

Chapter 16

Fertility and Women's Old-Age Income in Germany

Tatjana Mika and Christin Czaplicki

16.1 Introduction

In Germany, the average woman earns far less than the average man (Finke 2011). This large gender gap in earnings is attributable in part to the tendency of German women to work part-time and to take employment breaks. So far, however, there has been little research on the “motherhood penalty”: i.e., on the additional costs associated with having a child, relative to remaining childless (Waldfogel 1998). It is clear that the impact of having a child on a woman's life course goes beyond an immediate reduction in income when she withdraws from labour market after giving birth. The shift to part-time employment that many mothers make not only reduces a woman's gross income because she works fewer hours; it also damages her long-term career prospects (Brenke 2011). Moreover, even women who work full-time earn less on average than men, in part because they often choose to study disciplines that channel them into professions that are lower paid than those typically chosen by their male counterparts (Begall and Mills 2012; Busch and Holst 2011; Petersen and Morgan 1995; Trappe 2006).

The two regions of Germany have different histories with respect to female, and particularly maternal employment (Rosenfeld et al. 2004). In the German Democratic Republic (GDR) women were expected to work full-time and to return to work after taking a single year of leave; the so-called “Babyjahr” (Rosenfeld et al. 2004). Part-time work was not common in the GDR, and not encouraged by the government (Drasch 2011). In the Federal Republic of Germany (FRG), by contrast, women of the cohorts born around 1930 often exited the labour market upon marriage (Lauterbach 1994). Until 1972, a husband was allowed to forbid his wife to work if he was able to provide sufficient household income from his own salary. This had a

T. Mika (✉) • C. Czaplicki
Research and Development, German Pension Insurance, Berlin, Germany
e-mail: tatjana.mika@drv-bund.de; christin.czaplicki@drv-bund.de

negative effect on employment among married women in western Germany. Although western German women started entering the labour market in greater numbers starting in the 1970s, full-time employment continued to be rare among mothers (Allmendinger 2011: 47). Only a small minority of working-age women in western Germany were in continuous full-time employment (Simonson et al. 2011). Most women who had children returned to work after spending a shorter or a longer period of time raising children, or left the labour market permanently after having their first child (Stegmann and Mika 2013: 239). A large share of working mothers in western Germany were in “marginal” part-time employment. In most marginal employment arrangements, a worker’s hours and income are capped (currently at 450 euros per month). Moreover, workers in these jobs accrue very little pension benefits.

After German reunification, the employment patterns of mothers continued to differ in the two parts of the country, as the full-time employment rates remained higher in eastern than in western Germany. In recent years, however, the rates of unemployment and of part-time employment among women have been increasing in the east, and women in eastern Germany have lower earnings than their western German counterparts. It is therefore very difficult to determine how the recent employment patterns of mothers in eastern and western Germany will affect their old-age pension benefits (Allmendinger 1994). In particular, it is unclear whether the welfare state will be able to buffer the adverse effects that career interruptions are expected to have on the old-age pensions of western German women.

Research on the effects of motherhood on employment has often focused on the years immediately after childbirth. In this paper, we focus on the lifetime employment and earning patterns of German women with and without children. We investigate the long-term effects of motherhood on women’s earnings during their working years, and on their income in retirement. Because the employment patterns of mothers in eastern and western Germany have long differed, we conduct the analysis separately for the two parts of Germany. The data for this analysis come from a unique dataset that contains linked survey and register data. In this dataset the Survey of Health, Ageing, and Retirement in Europe (SHARE) is combined with information from the pension insurance records (SHARE-RV). Using these data, we are able to examine the lifetime employment patterns and earning profiles of the cohorts born between 1919 and 1982; although most of the women in our sample were born between 1930 and 1965. We explore the question of whether eastern German women who are more likely than western German women to be employed face a less severe “motherhood penalty” than their western counterparts. We map each woman’s gross earnings (as recorded in the pension insurance data), as well as household information on her partner’s income and earnings record. The last and major step in our investigation is an analysis of the lifetime income of women according to the number of children they have and the region where they live. For 2 years after a child is born, the German state provides mothers with relatively generous pension benefit subsidies. The benefits each woman accrues are equivalent to the national average income in those years. As most women earn less than the national average income, the benefits a mother accrues during this period

may supplement her pension entitlement more than if she had continued to work. We analyse the question of to what extent these subsidies bridge the old-age income gap between mothers and childless women. We also seek to determine whether the loss of income among mothers is offset at the household level by the higher earnings of fathers.

