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The Gender Pension Gap in Germany – Reasons and Remedies

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Increasing longevity has put the statutory pension scheme in Germany under pressure. In an international comparison, Germany belongs to the countries with the highest life expectancy.[1] Combined with fertility rates below the reproduction level, this means that fewer people will be funding a larger demand for pension payments in the future. This puts the sustainability of the statutory pension scheme at risk and increases the probability of poverty in old age.

According to data from the federal statistical office, the risk of old-age poverty is particularly pronounced for women.[2] Men in Germany live to an average age of 78.6 years and women live to an average age of 83.4 years.[3] Thus, whatever amount of wealth women have accumulated until retirement has to cover almost five more years. Unfortunately, however, women often accumulate less wealth for retirement than men. This holds true for pension wealth as well as net asset wealth.[4]

Based on a broad database on wage income obtained from the Institute of Employment Research (IAB), to which all German businesses must report, we have estimated each employee's statutory pension entitlements and found that the gender pension gap for the first pillar of the German pension system, the statutory pension scheme, amounts on average to 26%. This gap can be considered as a lower bound and has been found to be even larger for the second and third pillars of the pension system, i.e., company pension schemes and private pension provisions. A report by the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth finds that the gender pension gap is almost 60% if all three pillars of the pension system are considered.[5] Comparing this number to other member states of the EU, Germany belongs to the Top 3 countries with the highest gender pension gap (European Institute for Gender Equality 2015).

In this article, we focus on the gender pension gap for statutory pensions, as statutory pension entitlements cover by far the largest fraction of employees (83%) and retired individuals (81%) in Germany (Bundesministerium für Arbeit und Soziales 2016). In addition, they account for most of the income of people over 65 in Germany, while private pensions and the company pension scheme are voluntary benefits and depend highly on an individual's life situation. In this article, we first quantify the gender pension gap. Then, we discuss two of its major determinants: the "motherhood penalty" and the gender investment gap. We conclude with suggestions on how the gender pension gap can be closed.

QUANTIFYING THE GENDER GAP FOR THE STATUTORY PENSION SCHEME

Our analysis is based on a large representative random sample of all German employees, stratified according to establishment size, industry, and federal state (Linked-Employer-Employee-Data of the IAB (LIAB)) Thus, selection problems and missing information on employment histories are not a major concern. For each individual, the employment biographies including all observations on employment and benefit receipt (according to Book III of the German Social Code), are reported in the LIAB. The number of unique individuals in our sample with all necessary information available that are used for our estimation is 1,800,185, and our sample period is from 1993 to 2014. We use information on benefit receipts for maternity protection and parental leave to identify interruptions of employment due to childbearing.

To determine the gender pension gap, we first compute each employee's statutory pension entitlement based on the aggregated number of pension points ("Rentenpunkte"), which the individual is entitled to at the end of 2014. From these, we derive the monthly pension that the individual would obtain in retirement based on the point value of EUR 33.05 ("Rentenwert") on January 1, 2020. The gender pension gap is then defined as the percentage difference between the average monthly gross pension of all women and the average monthly gross pension of all men:

[1] https://www.prb.org/wp-content/uploads/2020/07/letter-booklet-2020-world-population.pdf.
[2] https://de.statista.com/infografik/19906/risiko-fuer-altersarmut-in-deutschland-nach-geschlecht/.
[3] Federal Statistical Office: Periodensterbetafel 2018/2020 https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Sterbefaelle-Lebenserwartung/Publikationen/_publikationen-innen-periodensterbetafel.html.
[4] Groiß et al. (2017) report an average gender wealth (net assets) gap of EUR 40,599 (31,631) or 32% (22%) for women living in couple (single) households in Germany.
[5] https://www.bmfsfj.de/bmfsfj/service/publikationen/gender-pension-gap-82286.

$$\text{Gender pension gap} = 100\% - \frac{\text{Average monthly gross pension of women}}{\text{Average monthly gross pension of men}}$$

It is interpreted as follows: the larger the gender pension gap, the lower are monthly gross pension payments of women compared to those of men.

To get an estimate of the size of the gender pension gap in Germany and its sensitivity to the type of calculation, we compute several versions of the pension gap that vary in methodology and assumptions. We find that results do not differ much across different definitions of the gender pension gap.

