

# Determinants of fathers' parental leave taking - Neoclassical theory, social norms and the role of the partner

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## Abstract

The family formation phase is pivotal for gender equality and the employment of women. The fathers' participation in care work is a key component in that. The reform of parental leave in Germany 2007 led to an increase of the involvement of fathers in child care. Using data from the German Socio-Economic Panel from 2007 to 2018, we analyze the determinants of the fathers' parental leave taking. The theoretical framework consists of the neoclassical model, the relevance of social norms and the role of the partner. We find that wealth attributes as well as social norms have a considerable impact on the parental leave decision. Education especially reveals the relative importance of social norms compared to neoclassical arguments. A key empirical result is that the mother's education is particularly important for the father's parental leave taking. This emphasizes the role of the partner.

*Keywords:* Parental leave, fathers, gender equality, role of the partner

*JEL classification:* J13, J22, J18, J12

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# 1 Introduction

The family formation phase is pivotal for gender equality and the employment of women. The fathers participation in care work is a key component in that. The allocation or sharing of employment and care work in a partnership is a joint decision, in which the role of the father has been changing over the more recent decades.<sup>1</sup> We can observe a shift from the male breadwinner to a more active father. Today, there is still a lag in the literature regarding gender equality focusing on men rather than women. Tölke & Hank (2005) identified men as the neglected gender in family studies. One instrument to promote gender equality and to facilitate the involvement of fathers in care work is parental leave (Bujard (2013)). Our paper contributes to the literature by focussing on the parental leave decision of fathers.<sup>2</sup>

Since 2001, parents in Germany can take unpaid leave from work for up to three years per child, with protection against dismissal and the right to return to their old position in the company. In the 2007 reform of parental allowance, the government changed the wage replacement benefit parents receive during this time. Parents get awarded about 65% to 67% of the income they made before the birth of their child. They are entitled to up to twelve months of this paid leave per child, plus the so-called partner months. These are the two additional months of parental allowance parents get, if both of them take parental leave (BEEG (2017)). Today, around 40% of fathers take parental leave, mostly for two months.

Our paper analyzes the determinants of a fathers' decision to take parental leave. For the theoretical framework, we initially follow the approach of the neoclassical model. We then augment that with the alternative approach of social norms, connecting the two through the identity economics (Akerlof & Kranton (2000)). We acknowledge the role of the partner in this joint decision and try to explain their power dynamic by incorporating arguments of the bargaining theory.

The empirical analysis is based on data from the German Socio-Economic Panel (GSOEP) from 2007 to 2018. The estimations reveal that both, neoclassical arguments as well as social norms, play an important role in a fathers' parental leave decision. It is specifically noteworthy that the mother's education is particularly important for the father's parental leave taking, highlighting the role of the partner.

In the next chapter, we give context to our research question with the existing literature. Section 3 derives implications for the fathers' parental leave taking,

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<sup>1</sup> For our research we focussed mainly on heterosexual couples living with their children.

<sup>2</sup> We do not analyze the mothers parental leave decision in our estimations. Most mothers take leave anyway and our focus is on the father's support of the mother in child care.

based on the neoclassical theory, social norms, as well as the role of the partner. The 4th chapter discusses the data and describes the empirical specifications. Section 5 presents the estimation results from the different models. The final section concludes our research.

## 2 Literature

Having children and the family formation phase has a huge effect on the employment of women and gender equality. A negative correlation between having children and a woman's likelihood to be employed can be found for every OECD country (Pettit & Hook (2005)). Mothers with young children are less likely to participate in the labor market compared to women without children (Kaufman & Uhlenberg (2000)). In Germany, from the age of 30, women work part time more often than men. This coincides with the average age of females at the birth of their first child. In addition to that, more women than men take breaks from employment due to their family (Schrenker & Zucco (2020)). Until the recent past, the general understanding of family was dominated by the male breadwinner model, in which the partners traditionally specialize as men working outside the home and women being the housewife and care giver (Lamb (2000)).

Today the role of fathers is shifting from the breadwinner to a more active father (Ciccia & Bleijenbergh (2014)). Parents now wish to change the asymmetric allocation of in- and outside-of-home work between the partners and partly reverse the separation. On the one hand, women want to increase their working hours and facilitate their labor market participation. On the other hand, men working full time would overall prefer to reduce their working hours (Harnisch et al. (2018)) and two-thirds of fathers express the wish to spend more time with their children (Klunder & Meier-Gräwe (2017)).

The German parental allowance reform was introduced in 2007 to target those areas. The new regulations were supposed to promote gender equality by facilitating the involvement of fathers in care taking and encouraging female employment (Bujard (2013)). Research shows that in the following years, the new parental allowance indeed had a positive effect on mothers' labor market participation (Bergemann & Riphahn (2022), Wrohlich et al. (2012), Geyer et al. (2013), Tamm (2018), Dearing (2016)). Additionally, the new regulations impacted the time fathers spend caring for their children positively, if they took parental leave (Tamm (2018), Bünning (2016), Schober (2014), Schober & Zoch (2015)).