16.2 Institutional Background

In Germany, the size of each individual's old-age statutory pension is mainly based on the compulsory contributions he or she has made while in paid employment. However, an individual may qualify for additional top-ups on the grounds of social hardship. For example, a person may be entitled to receive additional pension benefits if he or she has a low income, is caring for a child or another family member, or is engaged in military and civil service. In Germany, women have been included in the old-age pension scheme since it first began in 1895. However, women's pensions have always been smaller than those of men because the average woman has always earned less than the average man. After the Second World War, pension funds were structured differently in the GDR and in the FRG. In western Germany, contribution levels were raised from 1957 onward to allow for increases in old-age pension benefits. In eastern Germany, contribution levels were considerably lower, and pension benefits were correspondingly low. The old-age income levels of women in eastern and western Germany also differed because of the differences in the employment patterns of women in the GDR and the FRG.¹

Under the German Unification Treaty, the eastern and western pension systems were largely harmonized. However, the old-age income levels of women in eastern and western Germany who are now reaching retirement age still differ because of their different employment and earning histories. Particularly notable is the high share of western German women who have spent many years in marginal employment arrangements with very low gross income. The income a worker earns in these so-called "mini-jobs" is usually exempt from taxation and full social security contributions, unless he or she makes these contributions voluntarily. Thus, mothers in western Germany who work primarily in marginal employment may be expected to have much lower old-age income levels than childless women who work full-time.

However, some of these differences in employment patterns are offset by the additional pension benefits women accrue after the birth of each of their children. The German pension insurance scheme awards mothers special benefits for each child they have. First, when each child turns 1 year old, the retired mother (or father)

¹In the Federal Republic of Germany, a special provision in the social security code actually offered married women the option of cancelling their personal pension insurance account and getting a refund of the contributions they made while in socially insured employment. As a result, a considerable number of western German women from the cohorts born around 1930 had no pension fund account in their own name.

receives pension benefits equivalent to 2 years of the national average income (Dünn and Stosberg 2014). Since women's earnings are usually lower than the national average income, this credit typically compensates the mother for more than 2 years of complete income loss. In addition, the mother usually qualifies for a top-up for low-income individuals from a social insurance employment fund. Through 1991, the maximum pension insurance credit was equivalent to 75 % of the national average income. After 1992, a similar top-up was introduced for parents who work while their child is under age 12. Until the child turns 12, one person in the family is considered the child's main caregiver for the purposes of accruing pension insurance benefits. This is usually the mother.

16.3 Data, Variables, and Methods

16.3.1 Data

The data for our investigation comes from SHARE-RV. SHARE-RV stands for the direct linkage of survey data of the Survey of Health, Ageing, and Retirement in Europe (SHARE: www.share-project.org) with administrative data of the research data centre of the German Pension Insurance (FDZ-RV). The combination of information about different aspects of the respondents' life with accurate administrative data has several advantages, and can provide scholars with a wide range of research options. The survey data of SHARE are used in Germany for the direct linkage. For data protection reasons, administrative records are collected only for those respondents who gave their written consent during the interview.²

Launched in 2004, SHARE is an innovative and multidisciplinary panel survey that has so far collected micro-data on the health, the socio-economic status, and the social and family networks of more than 45,000 individuals aged 50 or older. Face-to-face interviews are conducted not only with each sampled individual, but also with each respondent's partner or spouse who lives in the same household. Instead of relying on a standard questionnaire that only collects current information, in the third wave (called SHARELIFE) the survey has used a retrospective questionnaire that covers each respondent's life from birth up to the time of the current interview (Schröder 2011). The longitudinal and multidisciplinary design of SHARE sheds light on how different areas of a respondent's life interact as he or she ages. As they are central elements of social life and economic security, the survey focuses on the respondents' family relationships and their level of integration into the labour market. To learn more about lives of older people, SHARE collects information on the respondents' partnership status, personal networks and intergenerational support, labour market participation, economic situation, and health (Malter and Börsch-Supan 2015).

²For more details on linking procedures see Korbmacher and Czaplicki (2013).

The FDZ-RV provides cross-sectional and longitudinal micro-data in areas such as retirement, disability, and rehabilitation. These data are available as scientific use files (SUFs) and as public use files (PUFs). The data are process-produced and were originally compiled for the purposes of administering pension insurance benefits. Because the statutory pension scheme is mandatory for all private sector employees and for some public sector workers, the FDZ-RV contains data on most German employees (Rehfeld and Mika 2006). The administrative data that are linked with SHARE have the same format and content, but refer only to those SHARE respondents who agreed to the linkage. The FDZ-RV provides SHARE with two different datasets: namely, the longitudinal dataset constructed according to the so called sample of the insured population (Versichertenkontenstichprobe, or VSKT) and cross-sectional pension data (Versichertenrentenbestand, or RTBN) on people who have already retired. The VSKT is one of the longitudinal data sources of the FDZ-RV, and includes information on individuals insured under the statutory pension scheme, and on their pension entitlements.³ The data cover virtually all employees in Germany, with coverage being slightly higher in the eastern states because there are fewer civil servants and self-employed in this part of the country. As the VSKT contains information on all pension-relevant activities, it is the best source of information on the public pension benefits each individual has accrued. Moreover, because these activities are covered on a separate timeline, any overlapping activities can be analysed. The VSKT contains a wide range of information on each individual, including on his or her contributions to the pension system; his or her employment or unemployment status by month; and periods the individual spent outside of the labour market because of sickness, childrearing responsibilities, and education and training.