First, we look at all employees in the IAB database for which we can estimate statutory pension entitlements. Across age cohorts, the equal weighted average gender pension gap is 25.97%, while the average gender pension gap weighted by the number of observations in each age cohort is 26.05% (see Table 1).

Second, as we do not observe the entire employment history of older employees in the IAB database (it only starts in 1993) we assume that their employment history in early years is the same as the one we observe for younger cohorts of the same age and gender. The advantage of this approach is that we can more accurately estimate each individual's pension claim; however, our result rests on the assumption that we can impute missing data from comparable employees. Our calculation for this approach yields a gender pension gap of 22.52% (equal weighted average) and 22.88% (age weighted average).

Finally, we restrict our observations to the group of "mid-career" professionals, who belong to the age interval of 25 to 49 years. For these individuals, retirement planning and saving is arguably most important; as they should a) have sufficient income to save for retirement, b) have a sufficient amount of time left to start building up retirement wealth. Depending on the calculation approach, the gender pension gap for this group varies between 16.71% and 17.97%.

REASONS FOR THE GENDER PENSION GAP

While the reasons for the gender pension gap are manifold, they can be broadly summarized as follows. First, women generate less income than men, which mechanically leads to lower wealth levels in retirement. Second, even if women had the same amount of money than men to build up wealth for retirement, they show different investment patterns, which make it more difficult for them to generate the same amount of wealth for retirement than men.

The first observation is usually referred to as the gender pay gap. According to the Federal Statistical Office, the unadjusted gender pay gap in Germany amounted to 18% in 2020.[6] As individual income is the driving force of statutory pension entitlements, this pay gap translates to a pension gap of similar size.

A major determinant of the gender pay gap is motherhood. After the birth of a child, parents receive financial support from the state for a maximum of 14 months to care for their newborn. The amount of this assistance depends on previous earnings and is between 65% and 67% of net income, up to a maximum of EUR 1,800 per month.[7] Many parents take advantage of this support so that one or both parents can initially care for their child at home without having to work additionally. This period is noted by the statutory pension insurance as a payment period and contributions are made to the statutory pension insurance. After this period at the latest, employment must be resumed. At this point, mothers more often than fathers decide to switch from a formerly full-time position to a part-time job. In 2019, the part-time rate of women with minor children in the household was over 66% percent, while only about 6% of men with minor children held part-time jobs.

One reason for the choice to switch from full-time to part-time employment is that in Germany, the traditional extended-family model, according to which multiple generations are living in the same house or at least close by and grandparents are strongly involved in raising the child, has become less common (see Schöninger 2020). The basic care for young children on a day-to-day basis is usually either provided by one of the parents (mostly the mother) or by a childcare facility. However, childcare facilities often do not offer full-day care for young children either, which poses a challenge to both parents working full-time.

In addition, strong social norms, particularly in West Germany, according to which a child is better off if the mother stays at home and takes care of

[6] https://www.destatis.de/DE/Presse/Pressemitteilungen/2021/03/PD21_106_621.html.
[7] Source: https://www.elterngeld.de/.

Table 1

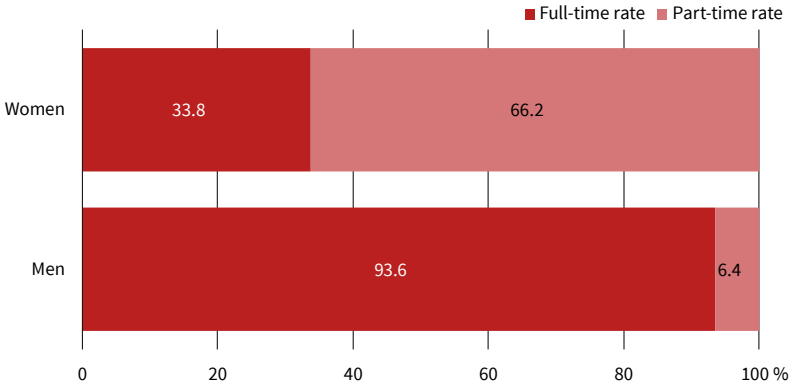
Average Gender Pension Gap in Germany (Statutory Pension Scheme)

	Equal weighted gender pension gap	Age weighted gender pension gap
All employees with IAB employment history	25.97%	26.05%
All employees in IAB including imputed values	22.52%	22.88%
Mid careers (age 25–49) with IAB employment history	17.30%	17.97%
Mid careers (age 25–49) including imputed values	16.71%	17.26%

Source: Niessen-Ruenzi and Schneider (2019).