The determinants of a father's parental leave taking after the reform 2007 in Germany were discussed by a number of quantitative studies (Brandt (2017), Bünning (2015), Bünning et al. (2020), Kluge et al. (2008), Pfahl & Reuyß (2009), Reich (2011), Samtleben et al. (2019), Trappe (2013a), Trappe (2013b), Vogl (2009), Vogt & Pull (2010), Wrohlich et al. (2012)). For the purpose of this

paper we apply a comprehensive theoretical framework to classify the influencing variables. One of the main factors seems to be the financial situation of a family, which can be assigned to the standard neoclassical arguments. Most studies identify income to have a negative effect on the parental leave of fathers (Brandt (2017), Pfahl & Reuyß (2009), Reich (2011), Trappe (2013*a*), Trappe (2013*b*), Vogl (2009), Vogt & Pull (2010)).

The second group are socio-cultural factors, belonging to the more sociological approach of social norms. Bünning (2015), Kluge et al. (2008) and Reich (2011) for example conclude that education is positively correlated with a father's parental leave (Trappe (2013*a*), Trappe (2013*b*), Vogt & Pull (2010)). As a second example, East compared to West Germany (Bünning (2015), Reich (2011), Trappe (2013*a*), Wrohlich et al. (2012)) has a mostly positive effect.

Finally, determinants based the negotiations of responsibility assignment in families can be attributed to the role of the partner, though only a few studies focus on those. Some studies find that beliefs that only mothers should take parental leave have a negative impact on fathers' parental leave (Brandt (2017), Kluge et al. (2008), Pfahl & Reuyß (2009), Samtleben et al. (2019), Trappe (2013*a*)) and that the partners' education is associated with a higher probability for a father to take parental leave (Trappe (2013*a*), Vogt & Pull (2010)). A detailed list of the variable groups found in the literature is depicted in the appendix.

## **3 Theory**

### **3.1 Neoclassical theory, social norms and the role of the partner**

The neoclassical theory is the standard approach to analyze economic decisions. With the economic approach to family and human capital theory, Becker (1981) applied the same principals to household decisions as to business decision. Family is defined as a production unit, which maximizes one single utility function with the assumption of a common preference model and pooled income. The family member with the lowest costs and opportunity costs for a task takes on the responsibility for it. Opportunity costs are e.g. foregone earnings during a break from employment to care for a child. The human capital theory states that humans possess a inhomogeneous skill set, knowledge and experience. This is referred to as their human capital, in which they can invest in through education or similar. The human capital increases productivity, which in turn correlates positively with income and promotion opportunities.

Different skills and investment decisions lead to specialization and division of labor in the family. The income effect determines the supply of labor of the family members. In reverse conclusion, if family members exhibit the same attributes or if specialization is not maximizing the utility function, there is no specialization in the family. A standard extension to Becker's theory is the wealth effect. It states that economic agents are guided in their spending decisions by the real value of their assets. The financial feasibility of division of labor is the decisive factor, if specialization in the family occurs. Hence, whether a family can afford to have both earners or a specific earner take a break from employment.

As an alternative perspective on the division of labor in families, we consider social norms. The standard economic theory assumes a rationally behaving homo economicus, whereas sociology characterizes a homo sociologicus. The latter's behavior is dictated by the social norms of his social network. He is "pushed" by quasi-inertial forces and sticks to prescribed behavior even when there are better options (Gambetta (1987)). Social norms can be defined as a "set of rules specifying the 'correct' actions for every decision problem and a penalty for deviating from such prescribed actions" (Fershtman et al. (2012), S.140f.). Norms are "shared by others and partly sustained by their (dis-)approval and feelings of embarrassment, anxiety, guilt and shame" (Elster (1989), S.99f.).

Traditional social gender norms or roles can be characterized by a male breadwinner along with a female housewife. Modern gender roles on the other hand can be described by an equal dual earner couple (Qualls (1982)). The positive correlation between higher education and egalitarian gender norms should be emphasized here (Pampel (2011), Schulz (2010)). This divide mirrors the question of specialization vs. no specialization in the economic family-employment models. Legal rules, and therefore the government, can influence behavior of their citizens by shaping preferences rather than by constraining opportunities, so the individuals internalize normative behavior (Scott (2000)).