The monthly earnings biographies included in the data make it possible to analyse individual gross wages. The gross wages recorded in the VSKT are also linked to the official average income of the particular calendar year. Each pension insurance credit point that appears in a pension insurance record in a given year is equivalent to the national average income for the year. Because the official national average income is adjusted every year, the credit points are an adjusted measure of the individual's personal gross income over time. These credit points can be accumulated over the individual's life course until retirement, and represent the person's complete gross income from the start of his or her working career. However, the amount of income for which credit points can be earned is capped at about twice the national average income. Thus, on average men who retired in 2013 accumulated 40 credit points. Among the women, who spent fewer years in employment and earned less than men, the average number of credit points accumulated for those who retired in 2013 was 23.

The longitudinal information ends when the individual transitions into retirement, but it is supplemented with cross-sectional pension data. These data, which

³ A few categories of employees, like civil servants, have their own pension systems, and thus do not appear in the social security data; or, like miners and employees of the federal railways, are treated differently from other insured individuals.

include information on the pension payments made by the German pension insurance and the concrete steps followed in the pension calculation, allow us to analyse the respondents' pension income after they have retired. In particular, information on the size of each respondent's pension is useful for evaluating the individual's economic situation. With a few exceptions e.g., for individuals who were self-employed throughout their life and for people who refused to participate in the data linkage pension insurance data are available for all of the SHARE respondents who have a record, regardless of whether they are still actively insured or have retired.

SHARE-RV shows that combining survey and administrative data is useful, as doing so enables us to benefit from the advantages associated with different data sources. The administrative data enrich the survey data as they include very detailed information on, for example, lifelong earnings broken down by month. In addition, because some types of information are included in both datasets (like an individual's job history), combining the data make it possible to validate retrospectively collected data. The administrative data are also improved through the linkage with the survey data. Previous analyses focused on how the labour biography or accrued benefits of individuals influenced their income in old age. Important information is also added on all sources of individual and household income, partnership, or health status.

16.3.2 Variables

A great advantage of using SHARE-RV for fertility analysis is that it contains fertility, employment, and household information (Czaplicki and Post 2015). One of our key variables of interest in the analysis is the number of children per woman. A peculiarity of the information in the dataset on children is that in SHARE's first, second, fourth, and fifth waves, only information on living children was gathered. Because deceased children were not reported, a fertility analysis may be expected to underestimate the number of children born. Moreover, the administrative data include information on the children in a given family for only one of the parents; in most cases the mother. Thus, in a first step we validate both types of information and create a valid number of children. Since the number of children in the register data is verified in the process of account clarification, we use VSKT's information on children as basic information for the retirees as well as for the individuals for whom the data in SHARE indicate that they have more children, but for whom no account clarification has yet taken place. In all other cases, we determine the number of children based on information from SHARE.

In order to examine the effects of having children on the lifetime employment patterns and earning profiles of mothers, we use the employment and earnings information from the longitudinal register data of the VSKT. We narrow our focus to women's regular employment, as workers in regular employment make social insurance contributions. We also include women's lifetime income from employment. One pension insurance credit point is equivalent to the average annual income of a

Table 16.1 Number of children, eastern and western German women

	Western German women (%)	Eastern German women (%)
No children	11	5
1 child	20	25
2 children	40	46
3 or more children	29	25

Source: FDZ-RV, SHARE-RV-3-0-0, n = 1,943, own calculations

full-time, year-round employee. On average, men earn one credit point per year, and women earn less than one point. The differences between the credit points earned in eastern and western Germany are harmonized in order to make the income analysis comparable.⁴

For the multivariate analysis, we also consider the highest level of education. As the information on education in the register data is often not available due to missing information from the employer, we take it from the survey. We distinguish between individuals with a low level of education (no degree, primary school, eighth-grade polytechnic high school), a medium level of education (secondary school), and a high level of education (high school). To control for work experience we use the years of employment, which are generated by counting the number of months of employment subject to social security contributions, and dividing this sum by 12.

The analysis is carried out separately for eastern and western Germany. The region is identified by the place of residence at the date of data collection. The SHARE-RV sample contains 3717 cases, or 1983 women and 1734 men born between 1919 and 1982. Thus, 40 % of the sample (1502) are western German women and 13 % (481) are eastern German women. While 54 % of the total sample are retired, the share is lower for the women in the sample because they are usually the younger partner in the relationship. The sample consists of 1121 couples, and register and survey data are available for both partners. In addition, we have data on 862 women (43 %) and 609 men (35 %) who either have no partner in the linked dataset, or who have a partner who did not give his or her consent for the linkage. Table 16.1 shows the distribution of the number of children in the sample in western and eastern Germany: 11 % of the western German women and 6 % of the eastern German women are childless, 20 % of the western German women and 25 % of the eastern German women have one child, 40 % of the western German women and 46 % of the eastern German women have two children, and 29 % of the western German women and 25 % of the eastern German women have three or more children.

