controls Variables described in Appendix A.

the older populations the gaps for those over 40 coincide largely with those for the whole population.

Table 9: Oaxaca-Blinder Decomposition at Means of the Gender Wealth Gap, Augmented Wealth, and Pension Wealth by Age Cohort.

	Cohort 25-40			**Cohort 41-60**		
	Net Wealth	Augmented Wealth	Pension Wealth	Net Wealth	Augmented Wealth	Pension Wealth
Gap	46.7%	34.3 %	8 %	36.5 %	28.3 %	16.8 %
Male	51013.7***	74682.7***	23669.0***	159177.4***	270510.1***	111459.1***
	(6713.1)	(6810.0)	(862.8)	(7417.3)	(7828.5)	(2063.1)
Female	27165.7***	49008.7***	21752.8***	101018.3***	193912.0***	92647.9***
	(1702.0)	(1952.7)	(778.6)	(3739.4)	(4308.2)	(1651.9)
Difference	23848.0***	25674.0***	1916.2	58159.1***	76598.1***	18811.2***
	(6925.5)	(7084.4)	(1162.2)	(8306.6)	(8935.6)	(2643.0)
Explained	3707.7	5996.4	2281.9**	22956.4***	46449.1***	23305.7***
	(3298.3)	(3471.3)	(826.6)	(5796.3)	(6400.6)	(2256.6)
Unexplained	20140.3**	19677.5**	-365.6	35202.7***	30149.0***	-4494.5
	(6794.9)	(6915.6)	(1108.0)	(8331.2)	(9132.4)	(2578.6)
Observations	2224	2224	2224	4997	4997	4997

Notes: Estimated using the SOEPv30 2012 and 2013 sample including individuals ages between 25 and 60 and sample weights. Percentages in terms of males. Decomposition estimated using the full set of controls described in Appendix A. The wealth gap is calculated in terms of males.

Next, we exclude self-employed individuals from our analysis because contributions to statutory pensions are not compulsory for all the self-employed (only for certain occupations). Thus, we expect the gap to be smaller. We estimate the FFL recentered influence function decomposition method for the 25th, 50th, and 90th percentile on the restricted sample. Table 10 shows that excluding the self-employed from the sample results in a slightly smaller net wealth gap and the augmented wealth gap.

These reductions are consistent with the explained portion of the whole sample where self-employment has a significant positive contribution to the gap. For pension wealth we now get the picture of a rather stable gap of 16 to 19 % over the whole distribution. Excluding self-employed leads here to a more homogeneous population, where differences in earnings levels between sexes mainly push the gap.

Table 10: RIF-OAXACA Decomposition of Gender Gap, population 25-60 Excluding Self-employed

	(1) **Q25**	(2) **Q50**	(3) **Q90**
Net Wealth			
Gap(%)	42%	30.2%	16.4%
Male	3,936.48***	35,929.12***	222,543.15***
Female	2,282.14**	25,056.13***	185,897.58***
Difference	1,654.34	10,872.99***	36,645.57***
Explained	9,106.90***	20,725.58***	89,214.51***
Unexplained	-7,452.56**	-9,852.59*	-52,568.94***
Augmented Wealth			
Gap(%)	12.4%	15.4%	23.9%
Male	43,306.25***	113,842.90***	415,833.64***
Female	37,919.23***	96,247.51***	316,337.56***
Difference	5,387.01*	17,595.39***	99,496.07***
Explained	22,112.79***	49,716.25***	130,543.03***
Unexplained	-16,725.78***	-32,120.86***	-31,046.95
Pension Wealth			
Gap(%)	15.8%	15.9%	18.8%
Male	26,140.37***	62,606.76***	196,301.41***
Female	21,990.67***	52,606.02***	159,269.87***
Difference	4,149.70**	10,000.74***	37,031.54***
Explained	11,574.80***	27,914.79***	44,543.40***
Unexplained	-7,425.10**	-17,914.05***	-7,511.86

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

Notes: Estimated using the SOEPv30 2012 and 2013 sample excluding self-employed including individuals ages between 25 and 60 and sample weights. Percentages in terms of males. Decomposition estimated using the full set of controls described in Appendix A.

Among married couples is where there are most incentives to rely on each other for wealth support and the gaps could be bigger. Table 11 includes the estimates for both the decomposition at the mean and the decomposition at the median. The differences in both cases remain statistically significant. Compared to the whole main sample, married individuals have higher mean wealth and augmented wealth and the difference in the mean from the decomposition for net wealth is smaller when compared with the whole sample decomposition (29.9 compared to 37.6), which could be a result of the perception of sharing wealth. The difference is slightly smaller in augmented wealth (26.9 compared to 28.8), but increases in pension wealth (23.2 compared to 15.8) due

most likely to smaller pension contributions of married women.

Table 11: Oaxaca-Blinder Mean Decomposition and RIF-OAXACA at Median Wealth Gaps, Married Individuals Only.

OB	**Mean decomposition**		
	Net Wealth	**Augmented Wealth**	**Pension Wealth**
Gap	29.9 %	26.9 %	23.2 %
Male	143,998.029***	245,424.788***	101,532.590***
Female	100,866.847***	179,170.322***	77,967.840***
Difference	43,131.182***	66,254.466***	23,564.751***
Explained	27,855.907***	57,313.087***	29,173.234***
Unexplained	15,275.275	8,941.379	-5,608.483*
RIF-OB	**Median decomposition**		
	Net Wealth	**Augmented Wealth**	**Pension Wealth**
Gap	18.1 %	21.3 %	21.4 %
Male	66,307.323***	162,951.705***	73,039.513***
Female	54,250.000***	128,166.142***	57,372.881***
Difference	12,057.323***	34,785.563***	15,666.632***
Explained	49,695.047***	77,296.563***	35,898.929***
Unexplained	-37,637.724***	-42,511.000**	-20,232.297***

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

Notes: Estimated using the SOEPv30 2012 and 2013 sample including married individuals ages between 25 and 60 and sample weights. Percentages in terms of males. Decomposition estimated using the full set of controls described in Appendix A.

The results of the RIF decomposition at the median for the married only sample is found in the bottom panel of Table 11. Net wealth is higher among married individuals only and the gap is smaller than the one found in Table 6 for the whole sample. However, including pension wealth increases the difference at the median. This increase confirms the importance of taking into account pension wealth. At the same time it is important to note that the pension wealth gap is higher among married couples only. The differences in characteristics favor males with a positive sign in the explained component at the median of the married, net wealth distribution and is the largest contributor to the gap, while the difference in returns, or unexplained component, reduces the difference and is in favor of females' net wealth.