Figure 1

Full-Time and Part-Time Rates of Employed Men and Women with Minor Children in 2019



Source: Federal Statistical Office, ID 38796, August 2020. © ifo Institute

the family, put a constraint on mothers' employment choices. These norms are not only shared by the older generation. According to the 18th Shell Youth Study of 2019, 65% of women between 12 and 25 years of age would like to work part-time at most – and 68% of young men would like the same of their partner – if they started a family and had to care for a child. That is, even among young people there still is a strong opinion that in a relationship with a small child, the woman, not the man, should scale back her job and that the man should provide for the family. Ten percent of survey respondents even prefer the full male breadwinner model, i.e., that the husband solely provides for the family and the wife stays completely at home with the child.

In addition to gender norms as an explanation for increased part-time rates among mothers compared to fathers, it is of course important to note that men, on average, earn higher wages than women. Thus, in an effort to maximize household income, more mothers choose part-time employment compared to fathers.

The reduction in working hours of new mothers is of course accompanied by a reduction in wages and thus automatically also by a reduced entitlement to pension payments. This can also be observed in our data: while we do not observe a significant gender pension gap for employees below 35 years of age, the gender pension gap gets larger for older age cohorts. The literature has used the term "motherhood penalty" to describe the drastic changes regarding women's wages and career development after giving birth. They suffer a penalty relative to non-mothers and men in the form of lower perceived competence and commitment, higher professional expectations, lower likelihood of hiring and promotion, and lower recommended salaries (Correll et al. 2007). These changes are likely to contribute to the growth of the gender pension gap in this time period as well.

Figure 2 shows gross monthly pension entitlements of men and women for each age group in our sample. The graph is based on all IAB employees, including those that do not have their entire employment history recorded by the IAB. For these individuals, we again impute values based on comparable employees in terms of age and gender.

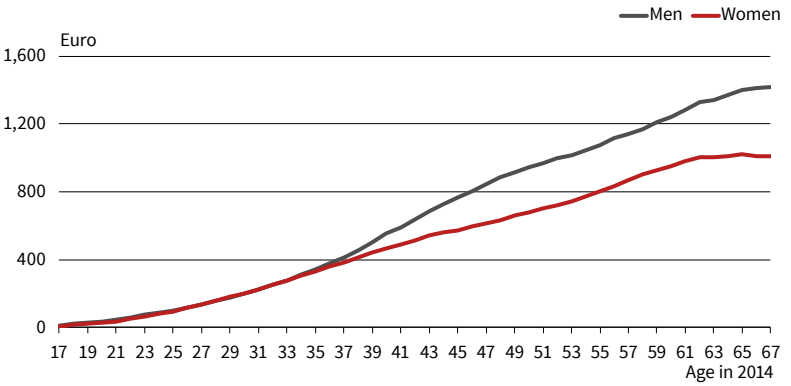
We observe that expected monthly gross pension entitlements are very similar for both female and male employees until the age of 35. If women and men remained on the same wage trajectory, they would receive similar pension payments accordingly. However, starting roughly at the age of 35, men acquire significantly more pension points than women and thus expect higher gross pension payments upon retirement. The most likely reason for this pattern is that people usually start families in their thirties. In 2020, according to the Federal Statistical Office, the average age of the mother when giving birth to the first child was between 31 and 32 years (while fathers were on average 35 years old).

Since women are more likely than men to reduce their labor force participation or work only part-time after they gave birth to a child, the gender pay gap starts to develop in this age cohort as well (Chhaochharia et al. 2021), eventually increasing the gender pension gap.

But even if women had the same income than men and thus the same budget to build up wealth for retirement, gender differences in investment behavior make it more difficult for women to accumulate the same amount of wealth over their lifetime than men. The so-called gender investment gap describes the fact that women are much less active in financial planning, stock market participation, and retirement saving than men. According to the German Stock Institute (DAI), 22.6% of men, but only 12.5% of women held stocks in 2020.[8] This finding mirrors results in Charness and Gneezy (2012). Collecting and analyzing data from 15 different experiments, the authors find that men on average invest 79.5% of their endowment in risky assets, while women only invested 48% in risky assets. This gender difference is explained by the fact that women are on average more risk averse than men, which has been shown for various life domains, including financial decision-making (Byrnes et al. 1999).