⁴The income ceiling (set roughly at double the national average income) for insurance contributions is lower in eastern Germany. Western German women therefore reach the highest income levels only. Since very few women in Germany earn double the national average income, the point at which the upper limit has been set, this difference does not affect our analysis much.

16.3.3 *Methods*

Our analysis consists of a descriptive part and a multivariate part. In the descriptive part, we map labour market participation rates and earnings across the life course. The labour market participation rate is defined as the ratio of individuals who are in the labour force to the total working-age population. Thus, this rate measures the extent to which an economy's working-age population are actually working. In order to investigate the influence of childbearing on employment patterns, we group labour market participation rates by the number of children. In addition, we generate individual wage histories and group these histories by the number of children. We then compare these profiles with the reference average wage from 2013. In the multivariate analysis, we use OLS regression to investigate the effects of having a certain number of children on the number of points a woman earns over her lifetime. The dependent variable is the sum of the points earned over the woman's whole employment career from spells of employment subject to social insurance contributions. To account for east-west differences in income dynamics and employment patterns, all of the models are estimated separately for eastern and western German women. The regression analysis consists of three parts. In the first step, we use OLS regression to study the effects of having children on women's lifetime earnings. In a second step, we investigate how the results change if the pension insurance points women earn for childrearing periods are accounted for. In the final step, we also consider the income of the male partner.

16.4 *Descriptive Results*

16.4.1 *Mothers' Labour Market Participation in Eastern and Western Germany*

Figure 16.1 maps the employment patterns of western German women between the ages of 25 and 60 by their final number of children. We have chosen to disregard periods under age 25 because most women are in education or training at this age, and are thus not employed. Similarly, we have chosen to disregard periods over age 60, as most women at this age are retired.

Figure 16.1 shows that some of the women had already reached retirement age at the time of the SHARE interview. For the others, the calculation of the participation rate is shown until the actual age is reached. The four lines represent women with zero, one, two, or three or more children. The lines differ greatly by age. At ages 25–45, the employment participation rate is around 75 % among childless women, and is around 60 % among women with one child. However, among women with two or more children the pattern is more irregular: their labour market participation rate declines until they reach their mid-thirties, and increases gradually there-after.

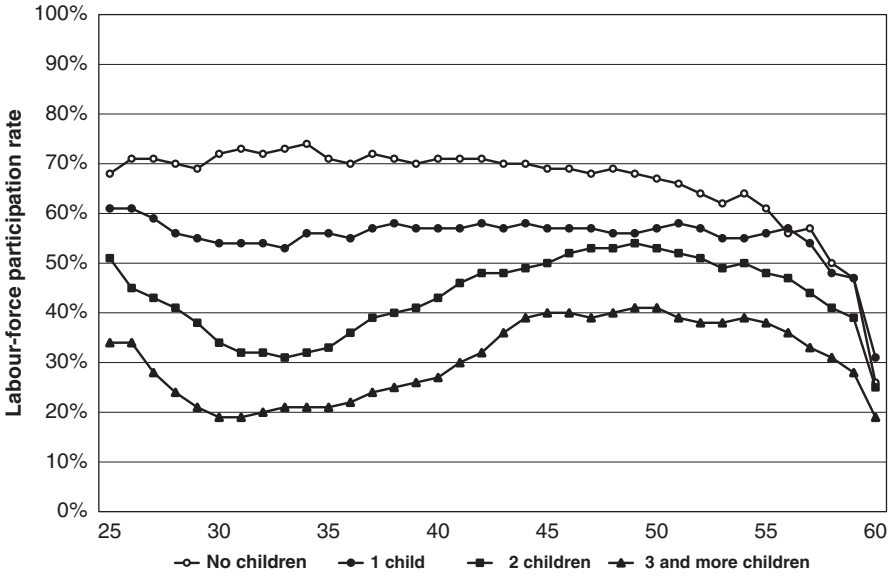


Fig. 16.1 Labour market participation of western German women by number of children (Source: FDZ-RV, SHARE-RV-3-0-0, n = 1,486, own calculations)

At age 35, only about 30 % of the women with two children and 20 % of the women with three or more children are working.