Next, we restrict the subsample to adults without any children. Table 12 shows the estimations results from both the mean decomposition and the RIF decomposition at the median for all wealth variables. In this case, the differences are only statistically significant for net wealth mean and median decomposition. For pension wealth the gap is negative, i.e. men show lower levels of pension wealth than women. This is in line with previous research, showing that women without children perform relatively better in the German labor market, while having a child bears a significant risk for the labour market career and subsequently on their pension entitlements (Schrenker and Zucco (2020)). As a result the gap for augmented wealth is reduced to only 5.2%.

Table 13 includes the estimation on a limited sample including only single individuals.

Table 12: Oaxaca-Blinder Mean Decomposition RIF-OAXACA Median Wealth Gaps, Individuals without Children.

OB	(Mean)		
	Net Wealth	**Augmented Wealth**	**Pension Wealth**
Gap	28.8%	15.4 %	-5.4 %
Male	94,507.963***	153,785.998***	59,330.892***
Female	67,281.964***	130,167.995***	62,566.063***
Difference	27,226.000*	23,618.003	-3,235.172
Explained	1,995.845	-1,321.768	-3,390.792
Unexplained	25,230.155*	24,939.771*	155.620
RIF-OB	(Median)		
	Net Wealth	**Augmented Wealth**	**Pension Wealth**
Gap	24.6 %	5.4 %	-13.4 %
Male	20,050.904***	71,588.256***	32,166.068***
Female	15,106.139***	67,697.846***	36,482.694***
Difference	4,944.765*	3,890.410	-4,316.626
Explained	1,020.918	-1,109.592	-2,200.259
Unexplained	3,923.847	5,000.001	-2,116.367

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

Notes: Estimated using the SOEPv30 2012 and 2013 sample including individuals with out children ages between 25 and 60 and sample weights. Percentages in terms of males. Wealth variables are top and bottom coded at 99.9 and 0.1%. Decomposition estimated using the full set of controls described in Appendix A.

Our results are robust at the mean for singles, but not at the median.

10 Conclusion

We study the gender wealth gap, extending standard wealth measures to include pension wealth in augmented wealth. For this purpose, we use detailed individual data for the working age population on personal wealth and on pension entitlements from the 2012 and 2013 waves of the German SOEP.

The unconditional gender wealth gap increases in levels from males having an average of 29,000 euros to 43,500 euros more than females, while the proportion decreases form 33% to 23%. We take two approaches to estimate a conditional gender wealth gap. First we estimate a Oaxaca-Blinder (Oaxaca, 1973; Blinder, 1973) decomposition at the mean and find that including pension wealth decreases the relative gender wealth gap. Our estimates of a Oaxaca-Blinder decomposition of net wealth show a gender wealth gap of 37.6% in terms of males' net wealth. The differences in characteristics and its returns contribute positively to this difference. The wealth gap decreases at the mean if we include pension wealth. The mean decomposition of augmented wealth gap estimate is of 28.8% . The augmented wealth gap is mostly explained by difference is characteristics.

Table 13: Oaxaca-Blinder Mean Decomposition and RIF-OAXACA at Median Wealth Gaps, Single Individuals Only.

OB	(Mean)		
	Net Wealth	**Augmented Wealth**	**Pension Wealth**
Gap	52 %	30.2 %	-17.3 %
Male	74,823.877***	108,876.121***	34,091.491***
Female	35,871.841***	75,890.036***	40,018.194***
Difference	38,952.036**	32,986.085*	-5,926.703
Explained	194.723	-2,199.531	-2,399.522
Unexplained	38,757.312**	35,185.616*	-3,527.182
RIF-OB	(Median)		
	Net Wealth	**Augmented Wealth**	**Pension Wealth**
Gap	25.6 %	4.4 %	4.4 %
Male	8,647.966***	31,735.730***	16,477.263***
Female	6,425.000***	30,321.912***	18,216.176***
Difference	2,222.966	1,413.818	-1,738.913
Explained	-1,246.050	-408.469	381.923
Unexplained	3,469.016	1,822.287	-2,120.836
Observations	1045	1045	1045

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

Notes: Estimated using the SOEPv30 2012 and 2013 sample including single individuals ages between 25 and 60 and sample weights. Percentages in terms of males. Decomposition estimated using the full set of controls described in Appendix A.

The second approach we take is estimate a RIF decomposition following Firpo et al. (2009) at the 25th, 50th and 90th percentile of the wealth distributions. The estimates of FFL decomposition show that including pension wealth closes the gap at the bottom 25th and 50th percentile, but it hardly changes anything at the 90th percentile. The net wealth gender gap is 55.4%, 36.2%, and 28.3% in net wealth, respectively. Including pension wealth, which has itself much lower gaps of 7.2%, 10.3%, and 17.2% for each of the studied percentiles, decreases the gap at the 25th and 50th percentile. The decomposition estimates show that females have accumulated 14%, 18.4%, and 29.6% less augmented wealth with respect to males.

Additionally, we estimate a decomposition for each pension type separately. The mean decomposition shows that females have a smaller disadvantage in statutory pension wealth. The statutory pension shows the smallest difference in the decomposition, which is the result of a contribution ceiling in the statutory pension scheme and redistribution elements which favor women - in particular those with children. Civil servant pensions have a gap of 24.6% at the mean, which is mainly explained by differences in characteristics. Company pensions have the largest gap of 35% at the mean among all pension wealth components. For the RIF decomposition, there is no statically significant difference at the bottom 25th percentile of statutory pension wealth, and a 8.2% and 11.7% wealth gap at the 50th and 90th percentile respectively.

These results are robust to restricting the sample to exclude self-employed individuals,

include only married individuals, as well as including only individuals without any children in the household.

Pension wealth is more equally distributed across sexes than net worth. The implicit and explicit redistribution elements in the statutory pension scheme in Germany, which favor women more than men is largely responsible for this finding. However, these redistributive elements cannot level out the still existing gender pay gap of almost 20 % in Germany. Due to the fact that women are more affected by old-age poverty than men, the question arises as to whether the existing redistribution instruments are sufficient. This is particular true for married women, as their augmented wealth gap is as high as the one for the total population, although married women very often have children and may profit from the redistribution in the statutory pension scheme.

This is -as far as we know- the first paper that considers pension wealth when analyzing the gender wealth gap. However, as the distribution of wealth is very unequal, a proper consideration of top wealth holders is a relevant aspect. The data we used is as many wealth surveys confronted with the problem of an under-representation of that population. Given that SOEP successfully surveyed millionaires since survey year 2019, future research should replicate our analyses if pension information is also available for this SOEP-sub-population. Future research should also try to carve out better which life trajectories lead to worse pension wealth developments for women than for men.