Identity Economics (Akerlof & Kranton (2000)) connect social norms with neoclassical economics by incorporating identity or a person's sense of self in an economic utility function. The identity is based on social categories, e.g. gender, or social differences. The categories are associated with physical attributes and prescribed behavior. Following the prescriptions affirms one's identity, violating the prescriptions evokes discomfort and is associated with costs. This implies identity-based payoff from one's own or someone else's actions if the action does or doesn't correspond with the gender prescription of behavior. As one example, men feel threatened in their manliness if women do a "man's" job or a woman's identity is enhanced by working inside the home.

The neoclassical theory and social norms can explain why partners decide on the division of labor in their household, but not how this arrangement is made and what the role of the partner is. The decision on the assignment of tasks in

a family is not an individual decision; it is a joint decision within a relationship context and a family allocation process (Lundberg & Pollak (1996)). Lundberg & Pollak (1993) attributes separate spheres in the family to each partner according to the gender-specific areas of responsibility. But others such as Lackman & Lanasa (1993) argue that bigger decisions are always made together.

One method to analyze how this decision is made is the cooperative bargaining theory (Manser & Brown (1980), McElroy & Horney (1981)). This approach is based on no income pooling in the family, as opposed to neoclassical income pooling, and individual utility functions, whereby each partner maximizes their own utility. Decisions in the relationship are based on the interactions between them. If the partners have different preferences, they bargain with a reciprocity strategy. If the gain from cooperation is bigger than the gain from competition, the partners choose cooperation and vice versa. The hierarchical or egalitarian power dynamics in the partnership are determined based on the alternatives and individual resources. The partner who holds more power is less interested in cooperation. Power has different dimensions: economical (e.g. income), sociological (e.g. education, social norms) and psychological (e.g. age, language). Women's income and education especially have an effect on the decision-making authority within the household (Lundberg & Pollak (1996)).

The neoclassical model, social norms and bargaining provide a theoretical framework to analyze the allocation or sharing of labor in a household. Parental leave causes a marginal change in the existing division of employment in the labor market and care work inside the home. The choice between specialization and no specialization, traditional and modern social norms, as well as hierarchical and egalitarian bargaining, influences the decision on the assignment of tasks in the household. This choice is reflected in the parental leave taking, as well as in the chosen family model. The previously decided on family type, e.g. breadwinner or dual earner, can give implications for the parental leave decisions. It provides information about the behavior and thought processes of the family. The family type can show a clear indication for the power dynamics and preferences for the parental leave decision. From a theoretical perspective, the specialized breadwinner and non-specialized dual earners start at different ends of the spectrum of the parental leave decisions. Therefore we also discuss them separately: Are there differences in the effects or the magnitude of effects on their parental leave taking for both groups?

To differentiate between the effects for the two, we have to characterize them. We contrast specialized breadwinner vs. non-specialized dual earners, poor breadwinner vs. rich dual earners, traditional breadwinner vs. modern dual earner as well as hierarchical breadwinner vs. egalitarian dual earner. To comprehend the differences, some general rules can be applied. The principal of diminishing marginal returns implies a decreasing wealth effect for additional wealth from

being poorer to being richer. We hypothesize, that the same logic can be applied to social norms, while moving from traditional to more modern norms.

### 3.2 Implications for fathers' parental leave taking

This section discusses the hypotheses for the empirical analysis based on the established theoretical framework. The neoclassical model and social norms provide two different perspectives on the same issues. Connected through identity economics, both yield partly similar and partly opposing hypotheses. An overview is given in table 1. Additionally, as parental leave is a joint decision between the partners, the bargaining theory can contribute to the explanation of the decision making process.

**Table 1:** Hypotheses for effects of assigned variables

Variables	Neoclassical	Social Norms	Bargaining
<b>Education</b>			
Education	Income effect (-)	(+)	(+/-)
	Wealth effect (+)		
Partners Education	Income effect (+)	(+)	(+)
	Wealth effect (+)		
<b>Wealth</b>			
Household Size	Income effect (-)	(-)	
	Wealth effect (-)		
Household Income	Wealth effect (+)		
House ownership	Wealth effect (+)		
<b>Work place</b>			
Working hours	Income effect (-)		
Company size	(+)	(+)	
<b>Social norms</b>			
Age, Partners age		(+/-)	(+/-)
German (Nationality)		(+)	
Married		(-)	

The first variable *education* is relevant for all theoretical approaches. The positive correlation between education and income indicates that, the higher the father's education, the greater their wealth. According to the wealth effect, the probability of taking parental leave is higher if the father is wealthier because it is financially more feasible for him to take leave. Therefore, additional education has a positive effect on the fathers' parental leave taking.

The income effect however demonstrates a negative impact on the father's probability of parental leave taking. Increased education equals a higher investment in human capital; meaning parental leave represents higher opportunity



costs for the father, which consequently decreases his probability to take parental leave.