Figure 16.2 shows the labour market participation patterns for eastern Germany. Because fewer eastern than western German women participated in the SHARE survey, the line for eastern Germany fluctuates more than the line for western Germany. It is also important to note that the cohorts born from 1930 to 1950 had their children and spent most of their working years in the German Democratic Republic (GDR). These parts of the life course are included in this analysis. In the GDR, a woman was entitled to a maternity leave (Babyjahr) of 12 months after the birth of a first or a second child, and of 18 months after the birth of a third or a subsequent child (Drasch 2011). The labour market participation rates of women between the ages of 25 and 33 who had no children or fewer than three children were roughly the same in the GDR. Only women who had three or more children had lower labour market participation rates.

However, the proportion of eastern German women in employment decreased after age 55. This is because after 1990 unemployment was more common in eastern than in western Germany, and women with low qualification levels had difficulties finding employment (Bielenski et al. 1995; Diewald and Sorensen 1996). This effect was particularly strong among childless women.

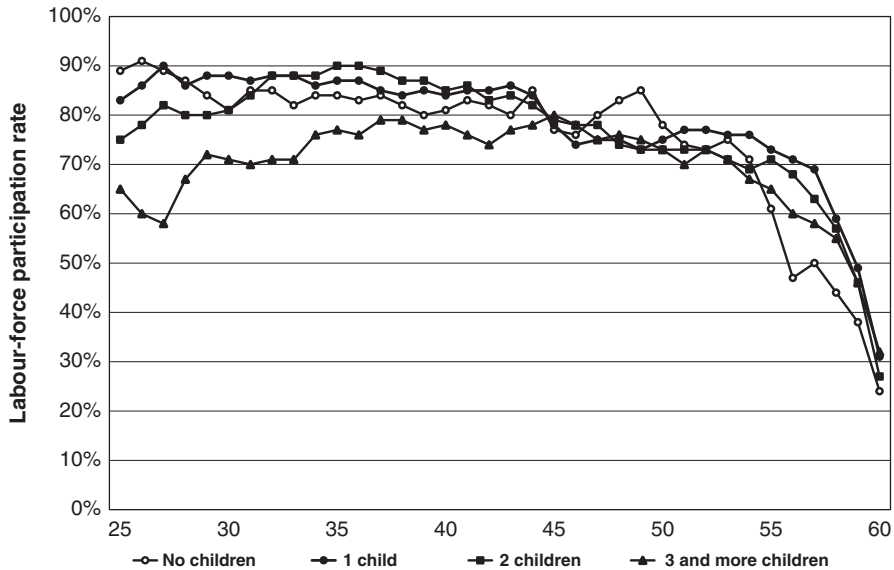


Fig. 16.2 Labour market participation of eastern German women by number of children (Source: FDZ-RV, SHARE-RV-3-0-0, n = 497, own calculations)

16.4.2 *The Earnings of Mothers Compared to the Earnings of Childless Women*

The statutory pension insurance records contain information on the gross income of each individual who works in socially insured employment. The income is then measured each year against the average income, which is set by the Ministry for Social Affairs based on national-level income trends. A worker with the average gross income earns one credit point in his or her personal record. These points are therefore not affected by inflation, and can be compared over the life course and between different birth cohorts. Figure 16.3 shows the development of income across the life course of western German women, by their number of children. The average income is represented as the dotted line. For the sake of illustration, the income is standardized by the average gross yearly income of 2013; the year the survey was conducted. The calculation for the average income of each group includes only those women who were participating in the labour market at this age. The women who were not employed were not included in the calculation. As the gross income is not adjusted for the number of hours worked, it is not a measure of hourly wages.

Childless women, who are represented by the top line, had the highest average annual income by far. The line shows that having a steady career path is associated with increasing wages. At age 30, the earnings of childless women had reached the

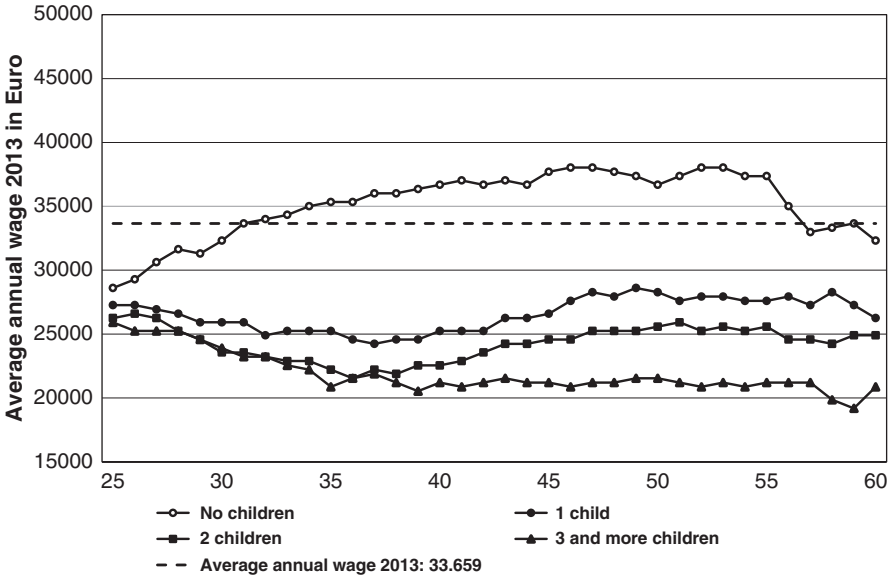


Fig. 16.3 Average income of western German women by number of children (Source: FDZ-RV, SHARE-RV-3-0-0, n = 1,486, own calculations)