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A Appendix A

The full set of control variables includes ever had children (0-1 indicator for at least one birth), children in household (0-1 indicator for having children 16 years or younger in the household), as well as 0-1 indicators for the children ages (5 and under, 6 to 15 years old and 16 and over), immigrant (0-1 indicator for being born in Germany), East (0-1 indicator for living in East Germany), education (secondary only (omitted category), lower vocational, upper vocational and university), employment status (not employed, trainee, self-employed); occupation (blue collar (omitted category), white collar, low and high level civil servant); marital status (married (omitted category), cohabiting, single, divorced/separated, widowed); experience in years (full-time employment, part-time employment and being unemployed); indicator for having pension rights (statuary, civil servant and occupational). Experience is expressed in calendar years and pension rights is an indicator of the individual having a positive amount of the present value of the corresponding pension.

We also include indicators for company size: no coworkers, small company (2-20 workers), medium company (20-200 workers, omitted category), and large (200 or more workers). Industry occupation indicators from NACE class 1.1 classifications: agriculture hunting and forestry(omitted), fishing, mining, manufacturing, electricity gas and water supply, construction, wholesale an retail, hotels and restaurants, transportation storage and communication, financial intermediation, real estate, public administration and defense, education, health an social work, other community social and personal service activities, activities of households, and extraterritorial organizations and bodies.

Appendix Tables

Table A1: Distribution of wealth by net wealth deciles for all, males and females.

	Mean (in Euros)				**Share of Augmented Wealth (%)**			
Decile	Net Wealth	Total Pension	Augmented Wealth	Statutory Pension	NW	TP	SP	CP
1	-16,019	51,005	35,025	40,729	84	16	5	7
2	-50	49,911	49,925	45,827	0	90	85	4
3	312	34,299	34,611	30,912	14	86	78	7
4	3,246	39,791	43,254	34,312	26	74	66	5
5	10,557	50,392	60,949	39,158	34	66	54	8
6	23,962	59,451	84,644	43,692	43	57	44	8
7	46,998	70,525	117,529	53,005	50	50	40	6
8	84,220	89,270	173,572	58,513	58	42	32	5
9	141,382	101,076	242,819	66,400	65	35	26	5
10	433,109	114,176	547,513	69,810	77	22	15	4
Total	72,567	67,134	139,927	49,385	44	54	45	6
Observations	9165	9165	9165	9165	9165	9165	9165	9165

Source: SOEPv30 2012 and 2013. The sample includes non-retired individuals between 25 and 60 years old. NW, TP, SP, CP refer to net wealth, total pension, statutory pension, and company pension as shares of augmented wealth.

Table A2: Descriptive Statistics Sample Means for Male, Females, and Total Sample.

	Mean		
	Male	Female	Total
Industry			
Agriculture, hunting and forestry	0.014	0.005	0.009
Fishing	0.000	0.000	0.000
Mining and quarrying	0.001	0.000	0.001
Manufacturing	0.253	0.095	0.170
Electricity, gas and water	0.013	0.005	0.009
Construction	0.093	0.014	0.051
Wholesale and retail trade	0.069	0.108	0.090
Hotels and restaurants	0.014	0.027	0.021
Transp., storage and communication	0.056	0.029	0.042
Financial intermediation	0.029	0.027	0.028
Real estate.	0.096	0.073	0.084
Public administration	0.064	0.058	0.061
Education	0.030	0.077	0.055
Health and social work	0.045	0.155	0.103
Other community, social and personal service	0.037	0.033	0.034
Activities of households	0.000	0.006	0.003
Extra-territorial org.	0.001	0.001	0.001
Company size			
No Coworkers	0.054	0.046	0.050
Small Company	0.206	0.255	0.230
Medium Company	0.256	0.256	0.256
Large Company	0.484	0.443	0.463
Observations	3946	4741	8409

Source: SOEPv30 2012 and 2013. The sample includes non-retired individuals between 25 and 60 years old. Sample weights are used. Variables are described in Appendix A.

Table A3: Determinants of wealth for overall population aged 25-60, by gender

	Net Wealth		**Augmented Wealth**		**Pension Wealth**	
	Male	Female	Male	Female	Male	Female
Had Children	7293.1	-9725.3	11943.2	53.48	4726.5	9909.4***
	(15509.5)	(8019.9)	(16141.7)	(8871.5)	(3393.9)	(2863.6)
Children 5 and under	8359.6	-3591.1	438.9	-11856.4	-7694.1*	-8413.8*
	(17170.7)	(9577.5)	(17870.5)	(10594.4)	(3757.4)	(3419.7)
Children 6-15 year old	26172.0*	14282.1*	18764.0	7729.4	-7965.6**	-6533.7**
	(13283.7)	(6457.1)	(13825.1)	(7142.8)	(2906.8)	(2305.6)
Children 16+	96.79	32594.4***	-3189.3	31948.5***	-3117.3	-534.8
	(17396.6)	(7953.4)	(18105.6)	(8797.8)	(3806.8)	(2839.8)
Immigrant	-46888.9	-32563.7*	-56055.8*	-39558.9**	-9275.6	-6896.6
	(25225.0)	(13053.8)	(26253.1)	(14439.8)	(5519.9)	(4661.0)
East	-72059.5***	-40044.3***	-85177.6***	-48991.0***	-13170.9***	-8888.9***
	(12840.1)	(6532.4)	(13363.4)	(7226.0)	(2809.7)	(2332.5)
Lower Vocational	24835.5	15156.6	27038.3	15406.4	2132.5	271.1
	(23914.3)	(10545.7)	(24888.9)	(11665.4)	(5233.1)	(3765.4)
Upper Vocational	34524.5	19314.7	40069.8	23364.9	5501.9	4036.3
	(26521.3)	(11919.7)	(27602.3)	(13185.3)	(5803.6)	(4256.0)
University	116633.5***	57503.0***	154468.8***	73091.9***	37958.0***	15325.8***
	(26427.3)	(11732.2)	(27504.4)	(12977.9)	(5783.0)	(4189.1)
Not Employed	-1116.6	21333.4	4683.1	18110.9	5866.4	-3347.4
	(36404.4)	(13578.4)	(37888.2)	(15020.1)	(7966.2)	(4848.3)
Trainee	48228.6	27332.1	77254.0	38894.4	29401.1**	11598.1
	(46960.4)	(24092.3)	(48874.4)	(26650.3)	(10276.1)	(8602.4)
Self-employed	368653.6***	138898.7***	332769.4***	111682.6***	-33644.6***	-26629.4***
	(24738.8)	(14412.4)	(25747.1)	(15942.7)	(5413.5)	(5146.1)
White Collar	22568.9	25281.2**	36566.7*	25014.5**	13678.5***	-225.5
	(14596.1)	(8224.0)	(15191.0)	(9097.2)	(3194.0)	(2936.5)
Civil Servant Low	78899.7	28448.6	75905.4	15073.2	-2292.4	-12429.8
	(63603.7)	(34155.9)	(66196.1)	(37782.5)	(13918.1)	(12195.7)
Civil Servant High	64606.7	73869.4**	108009.9	113797.4***	43912.6***	39218.7***
	(59117.3)	(27826.0)	(61526.7)	(30780.4)	(12936.4)	(9935.5)
Fishing	16516.6	11351.2	-5813.8	14748.8	-20346.4	4480.5
	(311748.8)	(153360.6)	(324454.8)	(169644.1)	(68218.7)	(54758.8)
Mining and quarrying	83288.5	-29806.7	96892.6	-40151.0	13528.1	-9102.3
	(91787.8)	(108755.0)	(95528.8)	(120302.4)	(20085.5)	(38832.0)
Manufacturing	-42924.7	3636.2	-31852.1	2568.6	10939.9*	526.3
	(23399.2)	(12988.7)	(24352.9)	(14367.8)	(5120.4)	(4637.7)
Electricity, gas and water	-36037.5	-33159.0	-42844.6	-41100.2	-6989.2	-6431.2