In contrast, social norms see education as an important indicator for modern gender norms. In this case, a higher education leads to a higher probability for a father to take parental leave since he believes in sharing care work more equally. This contradiction between the neoclassical theory and the social norms translates to the bargaining theory. A highly educated father has a strong bargaining position. Since the parental leave probability of highly qualified fathers decreases according to the neoclassical theory and increases according to the social norms, in which direction education affects his parental leave decision depends on his preferences. The relative importance between these arguments must be deduced from the empirical analysis.

As for the *partners' education* variable, effects can be derived from all theories. Additional education of the partner increases the family's wealth and therefore the father's parental leave probability. The partner's opportunity costs are in this case relatively higher, and therefore the father is more likely to take parental leave. The modern social norms of a highly qualified partner also affects the father's parental leave positively. Since the wealth effect, the income effect and social norms all assume a positive effect on the father's parental leave taking, this reinforcing consensus portrays the particular importance of this variable and the positive effect of bargaining. As parental leave is a joint decision in the partnership, and a highly educated partner has a strong bargaining position, the partner can demand that the father takes parental leave.

For the wealth variable *household size*, we expect a negative effect on the father's parental leave decision. Specialization is especially efficient after the second child and a growing household, i.e. more children, represents a larger financial burden for the family. Following the neoclassical arguments, this makes parental leave less financially feasible. It additionally suggests more traditional gender roles according to the social norms. With the move away from the traditional breadwinner model in recent decades, the family size decreased in parallel. For the other wealth variables *household income* and *house ownership*, we expect a positive effect on a father's parental leave decision. House ownership is used as an approximation for wealth, as assets are overall difficult to measure. In wealthier families, enough resources are available for the father to be able to take parental leave.

The main work place variable is the *working hours* of the father. Additional working hours indicate higher income and therefore mean higher lost earnings during a break from employment and imply high career orientation, ambitions to receive a promotion and commitment to the work place. They therefore increase the opportunity costs incurred during parental leave according to the income effect and thus decrease a father's probability to take parental leave. We also

test for the *company size*, which can be assigned to the neoclassic theory and social norms. Finding a temporary substitute for the father during his absence is organizational easier in a bigger company, which increases his probability to take parental leave. We expect improved conditions in bigger companies, thus encouraging more social acceptance of fathers' parental leave of their colleagues and employer and having a positive effect on their parental leave decision.

As the final group, we examine the influence of variables mostly associated with social norms. We test for *age*, *nationality* and *marriage*. Based on social norms, young people are generally more modern, young parents are typically more traditional, however because the average person does not become a parent at a young age any more, the latter is more plausible. Looking at the age of the father and partner separately, being older is also an indicator for a strong bargaining position. If we expect younger fathers to be less likely to take parental leave, we assume they have more traditional preferences and would therefore assert their choice not to take parental leave. Vice versa, an older partner could enforce their preferences. Concerning nationality, being German suggests a positive effect on parental leave. The German culture is relatively modern compared to most foreigners, especially since a big share of non-German fathers are Turkish, who hold more traditional gender norms (Diehl et al. (2009)). Finally, we look for the effect of the marital status. Being married signifies more traditional beliefs, because marriage before kids is seen as more proper and traditional, suggesting a negative effect on parental leave.

In the next step, we differentiate between the effects of the same variables for the breadwinner and dual earner families. The previously made decision for the family type indicates the distribution of bargaining power between the parents. Breadwinner fathers likely hold more power than egalitarian, dual earner fathers. With higher education and age, the bargaining power increases for both. As for the partners' bargaining power, having an independent income to fall back on implies a higher bargaining power for the employed dual-earner-partner compared to an not-employed breadwinner-partner. The prior decision for a family model also clearly indicates more traditional preferences for breadwinner and a more modern approach for dual earner families in regards to social norms.

Following the principle of diminishing marginal returns, additional education, household income and house ownership should have a bigger impact on the generally poorer breadwinner as they are single income families. Thus we expect the positive effect on a father's parental leave probability to be most important for the breadwinner.<sup>3</sup> By analogy with the diminishing marginal returns, we expect social norms to have a lower effect on becoming more modern if a person is already relatively modern compared to more traditional. Subsequently, additional

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<sup>3</sup> With the income effect, lost earnings and opportunity costs of human capital investments affect both family types in terms of education and working hours. Just the income effect of partners' education applies only to the employed partner in a dual earner family.

education, being German as well as the company size should have a bigger impact on the parental leave decision of the generally more traditional breadwinner than their more modern dual earner counterpart.