level of the national average income. Moreover, at around age 45, childless women were earning as much as the average man (Fachinger and Himmelreicher 2008). Mothers with one child, whose labour market participation levels were not much lower than those of childless women, nonetheless saw their wages decline between the ages of 25 and 40, and increase slightly at later ages. They never came close to having the average income, which is represented by the dotted line. The income trajectories of mothers with two children were similar to those of mothers with one child, but their wages were lower. The steady decline in their income stopped at age 35, and their wages increased from that point onwards. Mothers with two children reached their highest earnings level, of about 60 % of the national average income, between ages 50 and 55. Mothers with three or more children had a distinct income path. Their income declined steadily until they reached age 40, and then remained at a low level of around half of the national average income. This suggests that the relatively small number of mothers with three or more children who were working were mainly in low-income jobs or part-time employment (Fig. 16.4).

The dotted line is again an indicator of the set value of the average gross income. At first glance, the graph appears to show that earnings of women in eastern Germany hardly ever reached the level of the national average income, regardless of the number of children they had. This was particularly true among women who were working in the GDR. Thus, the income differences between mothers and childless women were rather small. Only women with three or more children had consistently lower levels of gross income.

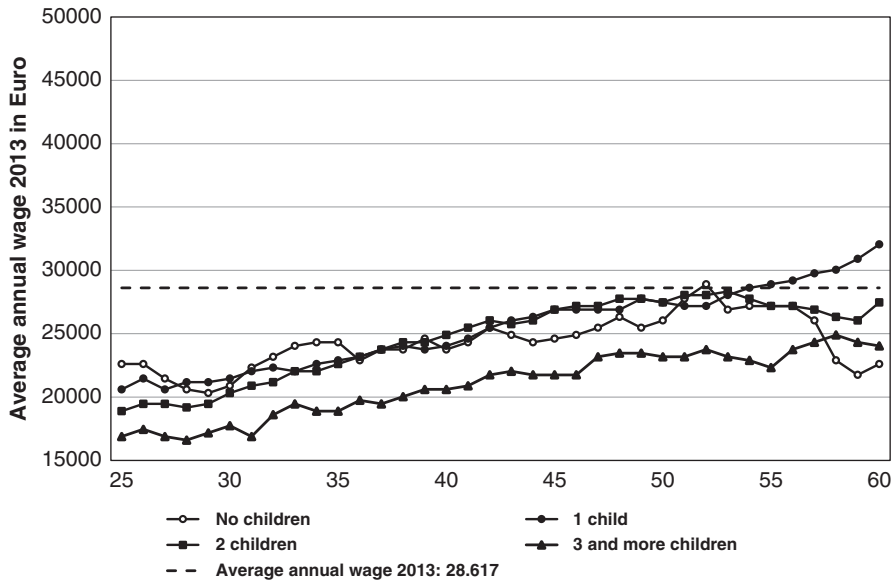


Fig. 16.4 Average income of eastern German women by number of children (Source: FDZ-RV, SHARE-RV-3-0-0, n = 497, own calculations)

In the pension insurance records, income in eastern Germany is measured on a different scale than income in western Germany. This was done in order to raise the pension benefits of eastern Germans to those of western Germans. To help offset the lower income levels in the former GDR and in eastern Germany after reunification, the scale is roughly 20 % higher. The scale on the left-hand side of the graph therefore shows different gross income levels for 2013.

16.5 Multivariate Analysis

16.5.1 Determinants of Lifetime Credit Points

Model 1 in Table 16.2 shows the effects of having children on a woman's lifetime gross income (measured in terms of credit points). The dependent variable is a measure of a woman's gross income from periods of socially insured employment over her entire insurance record, starting at age 14 and ending at age 67, or at the time of the interview. One year of full-time employment resulted in one credit point. Among men, the average number of years spent in employment was about 40 in western Germany and was slightly higher in eastern Germany.