	(47898.0)	(33049.3)	(49850.2)	(36558.4)	(10481.3)	(11800.6)
Construction	-68303.8*	16520.4	-63863.6*	18895.1	4053.7	3681.2
	(26514.5)	(20746.0)	(27595.2)	(22948.7)	(5802.1)	(7407.5)
Wholesale and retail	-65734.0*	-21144.7	-59062.8*	-28718.1*	6073.0	-6264.1
	(28349.9)	(12615.1)	(29505.3)	(13954.5)	(6203.7)	(4504.3)
Hotels and restaurants	-62911.1	-28495.4	-51193.5	-23216.4	11256.4	6356.6
	(49078.9)	(18724.5)	(51079.2)	(20712.6)	(10739.7)	(6685.7)
Transp., storage and com.	-43933.5	-11708.4	-38236.6	-14629.3	5645.9	-1334.8
	(29783.7)	(17169.2)	(30997.6)	(18992.2)	(6517.4)	(6130.4)
Financial intermediation	-25848.0	14492.0	-11446.2	18701.9	14314.6	5514.6
	(34901.3)	(16702.9)	(36323.8)	(18476.4)	(7637.3)	(5963.9)
Real estate.	-4329.0	-367.7	3962.0	-3090.0	8271.9	-1344.4
	(26834.9)	(13428.1)	(27928.7)	(14853.8)	(5872.2)	(4794.6)
Public administration	-45203.5	-24809.6	-61126.0	-41260.0*	-15852.0*	-14371.7**
	(33541.2)	(14668.9)	(34908.3)	(16226.4)	(7339.7)	(5237.7)
Education	-51869.0	-20518.6	-54511.4	-23455.4	-2084.8	-2026.6
	(35322.8)	(13444.0)	(36762.4)	(14871.5)	(7729.5)	(4800.3)
Health and social work	-56678.0	-4480.3	-57982.3	-12644.3	-1030.4	-6774.7
	(30913.6)	(11903.5)	(32173.5)	(13167.4)	(6764.7)	(4250.3)
Other community act.	-100047.0**	-22413.7	-99920.2**	-33786.0*	-117.6	-9977.4
	(33837.3)	(15459.1)	(35216.4)	(17100.5)	(7404.5)	(5519.8)
Activities of households	-144127.8	-23374.0	-138135.0	-26267.6	6132.9	-1903.9
	(308599.9)	(30093.1)	(321177.6)	(33288.3)	(67529.6)	(10745.0)
Extra-territorial org.	13344.5	-77832.2	8842.5	-88290.9	-4376.9	-8824.8
	(179872.0)	(77307.7)	(187203.1)	(85516.1)	(39360.6)	(27603.4)
No Coworkers	-236473.4***	-30606.0	-234343.5***	-28203.9	287.7	2238.8
	(31551.0)	(16700.5)	(32836.9)	(18473.7)	(6904.2)	(5963.1)
Small Company	-13806.9	23194.7**	-13955.8	18807.8*	86.50	-4423.0
	(17102.0)	(7327.7)	(17799.1)	(8105.8)	(3742.4)	(2616.4)
Large Company	-28260.8*	5859.3	-18914.3	12710.8	9548.6**	6455.1**
	(13411.7)	(6531.6)	(13958.4)	(7225.1)	(2934.8)	(2332.2)
Cohabiting	11585.3	-35957.5***	8138.1	-42261.2***	-3440.4	-6089.7
	(18807.8)	(9419.3)	(19574.3)	(10419.4)	(4115.6)	(3363.2)
Single	27811.8	-39638.3***	26406.4	-44706.1***	-1241.1	-4684.6
	(20449.7)	(9383.0)	(21283.2)	(10379.3)	(4474.9)	(3350.3)
Divorced/Separated	-1446.3	-50123.2***	-10529.8	-47254.2***	-9115.6*	3293.9
	(18211.3)	(7477.2)	(18953.5)	(8271.2)	(3985.1)	(2669.8)
Widowed	-36151.4	10800.3	-61399.8	23937.9	-25279.5	13648.9*
	(103400.2)	(17587.2)	(107614.5)	(19454.5)	(22626.6)	(6279.7)
Exp, Full-time	4903.5***	3094.8***	9908.6***	7677.2***	5012.4***	4536.2***

	(683.7)	(347.9)	(711.6)	(384.8)	(149.6)	(124.2)
Exp, Part-time	-1428.8	3750.2***	1707.5	6522.9***	3059.1***	2767.5***
	(2382.4)	(473.2)	(2479.5)	(523.5)	(521.3)	(169.0)
Exp, Unemployed	-6000.0	-2496.7	-3728.6	-1302.3	2262.5**	1196.6*
	(3345.2)	(1354.5)	(3481.5)	(1498.3)	(732.0)	(483.6)
Has Statutory Pensions	29892.5	-3938.0	23511.5	-5409.6	-5492.1	-1047.6
	(22532.3)	(11529.4)	(23450.6)	(12753.6)	(4930.6)	(4116.7)
Has Civil Servant Pension	-46872.3	-8092.3	16676.2	44171.6	63321.7***	51797.7***
	(46903.4)	(23480.0)	(48815.1)	(25973.0)	(10263.7)	(8383.7)
Has Occupational Pension	2544.7	5378.8	45985.7***	37707.8***	43430.7***	32531.2***
	(12469.5)	(6156.7)	(12977.7)	(6810.4)	(2728.6)	(2198.3)
Constant	-30827.8	-10871.1	-89113.1*	-33894.2	-59077.2***	-24378.1***
	(42669.6)	(20257.7)	(44408.7)	(22408.7)	(9337.2)	(7233.2)
Observations	3527	3694	3527	3694	3527	3694

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

Notes: OLS regression estimates utilizing the SOEPv30 2012 and 2013 sample including individuals ages between 25 and 60 and sample weights. Each column includes the estimates for indicated wealth variable as the dependent variable and the indicated gender. Wealth variables are top and bottom coded at 99.9 and 0.1%. Decomposition estimated using the full set of controls described in Appendix A. Standard errors in parenthesis.