## 4 Data and empirical specifications

In our analysis we use data from the German Socio-Economic Panel. The GSOEP is a multidisciplinary panel study which surveys 15,000 households and 30,000 individuals annually starting 1984 (DIW (2021)). For our analysis we use the initial samples West Germany, Migration and East Germany. Furthermore, we added the refreshment samples until 2018 (wave 35). Because the reform of parental allowance in 2007 changed the basis for decision-making significantly (Pfahl & Reuyß (2009), Vogt & Pull (2010)), we only use the birth cohorts 2007 to 2018 for our estimations. We identified parents, and specifically fathers, by whether a child was born in a person's household and whether they live in the same household as the child.<sup>4</sup>

For our endogenous dummy variable, we verified if the father took parental leave in the year of the birth of the child or the two following years, whereat we refer everything back to the year of the birth. The first three years in a child's life are when parents usually take their leave from work. We use probit models to estimate a father's probability to take parental leave, taking into account his and his partner's different attributes and resources.

Before the parental allowance reform in 2007, less than 5% of fathers took parental leave, as can be seen in figure 1. After the reform, we can observe a steady increase in the share to 35% to 40% of fathers who take parental leave in the more recent years. Correspondingly, a consistently high share of mothers, around 83% up to 98%, take parental leave. This illustrates the slowly diminishing discrepancy between men and women.

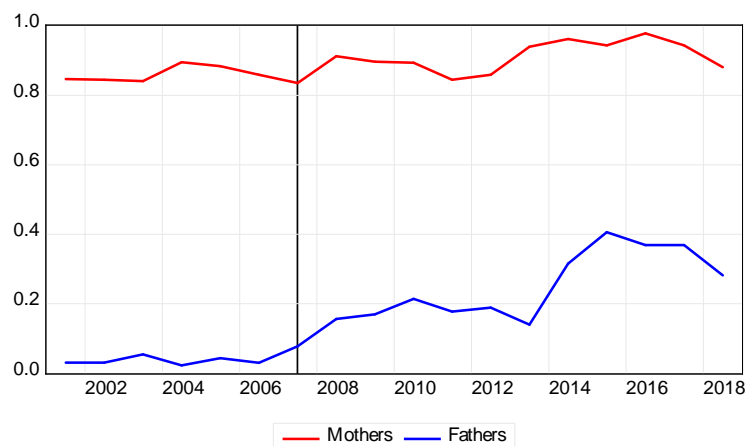
A further distinct disparity can be found in the duration of parental leave. On average, mothers take 12 or more months of parental leave. Fathers, on the other hand, take on average 3 to 5 months of parental leave since the introduction of the partner months in 2007. Today around 50% of fathers take exactly 2 months off. This shows a clear indication for a "12+2 split" of parental leave between mothers and fathers.

We take the decision for the family model as predetermined. To differentiate between the family types, we split our sample into breadwinner, dual earner, female breadwinner and not employed families. Breadwinner families have an employed father and a stay at home partner. Dual earner families consist of two

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<sup>4</sup> We excluded men over the age of 60 as well as men with partners over 60 or men with no information about their partners age.

**Figure 1:** Share of parents taking parental leave

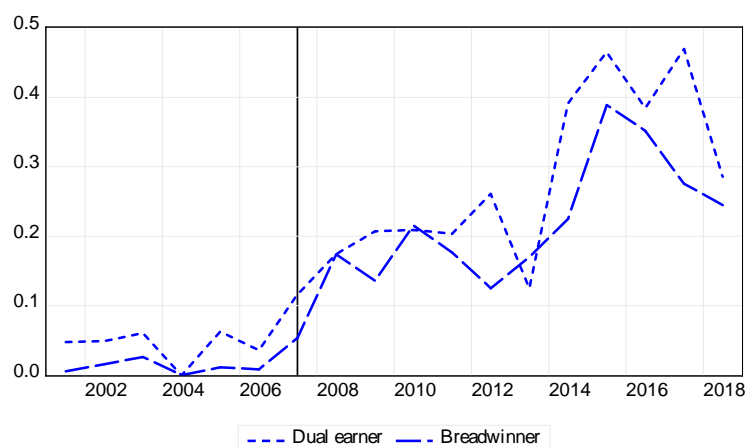


Note: Data from GSOEP, birth cohorts 2001-2018

employed parents. In female breadwinner families, the partner participates in the labor market and the father stays at home. In not employed families, both parents do not work. The employment status is considered in the year before the birth of the child and comprises full time, part time and marginal employment as well as apprenticeship and marginally compensated full time voluntary work. The total sample consists of 1672 fathers for the birth cohorts 2007 until 2018, of which 22% take parental leave, as seen in table 2. The two main family types are the breadwinner (N=827) and dual earner (N=697). 25% of dual earners and only 20% of breadwinners take parental leave. The group of female breadwinner families (N=49) and not employed families (N=99) are considerably smaller and atypical types of families for Germany and therefore will not be considered further.

Analyzing the development of the share of fathers taking parental leave separately for breadwinner and dual earners, figure 2 shows that dual earner fathers have a slightly higher share of parental leave takers. But both follow the same overall trend, which makes the difference between the two smaller than expected.