The regression was conducted separately for eastern and western Germany, and controlled for the level of education. Having children had a negative impact on women's lifetime earnings. In western Germany, the lifetime earnings of a woman

Table 16.2 Linear regression with the lifetime earnings of women, as recorded in the pension insurance registers, as the dependent variable

	Western Germany		Eastern Germany	
	Model 1	Model 2	Model 1	Model 2
Number of children				
No children	Ref.	Ref.	Ref.	Ref.
1 child	-8.530***	-6.200***	1.520	-1.986
2 children	-13.251***	-7.243*	0.016	-2.416*
3 or more children	-17.681***	-7.648***	-2.812	-3.024*
Education				
Low education	-2.117**	-4.189***	-7.223***	-10.652***
Medium education	1.600	-1.763***	-5.490***	-6.901***
High education	Ref.	Ref.	Ref.	Ref.
Years of employment		0.799***		0.905***
Years until retirement (65)		-0.041		0.068
Constant	27.769***	8.578***	25.654***	2.855
R ²	0.20	0.76	0.08	0.69

Source: FDZ-RV, SHARE-RV-3-0-0, own calculations

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

declined significantly with the birth of each additional child. In eastern Germany, having children did not have a significant effect on a woman's lifetime earnings. While the effect of education on lifetime earnings was more pronounced in eastern than in western Germany, it is important to note that the group of less educated eastern German women of these cohorts was still rather selective. Model 2 additionally controlled for the duration of employment over the life course. After these variables were included, the effect of having children on a western German woman's earnings was greatly reduced. In eastern Germany, the negative effect of having three children disappeared after duration of employment was controlled for. This suggests that in eastern Germany the average woman with a large number of children also had reduced earnings. The introduction of the length of employment into the regression also increased the effect of education. This shows that among the older cohorts of women in both parts of Germany, blue-collar workers spent more years in employment than white-collar workers. The fact that blue-collar workers were employed for more years helped to offset their lower gross wages.

16.5.2 Determinants of Lifetime Credit Points Including Child-Related Pension Points

In the next step, we explore how the results change if we consider the additional pension points women receive for having children (which we refer to as "child benefits" in the following). For each child registered in the pension insurance records, the mother receives two credit points. Table 16.3 shows the results of this analysis.

Table 16.3 Linear regression with lifetime earnings of women, as recorded in the pension insurance registers, by number of children and length of employment, including benefits for childrearing periods

	Western Germany		Eastern Germany	
	Model 3	Model 4	Model 3	Model 4
Number of children				
No children	Ref.	Ref.	Ref.	Ref.
1 child	-6580***	-4.277***	3.542	0.031
2 children	-9292***	-3.351***	4.049	1.605
3 or more children	-10,653***	-0.731	4.386*	4.161***
Education				
Low education	-1883	-3.963***	-7.017***	-10.490***
Medium education	1588	-1.755***	-5.468***	-6.863***
High education	Ref.	Ref.	Ref.	Ref.
Years of employment		0.791***		0.906***
Years until retirement (65)		-0.047		0.058
Constant	27.693***	8.754***	25.554***	2.803
R ²	0094	0.72	0071	0.69

Source: FDZ-RV, SHARE-RV-3-0-0, own calculations

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

The findings indicate that having children had a negative impact on the lifetime credit points of women in Germany. However, the effect is more modest than in the prior analysis. For example, the previous analysis showed that compared to their childless counterparts, western German women with three or more children had 18 fewer credit points. If we factor in the additional credit points these women received with the birth of each child, the difference shrinks to 11 credit points (see Model 1, western Germany). If we control for both length of employment and educational level (Model 2), we still find that the effect of having children was negative in western Germany. However, the coefficient for having three or more children is no longer significant, compared to the reference category of childless women. Thus, it appears that the old-age income of mothers with three or more children was boosted by the child benefits they received, and that their periods of non-employment and their lower income levels in times of employment were fully offset by these child benefits. However, the coefficient for one-child mothers in western Germany remains large and significant. These women suffered from a “motherhood penalty” on the labour market, but received little compensation for having raised a child.

For eastern Germany, the prior analysis showed that having children had a smaller impact on women’s credit points. Only women with three or more children saw a significant reduction in their accumulated credit points. In this analysis, which factors in the credit points for children, we see that having children actually had a positive impact on the overall number of pension points women received. On average, mothers with three or more children had three more points than childless women because they received child benefits. Thus, the average childless woman appears to have collected a smaller number of pension points than the average

woman with children. It is important to note, however, that childlessness was very uncommon among the eastern German cohorts we consider here. We can therefore assume that many of the childless women of these cohorts had a health impairment, which may have also affected their employment career.

16.5.3 Couples' Pension Income

Table 16.4 addresses the question of whether within a given family, a husband's old-age income can compensate for the lower old-age income of his wife. It is important to note that this part of the analysis is descriptive, and is also restricted to women and men who were living as a couple at the time of the interview in 2014. As we can see in the table, in western Germany the average personal statutory insurance old-age pension of a childless woman was higher than that of the average mother (865 euros versus 684 euros). These differences are hardly surprising given the higher lifetime income levels found among childless women in the regression analysis. The relationship between the number of children a woman had and the size of her pension appears to be almost linear: i.e., the more children that are registered in a woman's pension insurance account, the lower her statutory pension benefits. This is because the effects of low earnings are stronger than the effects of the childrearing benefits provided in the pension insurance scheme.