Table A4: Determinants of Accumulated Pension Wealth, by Gender

	Statutory		**Company**		**Civil**	
	Male	Female	Male	Female	Male	Female
Had Children	1995.6	7940.4***	14691.0	31475.9*	2836.7	2826.1
	(1901.8)	(1846.1)	(13291.2)	(13686.8)	(6376.6)	(4126.4)
Children 5 and under	-6420.1**	-3647.2	-7018.6	-22429.9	3027.5	-3372.3
	(2084.3)	(2137.4)	(14752.7)	(14800.1)	(7218.0)	(5186.3)
Children 6-15 year old	-5822.3***	-4666.3**	-28363.3*	-19492.7	4650.0	-2858.9
	(1608.1)	(1434.8)	(11547.5)	(11360.8)	(5248.3)	(3512.2)
Children 16+	-754.5	1609.8	-4579.8	8307.8	-10231.0	-4561.7
	(2119.4)	(1744.0)	(14332.2)	(15998.8)	(6948.8)	(4264.6)
Immigrant	-9367.1**	-8975.6**	-2264.8		-8725.2	-4552.8
	(2953.8)	(2767.0)	(59121.4)		(12255.0)	(9204.6)
East	-10394.5***	-8681.9***	-7647.1	-24545.3	-20243.4***	-2824.4
	(1561.4)	(1464.4)	(12499.3)	(12647.3)	(5675.8)	(3617.4)
Lower Vocational	3538.4	1981.4	34284.5	8698.4	1704.4	425.9
	(2851.1)	(2275.1)	(30298.9)	(20219.1)	(12688.3)	(6562.4)
Upper Vocational	4634.2	5164.3*	57033.2		14773.5	2061.2
	(3165.8)	(2589.9)	(31660.6)		(13289.9)	(7023.2)
University	26448.2***	12334.0***	50445.2	15434.7	49842.4***	13891.9*
	(3179.3)	(2559.6)	(31994.9)	(17023.6)	(13267.1)	(6937.4)
Not Employed	1111.1	-6095.3*	197947.4	-467103.9***	-477.0	2467.8
	(4173.8)	(2893.0)	(102379.1)	(107323.0)	(22753.5)	(9286.8)
Trainee	11582.4	1117.9	-100070.9	-425597.4***	28224.1	6590.0
	(7139.3)	(6551.4)	(93539.0)	(126704.5)	(30768.4)	(24472.1)
Self-employed	-24724.3***	-16185.8***	104699.0*		18672.2	29368.0**
	(3008.3)	(3298.8)	(51289.2)		(13653.2)	(11151.0)
White Collar	6594.7***	-234.8	41591.1	-482058.1***	12615.5*	7569.0
	(1698.8)	(1757.6)	(35673.7)	(103930.6)	(6182.6)	(5490.2)
Civil Servant Low	28161.9	-15109.9	79431.1*	-445325.3***	19121.0	14025.5
	(24662.6)	(22804.3)	(35207.8)	(105813.4)	(25460.0)	(15426.1)
Civil Servant High	-336.7	-12484.1	130198.5***	-395516.9***	-2818.6	22383.7
	(12608.3)	(10404.7)	(36631.3)	(105209.6)	(17845.4)	(11670.0)
Fishing	-1012.3	-828.0			53561.0	
	(35288.4)	(32199.8)			(75888.2)	
Mining and quarrying	13973.7	1665.3			4999.4	-38634.1
	(10439.2)	(22844.1)			(31573.8)	(47774.2)
Manufacturing	5735.0*	623.0	225714.9***		17995.8	-451.2
	(2869.7)	(2898.2)	(58678.6)		(11542.5)	(7907.8)
Electricity, gas and water	-4533.2	2019.3			7203.9	-17706.7

	(5556.6)	(7131.8)			(17064.1)	(14297.8)
Construction	4380.4	6867.7	148.7		-2689.1	-17711.9
	(3210.1)	(4507.9)	(51254.3)		(14068.9)	(14154.3)
Wholesale and retail	2517.2	-5681.5*	123803.0	-4309.7	25076.8	-13915.7
	(3483.9)	(2812.3)	(67299.0)	(80252.7)	(15008.4)	(8460.7)
Hotels and restaurants	4723.0	1469.1	85244.4	639638.0***	36967.3	-30828.6*
	(5904.4)	(4124.3)	(87916.4)	(77708.5)	(29620.9)	(15314.6)
Transp., storage and com.	4307.1	3423.6	-150.5	-42782.6	8238.8	-8030.5
	(3614.1)	(3897.8)	(36446.7)	(38220.9)	(13964.7)	(10011.1)
Financial intermediation	8845.7*	968.9	51575.4	-1722.1	9192.1	-679.1
	(4156.3)	(3642.6)	(59779.9)	(77836.9)	(13454.4)	(8241.8)
Real estate	3508.0	1261.9	30281.1	-66487.6	19760.1	-7392.4
	(3322.6)	(3015.1)	(40895.6)	(44945.5)	(12958.5)	(8935.6)
Public administration	2939.7	459.2	-4578.0	-22101.8	-9492.6	-21713.6**
	(4514.8)	(3416.5)	(30687.1)	(24347.2)	(13950.0)	(7761.7)
Education	332.0	940.4	21318.4	8651.5	-6283.0	-18430.5*
	(4688.9)	(3091.5)	(32393.5)	(23960.1)	(15139.5)	(7734.7)
Health and social work	3707.1	-3221.6	81235.4	-18553.2	6443.9	-15267.0*
	(3783.4)	(2681.4)	(57272.9)	(34705.2)	(13388.7)	(7265.9)
Other community act.	-477.7	-5834.2	-59364.5	-28060.0	2706.5	-13474.0
	(4143.4)	(3463.9)	(46357.2)	(43054.6)	(14858.3)	(9232.0)
Activities of households	-2984.8	-3601.4				-30586.5
	(34896.1)	(6472.9)				(47750.9)
Extra-territorial org.	313.0	-7989.8	41388.6		-29245.9	-11228.2
	(20281.9)	(16255.7)	(106346.3)		(52762.1)	(34321.8)
No Coworkers	1734.7	2195.4	-156869.6	-41507.8	-8407.5	8050.2
	(4093.0)	(3993.6)	(86875.7)	(73383.0)	(21822.5)	(15492.1)
Small Company	-1831.6	-5163.0**	-15989.6	46175.8*	10141.5	-8593.5
	(2004.2)	(1597.1)	(32545.9)	(19578.9)	(9094.2)	(4698.6)
Large Company	7329.2***	5366.7***	-25752.9*	4052.2	12034.0*	2894.2
	(1588.1)	(1454.2)	(12966.9)	(10754.2)	(5469.9)	(3310.5)
Cohabiting	-3301.2	-4230.2*	-24617.4	-655.7	7175.5	-3967.4
	(2286.9)	(2149.0)	(20041.1)	(16891.7)	(7629.7)	(4854.6)
Single	-1807.7	-4672.8*	-13922.3	-3742.5	-2661.2	-2621.3
	(2497.4)	(2163.5)	(20917.5)	(15420.2)	(8822.4)	(5176.9)
Divorced/Separated	-5636.5*	1926.1	-16237.2	-29377.3*	-2363.1	7388.2
	(2207.8)	(1643.2)	(15168.9)	(14549.0)	(7308.9)	(3891.6)
Widowed	-4963.0	3859.8		199323.1***	-9225.5	21140.1*
	(12398.0)	(3790.8)		(44204.5)	(51624.3)	(9772.4)
Exp, Full-time	3819.5***	3622.3***	9008.7***	10598.7***	2816.0***	1228.9***