Figure 2

Monthly Gross Pension Entitlements by Gender and Age (Statutory Pension Scheme)



Source: Authors' calculations. © ifo Institute

[8] German Stock Institute: Aktionärszahlen 2020 (dai.de).

Table 2

The Gender Gap in Stock Market Participation in Germany (Share Savers Aged 14 and Older)

Year	Number of share savers (in 1,000)		Share savers as a percentage of the population	
	Male	Female	Male	Female
2020	7,869	4,481	22.6%	12.5%
2019	5,811	3,842	18.8%	11.7%
2018	6,417	3,897	20.7%	11.8%
2017	6,269	3,792	20.2%	11.5%
2016	5,663	3,313	18.2%	10.0%

Source: Deutsches Aktieninstitut (2020).

However, the average annual return that can be achieved if one invests in the German stock market over a 30-year period, which should approximately be the benchmark if money is invested for retirement, is about 8 percent.[9] Women's portfolios forgo this return opportunity if they shy away from the stock market. This is particularly challenging in times of low interest rates and increasing inflation, which we are currently experiencing in Germany. In December 2021, consumer prices in Germany rose by 5.3 percent compared to the same month last year.[10] In this market environment, retirement savings under the exclusion of the stock market will almost certainly result in lower amounts of wealth in old age. The cautious investment behavior of women accelerates the problems arising from their lower income: the gender investment gap contributes to the gender pension gap. In line with this view, studying the defined contribution pension allocation decision among employees in the US, Sunden and Surrette (1998) have found that women invest a relatively greater share in low-risk assets.

PATHWAYS TO CLOSE THE GENDER PENSION GAP

Closing the gender pension gap requires women to save more for retirement than men. But how much more do they have to save? In the following, we have assumed that employees enter retirement at the age of 67 and that they have on average 15 more years to live. Given a gender pension gap of 26%, an average woman (in our sample) needs an extra amount of EUR 25,179 in real terms if she aims to close this gap when entering retirement.[11] If we assumed an annual inflation rate of 1.5% and that the average woman has 25 years left until retirement, the extra amount needed is about EUR 36,500.

The exact amount that a female employee has to save during employment if she wants to close the gender pension gap depends on two important factors. First, it depends on how much time a woman has left to save money for retirement. Female employees who start saving early on in their employment history need to save less (per month) than those who start rather late. The reason is not only that they have more time to save money, but also that they benefit more from compound interest. Second, the necessary saving amount depends on the expected return on her investment and eventually their willingness to invest in more risky assets.

In Table 3, we calculated for various age cohorts: how much the average female employee would have to additionally save each month if she wants to close an average gender pension gap of 26% and lives for another 15 years after retirement. According to the BVI Yearbook 2018 obtained from the website of the Bundesverband Investment and Asset Management (BVI), balanced funds delivered an average annual return of 3% in the time period of 2000–2016.[12] The BVI also reports that in 2019, a global equity fund delivered an average annual return of about 5%. To accommodate different levels of risk appetite among female investors, we performed our calculations for an annual return of 3% and 5%, respectively.[13]

The pattern of saving amounts conditional on age that are needed to close the gender pension gap under-

[9] https://www.dai.de/rendite-dreiecke/.

[10] Federal Statistical Office: "Verbraucherpreisindex und Inflationsrate," January 2022.

[11] In all calculations, we assumed for simplicity that no further investments are made upon retirement and that the above-mentioned amount of money is equally distributed across months until death.

[12] https://www.bvi.de/uploads/tx_bvibcenter/BVI_Jahrbuch_2018_final_Internet.pdf.

[13] It is important to note that all calculations above assume that the gender pension gap remains the same over time for a given age cohort. However, it is likely that the gender pay gap increases with age. Therefore, we think of our results as a lower bound for each age cohort.