While having children had a negative impact on women's statutory pension benefits, this relationship did not exist for men. The average western German man with children had higher pension insurance benefits than the average childless man, even though he did not receive additional credit points from social insurance funds. Generally, the size of a man's old-age pension varied little depending on the number of children he had. The personal old-age pension benefits of western German men ranged from 1295 to 1342 euros per month. The old-age income levels of couples with no children or with one or more children also did not vary much. In eastern Germany, the overall effect of having children on the pension benefits of women was considerably weaker than it was in western Germany.

Table 16.4 Couples statutory pension income by region, gender, and number of children

Children registered in women's accounts	Western Germany			Eastern Germany		
	Women	Men	Couples	Women	Men	Couples
No children	871 €	1117 €	1904 €	(1012 €)	(1089 €)	(1971 €)
1 Child	713 €	1306 €	2025 €	893 €	1068 €	1954 €
2 Children	592 €	1249 €	1889 €	926 €	1074 €	1977 €
3 or more children	550 €	1231 €	1812 €	894 €	1017 €	1981 €
Number of cases	815	815	815	306	306	306

Source: FDZ-RV, SHARE-RV-3-0-0, own calculations, N = 1,121 couples. Pension calculation in Euro on the basis of pensions insurance credits points, including additional credit points granted after the "Mütterrente" reform in 2014. Numbers in brackets: Number of cases below 50

16.6 Conclusion

For both men and women, the number of years they spent in employment and their earnings over the course of their career forms the basis of their personal retirement income. For mothers, the pension credits they accrue through employment are supplemented by credits for childrearing periods. In Germany, the pension benefits of mothers have often been considered insufficient because they are on average lower than those of childless women. In this chapter, we examined the reasons why mothers tend to have a relatively small pension, and how having children affects their employment career. We also explored the question of whether public transfers are sufficient to offset the disadvantaged position of women with children.

The results of the descriptive analysis show that on average in western Germany, childless women had higher pension benefits than women with children, largely because their income increased more over their life course, especially up to age 45. By contrast, western German mothers had relatively low labour market participation levels and far lower average lifetime earnings. While the average mother with one child worked for most of her life course, she received just 60 % of the national average income. In many cases, this low earnings level was not just difficult to live on while the mother was employed; it also resulted in relatively low pension benefits. Thus, our first conclusion is that motherhood, even when the mother has only one child, exacts a high price in western Germany. Because most women earn less than the national average, they tend to be economically dependent on either their partner or the welfare state, and this dependency continues into old age.

The results of our analysis of eastern German women indicate that their employment histories differed far less than those of western German women depending on the number of children they had. First, mothers in eastern Germany were more likely than mothers in western Germany to have been employed. The only group of eastern German women with below-average levels of employment during certain parts of their life course were women who had three or more children; but even they had an employment level of nearly 85 % at age 35. The rates of participation in socially insured employment were consistently high among eastern German women. Thus, their biographies differ sharply from those of their western German counterparts. Moreover, the income levels of eastern German women were far less dependent than those of western German women on the number of children they had. However, while most eastern German women saw their gross income rise continuously over their life course, only a small share of these women were earning the national average income by the end of their career.

In the regression analysis, we explored the determinants of lifetime credit points. Our findings indicate that in the calculation of old-age pension benefits, western German women faced a heavy motherhood penalty. Between the ages of 25 and 40,

when most workers are making career advancements, western German mothers with two or more children worked very little. It is therefore not surprising that mothers with two or more children had gross earnings that were one-third or one-quarter of the national average income. This gap is reduced if we consider the additional pension credit points women received for each childrearing period. On average, however, only women with three or more children were able to collect as many credit points as childless women. To a large degree, the old-age income of a mother with three or more children depended on the points she received from the statutory pension insurance fund for childrearing periods. Indeed, many of these women had little or no earned income across their life course. For these women, the points they received for childrearing periods represent not just a form of a compensation for their loss of income during the periods when their children were young, but an independent source of old-age income.

In eastern Germany, we find that mothers and childless women had similar numbers of life-time credit points. If we consider the additional credit points women collected for each childrearing period, we find that the average mother had more credit points than the average childless woman. Women with three or more children were especially likely to have accumulated more credit points than childless women. The policy measure that awards mothers the equivalent of the national average income for each childrearing period appears to have imposed a childlessness penalty on eastern German women. Thus, as a consequence of the latest pension insurance reform, motherhood has become a positive factor in old-age income in eastern Germany. However, this surprising finding should be put into context. Earnings in eastern Germany were and are much lower than in western Germany, and there is a gender gap in earnings across Germany. Thus, in eastern Germany, the earnings of women including of those with very few interruptions in their employment career rarely reach the national average.

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