	(82.89)	(77.69)	(647.1)	(547.1)	(279.4)	(175.9)
Exp, Part-time	2401.4***	2294.4***	9766.6***	5375.6***	274.1	908.7***
	(289.3)	(104.6)	(2609.4)	(833.0)	(946.6)	(245.2)
Exp, Unemployed	1447.1***	1105.3***	-5980.0	7085.1	1614.0	-329.8
	(387.6)	(292.1)	(3497.8)	(8670.4)	(2558.3)	(1357.6)
Constant	-30624.3***	-10813.4**	-179668.1**	353291.4**	-64576.5***	4135.4
	(4719.5)	(4088.7)	(55249.5)	(109769.5)	(19389.4)	(11473.1)
Observations	3009	3222	319	293	1194	1278

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

Notes: OLS regression estimates utilizing the SOEPv30 2012 and 2013 sample including individuals ages between 25 and 60 and sample weights. Each column includes the estimates for indicated wealth accumulation by pension type as the dependent variable and the indicated gender. Wealth variables are top and bottom coded at 99.9 and 0.1%. Decomposition estimated using the full set of controls described in Appendix A. Standard errors in parenthesis.

Table A5: Oaxaca-Blinder Decomposition at Means of the Gender Wealth Gap, Pension Wealth and Augmented Wealth.

	(1) **Net Wealth**	(2) **Augmented Wealth**	(3) **Pension Wealth**
Overall			
Male	125,688.671***	209,879.673***	84,278.274***
Female	78,386.701***	149,507.425***	70,922.602***
Difference	47,301.970***	60,372.248***	13,355.672***
Explained	17,704.106***	35,092.476***	17,290.736***
Unexplained	29,597.863***	25,279.772***	-3,935.064*
Explained			
Had Children	-277.122	-852.180	-589.986**
Children 5 and under	-298.613	-722.410	-427.499***
Children 6-15 year old	-166.824	-108.368	60.209
Children 16+	-261.085	-242.675	15.255
Immigrant	-204.904	-246.835	-42.191
East	335.827	403.609	68.162
Lower Vocational	-129.551	-126.671	2.854
Upper Vocational	125.993	142.303	16.253
University	1,481.993	1,948.843	464.464
Not Employed	-624.831**	-731.779**	-105.774
Trainee	42.809	68.786	26.152
Self-employed	13,293.437***	11,841.929***	-1,377.476***
White Collar	-5,832.284***	-7,566.774***	-1,715.794***
Civil Servant Low	603.842	580.617	-16.098
Civil Servant High	66.756	106.939	40.102
Industry	3,802.869	5,394.660*	1,587.453**
Company	-2,859.084**	-2,192.104*	639.805***
Cohabiting	-222.759	-296.763	-72.831
Single	-328.156	-416.905	-83.863
Divorced/Separated	1,423.496**	1,500.580**	66.491
Widowed	-102.450	-269.651	-172.179
Exp, Full-time	29,629.853***	65,402.757***	35,634.085***
Exp, Part-time	-21,996.151***	-38,826.279***	-16,810.934***
Exp, Unemployed	762.824**	479.797*	-282.111**
Has Statutory Pensions	-214.448	-160.506	42.546
Has Civil Servant Pension	-316.540	291.005	602.850
Has Occupational Pension	-30.790	-309.449	-279.207
Unexplained			
Had Children	13,104.058	9,329.965	-3,807.080
Children 5 and under	1,780.503	1,864.664	132.695
Children 6-15 year old	3,181.297	2,956.596	-379.144
Children 16+	-3,839.991	-4,141.212	-293.370
Immigrant	-644.534	-741.939	-106.512
East	-7,682.601**	-8,685.938**	-1,030.246
Lower Vocational	4,667.743	5,599.554	887.754
Upper Vocational	2,585.042	2,846.120	255.988
University	16,947.940**	23,305.083***	6,468.173***

Not Employed	-474.990	-72.590	409.047*
Trainee	279.468	509.624	234.745*
Self-employed	21,177.413***	20,285.744***	-737.274
White Collar	-155.399	8,402.929	8,360.819***
Civil Servant Low	868.554	992.342	120.950
Civil Servant High	-512.539	-327.133	251.906
Industry	-37,533.676	-29,219.117	6,901.159
Company	-33,837.115**	-31,724.148**	2,383.026
Cohabiting	5,301.045**	5,622.288**	298.741
Single	9,968.163**	10,511.534**	513.209
Divorced/Separated	5,784.004*	4,363.962	-1,475.052*
Widowed	-223.699	-405.443	-187.919*
Exp, Full-time	30,276.004*	37,798.622**	8,388.119*
Exp, Part-time	-3,795.207	-2,254.725	1,485.471
Exp, Unemployed	-2,568.890	-1,800.490	760.185
Has Statutory Pensions	29,151.623	24,937.306	-3,814.293
Has Civil Servant Pension	-3,280.968	-2,286.319	1,015.811
Has Occupational Pension	-968.656	2,831.400	3,727.171**
Observations	7221	7221	7221

Omitted high ed, high civil servant, married
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Estimated using the SOEPv30 2012 and 2013 sample including individuals ages between 25 and 60 and sample weights. Each column includes the estimates for indicated wealth variable as the dependent variable. Wealth variables are top and bottom coded at 99.9 and 0.1%. Decomposition estimated using the full set of controls described in Appendix A.

Table A6: RIF-OAXACA Decomposition of Net Wealth Gender Gap, population 25-60.