**Figure 2:** Share of dual earner and breadwinner fathers taking parental leave



Note: Data from GSOEP, birth cohorts 2001-2018

**Table 2:** Data description for all, breadwinner and dual earners families

	<b>All</b>	<b>Breadwinner</b>	<b>Dual earner</b>
	<i>n</i> = 1672	<i>n</i> = 827	<i>n</i> = 697
Variables	<i>Mean</i>	<i>Mean</i>	<i>Mean</i>
Parental leave	0.22	0.20	0.25
<b>Education</b>			
Education (years)	13.14	13.07	13.51
Partners education (years)	13.24	12.99	13.83
<b>Wealth</b>			
Household size	3.84	3.96	3.66
Household income > median	0.49	0.45	0.60
House ownership	0.39	0.38	0.45
<b>Work place</b>			
Working hours > 40 (hours)	0.63	0.62	0.63
Company size	4.69	4.61	4.83
<b>Social norms</b>			
Age < 30 (years)	0.17	0.20	0.10
Partners age < 30 (years)	0.29	0.33	0.21
German (Nationality)	0.91	0.90	0.95
Married	0.76	0.76	0.79

Note: Data from GSOEP, pooled for birth cohorts 2007-2018, fathers  
Household income, working hours and company size refer to  
the year before birth of the child

Table 2 furthermore describes the independent variables used for the estimations. Education is the central variable of our estimation and is specified as the years of schooling or training. The average education of a father is 13.14 years. Dual earners are slightly more educated at 13.51 years, but both are pretty alike. The average education of the partners is 13.24 years, similar to that of the fathers. However, the difference between the education of partners from dual earner and breadwinner families is quite large, with nearly 1 year difference. The dual earner partner is more educated than the average dual earner father, with an average of 13.84 years of education, making specialization unreasonable in those families. This indicates the first clear difference between the family types.

We measure wealth by the household size, household income and house ownership. Bigger households are a financial burden on the family and additional indicate traditional social norms. The average household size is 3.84 people. Breadwinner family households are above the average, with 3.96 people. Household income is specified as a dummy variable denoting above the median income and references the year before birth. With 60% of fathers, more dual earner families receive above the median income. We use house ownership as an approximation for wealth. 39% of all fathers own a house, but a comparatively larger share of dual earner fathers, 45%, own their own property. As those vari-

ables reflect the financial situation of the family, they show that dual earners are wealthier.

The third group of variables represents the work place and refers to the year before the birth of the child. In the job context, we only observe the fathers' and not the partners' work place variables, as those do not apply to a non-employed breadwinner partner. Working hours demonstrate the career orientation of the father. We specified long working hours as over 40 hours per week and found that 63% of all fathers work long hours. Company size accounts for the possibility of substituting absent workers in the corporation and for the company culture. As a categorial variable, the number of employees increases in intervals from 1 to 7. The average company size for all fathers is 4.69, but dual earners work in slightly bigger companies, with an average of 4.83. So, there is virtually no significant difference between the subgroups in their work place variables.

The final group of exogenous variables serves as indicators for social norms. We expect younger parents to be more traditional. Therefore, we defined age as a dummy variable categorizing parents as under 30 years or older. Overall, 17% of fathers and 29% of partners are under 30, so less fathers are younger compared to the partners. For dual earners even less fathers are under 30, with only 10% of them. The share of young partners in breadwinner families is 12 percentage points higher than in dual earner families. This suggest more traditional social norms and more hierarchical relationship dynamics in breadwinner families.

German culture is more modern than most foreigners in our sample, supported by the fact that one third of all foreigners are Turkish. 91% of all fathers are of German nationality. Dual earners are slightly more often German with 95%. A pretty similar share of around 76% to 79% of fathers are married. The marital status does not differ greatly between the groups. All social norm variables point to the fact that breadwinners are more traditional.

In summery, we can conclude that the differences between the breadwinner and dual earner families are not extreme, but obvious. Dual earner partners are more educated and families with two employed parents are wealthier while breadwinner families follow more traditional social norms. In general, those variables reflect the characterization of the two subgroups and the data descriptives explain the differences between the two family types well and are mostly as expected.

## 5 Results

Table 3 presents our estimation results. We estimated four probit models with pooled data from the GSOEP from 2007 to 2018. The left hand column shows the results for the whole sample with the family dummies. The second column presents the estimations for the two main family types, breadwinner (BW) and dual earners (DE), combined. The following columns showcase both family types as separate samples, which is a distinction not done in other studies. Both groups have a comparable sample size.

As discussed above, the *family types* differ from each other in their parental leave taking and other variables. The results reveal that the dummies for the family types in reference to the dual earners are not significant in our estimations.<sup>5</sup> This indicates that the included variables in the model represent the differences between the groups quite well. We therefore omit the family type dummies. The primary results in column two focus on the central groups, breadwinner and dual earner, as the other two have very little observations.