Table 3

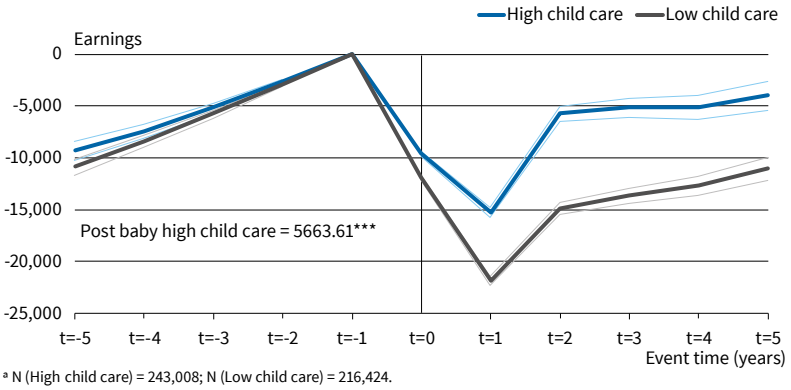
Monthly Savings Amount Needed (by Age) to Close the Gender Pension Gap

Women's age	Monthly savings amount in euro needed		Fraction of annual income that needs to be saved	
	3%	5%	3%	5%
20	42.08	23.72	2.7%	1.5%
25	47.81	29.00	2.0%	1.2%
30	55.01	35.82	2.1%	1.4%
35	64.36	44.87	2.4%	1.7%
40	77.05	57.37	3.1%	2.3%
45	95.34	75.61	3.7%	3.0%
50	124.19	104.59	4.7%	4.0%
55	176.77	157.61	7.0%	6.2%
60	303.92	286.02	12.4%	11.7%
65	1,064.88	1,054.49	91.5%	90.6%

Source: Niessen-Ruenzi and Schneider (2019).

Figure 3

Public Child Care and the Gender Pension Gap in Germany[a]



[a] N (High child care) = 243,008; N (Low child care) = 216,424.
Source: Chhaochharia et al. (2021).

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line the importance of starting retirement savings early on in life. As discussed before, this does not seem to be a major issue for women before their child-bearing age. Afterwards, female labor supply reduces significantly, and the gender pay gap as well as the gender pension gap increase. One way to mitigate the negative impact of motherhood on women's wages and eventually pensions is to improve public childcare provision. In Chhaochharia et al. (2021), we show that the availability of childcare substantially reduces women's earning losses after giving birth and also impacts the other factors of the so-called "motherhood penalty."

In an event study surrounding the birth of the first child in t=0, we show that mothers who live in counties with low childcare provision experience an additional 25% decline in earnings relative to mothers in counties with high child-care provision. This decline is almost fully realized by the second year after the birth of the child, persists in the medium term, and translates to a EUR 5,664 lower earnings penalty of per year for mothers in high childcare counties (Figure 3).

We also find that mothers in counties with high childcare provision are more likely to return to work early after starting a family and they are also more likely to be promoted in their job than women in counties with a low childcare provision. Thus, public childcare provision seems to be key in reducing gender inequalities, including the gender pension gap.

In addition, financial education is another key to closing the gender pension gap. Hasler and Lusardi (2017) show that women on average have less financial knowledge than men. Women are aware of this difference: in a representative survey among 1,600 Germans that we conducted in 2018, 51.4 percent of female respondents (fully) agree that they feel insecure when it comes to investment topics. At the same time, however, there is no clear superiority for either gender in terms of the ability to deal with money or financial topics. When women deal with financial topics, there is no significant gender difference in the quality of portfolios (Marinelli et al. 2017). Increasing financial literacy among women is thus important to close the gender investment gap and to eventually mitigate the gender pension gap.

CONCLUSION

A substantial gender pension gap in Germany of about 26% on average (only considering the statutory pension scheme) still exists. The explanations for this substantial gap are multifaceted and therefore also need to be tackled by different policies. Two of the main reasons for the gender pension gaps we identify are (1) the "motherhood penalty," which manifests in more part-time employment and less career opportunities for women after having children. This leads to lower income and subsequently lower wealth. (2) the "gender investment gap," which describes women's reluctance to invest in the stock market, reducing their asset returns. Eliminating the motherhood penalty requires long-lasting social change towards equal attitudes to working mothers and fathers, more full-day childcare facilities (also for young children), and eventually a more equal distribution of paid work and care work among women and men. Eliminating the gender investment gap requires financial education. Women need to become aware of the gender pension gap and they need to actively get engaged with financial planning and wealth accumulation for their retirement.

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