	(1) **Q25**	(2) **Q50**	(3) **Q90**
Overall			
Male	4,961.087***	43,149.191***	279,665.855***
Female	2,214.219**	27,537.609***	200,608.206***
Difference	2,746.868*	15,611.582***	79,057.648***
Explained	10,850.661***	29,084.300***	141,945.795***
Unexplained	-8,103.793**	-13,472.718**	-62,888.147**
Explained			
Had Children	17.613	-96.286	661.452
Children 5 and under	-212.467	-97.988	-1,534.411
Children 6-15 year old	-28.593	-105.293	-589.235
Children 16+	6.093	-69.601	-473.755
Immigrant	-70.673	-163.708	-509.031
East	20.431	99.742	841.040
Lower Vocational	-104.480	-85.987	-62.091
Upper Vocational	100.890	118.430	286.626
University	586.378	1,050.963	3,929.217
Not Employed	566.116**	391.793	-1,299.567
Trainee	-11.708	0.405	207.534
Self-employed	1,483.306***	3,447.151***	29,776.974***
White Collar	-1,627.728***	-4,565.236***	-8,320.494*
Civil Servant Low	262.969*	439.167	1,099.234
Civil Servant High	11.650	38.826	107.854
Industry	2,518.252**	7,065.900***	11,897.099
Company	100.924	57.067	-7,752.985**
Cohabiting	-36.583	-284.014	299.682
Single	-188.260	-460.466*	555.174
Divorced/Separated	912.572***	1,433.690***	-208.390
Widowed	-205.037	-654.685	4,653.921***
Exp, Full-time	8,523.030***	23,845.648***	68,279.865***
Exp, Part-time	-2,415.759	-2,939.646	41,013.101*
Exp, Unemployed	796.317***	771.166**	848.807
Has Statutory Pensions	-218.192	-156.220	-1,307.536
Has Civil Servant Pension	94.529	40.353	-278.686
Has Occupational Pension	-30.932	-36.872	-175.604
Unexplained			
Had Children	-1,992.013	543.356	21,654.793
Children 5 and under	53.280	562.353	-2,950.601
Children 6-15 year old	385.826	1,055.463	7,101.337
Children 16+	-478.982	-787.023	-1,975.924
Immigrant	-1.275	-244.762	-1,955.035
East	337.523	-859.442	-8,993.408
Lower Vocational	2,392.881	4,584.808	-6,244.585
Upper Vocational	539.539	886.312	2,033.914
University	2,651.516	7,451.047**	21,860.485

Not Employed	-1,258.257**	-1,282.639*	-911.025
Trainee	-61.543	42.739	1,592.910*
Self-employed	601.266	2,769.634***	28,310.313***
White Collar	-1,042.983	9,104.810*	-8,715.878
Civil Servant Low	57.742	65.731	765.649
Civil Servant High	-430.607	-478.015	602.984
Industry	-9,251.209*	-17,642.272*	-40,775.019
Company	-4,841.057*	-4,340.333	-22,988.647
Cohabiting	450.626	1,132.946	8,897.754*
Single	280.993	1,855.029	12,775.575*
Divorced/Separated	-205.873	455.462	13,162.362*
Widowed	418.209*	869.983	-6,159.352***
Exp, Full-time	6,581.357***	21,870.481***	26,871.680
Exp, Part-time	-1,995.753	-7,815.803	-102,017.236***
Exp, Unemployed	-1,439.378*	-1,387.336	-3,370.451
Has Statutory Pensions	3,143.580	-2,948.732	90,289.941*
Has Civil Servant Pension	640.197	1,534.537	-1,297.503
Has Occupational Pension	-960.049	382.984	11,815.441
Observations			

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

Notes: Estimated using the SOEPv30 2012 and 2013 sample including individuals ages between 25 and 60 and sample weights. Wealth variables are top and bottom coded at 99.9 and 0.1%. Decomposition estimated using the full set of controls described in Appendix A.

Table A7: RIF-OAXACA Decomposition of Augmented Wealth Gender Gap, population 25-60.

	(1) **Q25**	(2) **Q50**	(3) **Q90**
Overall			
Male	44,123.788***	119,579.362***	464,720.422***
Female	37,955.276***	97,570.545***	327,059.568***
Difference	6,168.512*	22,008.817***	137,660.854***
Explained	25,873.050***	56,935.768***	163,896.522***
Unexplained	-19,704.538***	-34,926.951***	-26,235.668
Explained			
Had Children	-65.673	519.561	-1,262.552
Children 5 and under	-88.221	-297.832	-568.160
Children 6-15 year old	-91.538	-158.578	5.090
Children 16+	-83.190	-113.511	-546.269
Immigrant	-126.888	-334.840	-436.425
East	67.063	189.988	930.440
Lower Vocational	-176.244	-75.533	-153.731
Upper Vocational	185.521	124.508	465.603
University	1,128.845	1,668.549	5,943.654
Not Employed	830.509*	565.486	-1,588.675
Trainee	-39.590	45.935	261.644
Self-employed	1,179.926**	4,046.154***	26,257.219***
White Collar	-1,522.316*	-5,467.504***	-14,691.405**
Civil Servant Low	442.282*	431.172	998.052
Civil Servant High	15.915	45.948	286.260
Industry	3,377.331*	10,235.642***	8,405.571
Company	129.980	454.601	-6,851.802**
Cohabiting	-170.415	-342.315	506.385
Single	-657.211*	-296.729	958.198
Divorced/Separated	231.399	1,634.946***	410.429
Widowed	-539.616	-890.819	5,416.061***
Exp, Full-time	39,564.063***	73,931.816***	117,775.826***
Exp, Part-time	-17,906.179***	-30,028.278***	22,573.360
Exp, Unemployed	586.954*	659.508*	-991.811
Has Statutory Pensions	-631.229*	132.892	115.259
Has Civil Servant Pension	381.311	524.015	618.376
Has Occupational Pension	-149.741	-269.015	-940.076
Unexplained			
Had Children	-2,217.240	-17,068.663*	12,295.093
Children 5 and under	1,295.882	1,113.800	1,279.345
Children 6-15 year old	1,734.944	3,528.749	-9,644.096
Children 16+	-1,446.909*	-1,728.307	1,448.831
Immigrant	549.417	-787.936	-1,175.553
East	1,753.026	-872.823	-8,982.104
Lower Vocational	2,353.145	126.530	13,188.803
Upper Vocational	98.705	-1,591.207	13,921.825
University	4,310.571	9,313.921*	55,474.508***

Not Employed	-1,016.051	-1,717.724	684.514
Trainee	9.955	281.771	1,525.380*
Self-employed	913.928	4,189.462***	26,190.592***
White Collar	5,998.139	11,423.370	11,397.782
Civil Servant Low	-339.117	-172.183	2,030.270
Civil Servant High	-2,497.486*	-1,729.870	6,608.235
Industry	-13,917.837	-11,299.761	-71,734.064
Company	-4,904.683	-4,679.328	-12,530.387
Cohabiting	2,545.477**	2,525.086*	9,694.264*
Single	1,879.898	3,753.884*	12,631.451*
Divorced/Separated	1,055.172	-543.831	9,721.853
Widowed	578.163	798.231	-7,070.483**
Exp, Full-time	16,278.855***	38,978.518***	29,186.308
Exp, Part-time	-2,729.842	-5,116.199	-88,546.395**
Exp, Unemployed	-2,125.660*	-235.954	4,408.572
Has Statutory Pensions	-15,442.407*	-16,217.790	70,548.597
Has Civil Servant Pension	2,872.596*	4,072.814	-1,359.915
Has Occupational Pension	-395.500	1,589.285	30,502.143**
Observations			

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

Notes: Estimated using the SOEPv30 2012 and 2013 sample including individuals ages between 25 and 60 and sample weights. Wealth variables are top and bottom coded at 99.9 and 0.1%. Decomposition estimated using the full set of controls described in Appendix A.