One of the main variables of our estimation is education. It can be applied to the neoclassical model and social norms. Analyzing the results, higher educated fathers have a higher probability to take parental leave.<sup>6</sup> Contradicting the income effect, which implies a negative relation, the significantly positive coefficient is consistent with the argumentation of social norms and being more modern. This shows the relative importance of social norms.

The most important variable in the context of a father's parental leave decision is the *partner's education*. It captures the neoclassical arguments, the modernization of social norms and the strong bargaining position of the partner. The education of the partner has a significant positive effect on a father's parental leave probability, as expected by all theories. The effect is twice as strong as the effect of the father's education. Evidently, the partner's resources have a large influence on the father's decision to take parental leave.<sup>7</sup>

The next finding is that the father's parental leave taking is positively effected by his wealth. *Household size* has a significantly negative effect on the father's parental leave probability. A larger household is a financial burden on the family and also indicates more traditional social norms. The wealth effect is also confirmed by the significantly positive effect of *household income*. Wealthier fathers have better possibilities to take parental leave, compared to fathers from low income families. This finding aligns with the established importance of financial

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<sup>5</sup> Trappe (2013a) used breadwinner and dual earner as independent variables and found a significant negative effect for male breadwinner families and a positive for dual earners on the fathers parental leave. The study used a different data set.

<sup>6</sup> This is consistent with the finding of Trappe (2013a), Trappe (2013b) and Vogt & Pull (2010).

<sup>7</sup> This is also in keeping with most other studies (Trappe (2013a), Vogt & Pull (2010)), albeit they did not analyze the role of the partner that specifically.

**Table 3:** Results of probit model for all, breadwinner and dual earner families

	<b>All</b>	<b>BW &amp; DE</b>	<b>Bread- winner</b>	<b>Dual earner</b>
	Coef (SE)	Coef (SE)	Coef (SE)	Coef (SE)
Absolute term	-2.4665*** (0.3382)	-2.6161*** (0.3651)	-3.0780*** (0.5505)	-2.2960*** (0.5062)
<b>Family types</b>				
Breadwinner	0.0308 (0.0823)			
Female breadwinner	0.2210 (0.2287)			
Not employed	0.0698 (0.1981)			
<b>Education</b>				
Education (years)	0.0439*** (0.0151)	0.0396** (0.0159)	0.0427* (0.0225)	0.0301 (0.0233)
Partner's education (years)	0.0860*** (0.0160)	0.0877*** (0.0167)	0.1052*** (0.0250)	0.0814*** (0.0225)
<b>Wealth</b>				
Household size	-0.1371*** (0.0436)	-0.1283** (0.0453)	-0.1612*** (0.0615)	-0.0687 (0.0746)
Household income > median	0.2821*** (0.0913)	0.1952** (0.0965)	0.1782 (0.1371)	0.2355* (0.1418)
House ownership	-0.0823 (0.0792)	-0.1167 (0.0822)	0.1609 (0.1182)	-0.3708*** (0.1173)
<b>Work place</b>				
Working hours > 40 (hours)		-0.2302*** (0.0852)	-0.0592 (0.1282)	-0.4007*** (0.1173)
Company size		0.0773*** (0.0195)	0.0725*** (0.0278)	0.0799*** (0.0282)
<b>Social norms</b>				
Age < 30 (years)	-0.4661*** (0.1399)	-0.4608*** (0.1484)	-0.7760*** (0.2163)	-0.0653 (0.2227)
Partner's age < 30 (years)	-0.1085 (0.1079)	-0.1026 (0.1126)	0.0020 (0.1538)	-0.2146 (0.1745)
German (Nationality)	0.4693*** (0.1786)	0.4544** (0.1881)	0.6842** (0.2861)	0.2044 (0.2707)
Married	-0.0648 (0.0913)	-0.0701 (0.0967)	-0.1764 (0.1407)	0.0155 (0.1385)
Mean dependent variable	0.2165	0.2248	0.1971	0.2525
Observations	1672	1524	827	697

Note: Variables representing missing information for partner's age, partner's education\*, household income, working hours\* and company size included in the estimations. Household income, working hours and company size refer to the year before birth of the child. Reference group for family types is dual earner.

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Data: GSOEP, pooled for birth cohorts 2007-2018, fathers



worries in other studies (Pfahl & Reuyß (2009), Samtleben et al. (2019)), but opposes to the negative effect of the personal income of fathers found by others (Brandt (2017), Pfahl & Reuyß (2009), Reich (2011), Trappe (2013a), Trappe (2013b), Vogl (2009), Vogt & Pull (2010)). *House ownership*, which we use as an approximation for wealth and assets, is not significant. One interpretation is that the financial burden of a mortgage, as well as maintaining the property, and the asset effect of owning a house seem to outweigh each other.