Table A8: RIF-OAXACA Decomposition of Pension Wealth Gender Gap, population 25-60.

	(1) **Q25**	(2) **Q50**	(3) **Q90**
Overall			
Male	22,103.754***	56,528.922***	186,937.302***
Female	20,522.598***	50,687.416***	154,754.723***
Difference	1,581.156	5,841.506**	32,182.579***
Explained	8,707.273***	22,223.019***	36,742.323***
Unexplained	-7,126.116***	-16,381.513***	-4,559.744
Explained			
Had Children	186.014	189.699	-532.708
Children 5 and under	-89.614	-365.914*	-446.319
Children 6-15 year old	-82.133	4.601	288.687
Children 16+	-81.169	-71.092	248.884
Immigrant	-14.896	-81.196	-20.720
East	23.851	57.584	181.322
Lower Vocational	-56.234	29.622	-65.701
Upper Vocational	59.649	-2.626	26.398
University	311.150	382.705	1,442.000
Not Employed	95.778	66.488	-561.712
Trainee	-4.130	21.570	91.261
Self-employed	-921.031***	-1,513.968***	-2,236.915**
White Collar	-166.255	-1,588.449**	-6,160.543**
Civil Servant Low	390.971**	287.138	86.139
Civil Servant High	25.121	20.112	155.240
Industry	524.399	2,346.206**	239.439
Company	524.835***	803.729***	508.530
Cohabiting	-21.462	-137.272	26.603
Single	-182.431*	-136.878	137.624
Divorced/Separated	-252.054**	86.922	1,283.787
Widowed	172.907	14.481	2,276.528***
Exp, Full-time	18,797.801***	37,672.599***	68,348.881***
Exp, Part-time	-9,717.302***	-15,550.134***	-29,869.970**
Exp, Unemployed	-116.226	-248.886*	-741.760*
Has Statutory Pensions	-890.834*	-123.682	1,499.151*
Has Civil Servant Pension	299.711	267.798	1,258.616
Has Occupational Pension	-109.143	-208.135	-720.420
Unexplained			
Had Children	-3,044.716	-5,310.422	-13,935.879
Children 5 and under	338.203	376.483	146.414
Children 6-15 year old	2,002.381***	2,143.062*	-4,861.291
Children 16+	-151.288	-62.645	-352.208
Immigrant	271.503	-82.175	-317.361
East	750.567	-744.111	-3,263.356
Lower Vocational	2,049.311	-4,486.864	9,154.536
Upper Vocational	549.303	-2,330.592*	1,382.875
University	1,445.161	1,826.026	18,913.059***

Not Employed	325.335	259.255	1,029.950
Trainee	44.951	205.961*	468.119
Self-employed	-511.759	-606.655	-79.386
White Collar	1,554.362	6,874.494**	22,275.370**
Civil Servant Low	-36.566	12.550	944.783
Civil Servant High	-534.883	-645.060	8,213.488*
Industry	-2,795.241	6,879.781	-781.824
Company	-260.690	-1,806.356	14,658.162
Cohabiting	986.232**	-169.409	663.113
Single	599.584	581.508	-156.310
Divorced/Separated	591.303	-1,205.312	-3,551.190
Widowed	-243.242	-98.942	-2,068.758*
Exp, Full-time	7,154.923***	11,900.825***	11,958.269
Exp, Part-time	-357.766	-3,450.379	11,266.838
Exp, Unemployed	-487.258	-346.347	3,938.558*
Has Statutory Pensions	2,118.634	-3,263.925	-29,799.967*
Has Civil Servant Pension	1,082.271	674.007	1,114.613
Has Occupational Pension	212.244	429.274	12,312.200**
Observations			

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

Notes: Estimated using the SOEPv30 2012 and 2013 sample including individuals ages between 25 and 60 and sample weights. Wealth variables are top and bottom coded at 99.9 and 0.1%. Decomposition estimated using the full set of controls described in Appendix A.

Table A9: RIF-OAXACA Decomposition of Gender Gap, population 25-60 Including Inheritance values.

	(1) **Q25**	(2) **Q50**	(3) **Q90**
Net Wealth			
Gap(%)	39%	36.9%	27.1%
Male	6,344.013***	49,044.974***	282,116.539***
Female	3,893.672***	30,888.821***	205,178.215***
Difference	2,450.341	18,156.153***	76,938.324***
Explained	12,587.489***	35,140.745***	135,372.465***
Unexplained	-10,137.148**	-16,984.592**	-58,434.141**
Explained			
Inheritance	32.243	197.382	3,337.409*
Unexplained			
Inheritance	-375.004***	-664.230**	-3,288.323
Augmented Wealth			
Gap(%)	14.2%	20.4%	28.6%
Male	49,823.219***	130,200.372***	470,791.580***
Female	42,790.354***	103,562.506***	336,407.715***
Difference	7,032.865*	26,637.866***	134,383.865***
Explained	38,020.653***	55,101.837***	163,583.522***
Unexplained	-30,987.788***	-28,463.971**	-29,199.657
Explained			
Inheritance	99.454	303.396	4,494.042*
Unexplained			
Inheritance	-628.156***	-1,202.425**	-1,596.474
Pension Wealth			
Gap(%)	8.3%	11.4%	18%
Male	24,386.012***	61,098.129***	196,900.570***
Female	22,353.355***	54,082.952***	161,806.752***
Difference	2,032.657	7,015.177**	35,093.818***
Explained	12,254.310***	22,393.481***	40,567.517**
Unexplained	-10,221.653***	-15,378.305***	-5,473.699
Explained			
Inheritance	-16.986	16.174	97.576
Unexplained			
Inheritance	44.647	-56.076	23.458

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

Notes: Estimated using the SOEPv30 2012 and 2013 sample including individuals ages between 25 and 60 and sample weights. Percentages in terms of males. Wealth variables are top and bottom coded at 99.9 and 0.1%. Decomposition estimated using the full set of controls described in Appendix A and inheritance values.