As the first work place variable, long *working hours* have a relatively large, significant negative effect on a father’s parental leave taking. This aligns with the expected negative income effect. The missed earnings and the opportunity costs for the career of the father affect his parental leave decision negatively. *Company size* has a significant positive effect on a father’s probability to take parental leave. It is easier to find a substitute for the father during his absence in a bigger company and it is conducive to the company culture and attitude of the employer and coworker towards parental leave.

The role of social norms for the parental leave decision alongside the neoclassical arguments is evident. The *age* of the father (age < 30) exhibits a strong negative effect on his probability to take parental leave. This is reflected by the fact that men who become fathers at a young age follow relatively traditional social norms.<sup>8</sup> The *partner’s age* is not significant. *Being German*, compared to otherwise mostly Turkish fathers, has a significant positive effect on the parental leave taking. German fathers display more modern social norms and therefore have a higher parental leave probability. In other studies, having a migration background (Wrohlich et al. (2012)) or being non-European (Reich (2011)) also had a negative effect on male parental leave taking. Being *married* is not significant, whereas we had expected a significant negative effect.

Column 3 and 4 present the results of the separate estimations for the breadwinner and dual earner family types respectively. Both differ from each other in their parental leave by around 5 percentage points. For the differentiation between the effects of the two, we applied the principal of diminishing marginal returns to wealth as well as social norms. For the poorer, more traditional breadwinner, we deduced that wealth and social norms are of higher importance compared to the richer, more modern dual earners. The results for education are pretty similar for both. The effect is only significant on a 10%-level for the breadwinner and the coefficients are nearly alike. Because of the smaller sample size, a differentiation is not possible in this case. The partner’s education is significantly positive for both family types. It is again the most important variable in our estimation for both of the subgroups, with a larger coefficient for the less educated breadwinner partner. Therefore, additional education of the partner

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<sup>8</sup> Kluge et al. (2008), Reich (2011) and Wrohlich et al. (2012) found corresponding to that, that older fathers are more likely to take parental leave.

has a bigger effect on becoming more modern for breadwinner families. It also increases the bargaining power of the partner.

The social norm variables are more important for the relatively traditional breadwinner. In breadwinner families, being older increases a father's probability of taking parental leave. The age effect is quantitatively higher and significant for the breadwinner and lower as well as insignificant for the dual earner. Nationality, or being German, is also significantly positive for the breadwinner and insignificant for the dual earners, which is understandable because the share of foreign breadwinners is double that of foreign dual earners. This shows that variables indicating more modern social norms affect the behavior of relatively traditional breadwinners more. The partner's age is still insignificant for both groups. Therefore, it does not seem to play a role in the father's decision to take parental leave overall. Being married is also not significant for either group.

For the wealth variable, we likewise find differences in the results among the family types. Both groups are pretty similar in the size of their households, but household size has a significant negative effect for the breadwinner families and is insignificant for the dual earners. The impact of the financial burden of a larger household is more relevant for the poorer breadwinner. In addition, a bigger household reinforces the assumption of being more traditional for the breadwinner. Household income has a relatively similar effect on both. The 10%-level significance of the income of dual earner families is too minor to be interpreted. House ownership is only significant for dual earners. It has a negative impact which is difficult to interpret due to the two sided implications of owning property; an approximation of wealth and a financial burden. Long working hours represent the career orientation of fathers, which is relevant for both family types and implies a similar effect. Results show that long hours are insignificant for the breadwinner and negatively significant for dual earners. In the parental allowance regulations a upper limit of 1800 € for the wage replacement benefit is defined. One interpretation might be that, because working hours and income are correlated, said cap-off entails higher opportunity costs for the relatively rich dual earners. The results for company size do not differ between the subgroups.

## 6 Conclusion

The profound impact of having children on gender equality and female labor market participation is apparent. The degree of involvement of fathers in child care is a key element in the employment of mothers. Since the reform of parental allowance in Germany 2007, we can observe a positive trend of the share of fathers who take parental leave. A new social practice regarding the division of parental leave of a 12+2 split between the mother and the father emerged. Today about 40% of fathers take parental leave, in most cases for two months.

Analyzing the parental leave behavior of fathers, we found that neoclassical arguments, specifically wealth attributes, determine the decision. Increasing household size, which is associated with more financial burdens, has a negative effect on the father's probability to take parental leave. Household income, with its growing monetary resources, has a positive influence. However, empirical results show that social norms play a big part as well. The education of the father is a central variable of the estimations. The neoclassical approach implies that a highly qualified father should continue working to amortize his human capital investment. Social norms, on the contrary, suggest that a highly educated father is more egalitarian and therefore more likely to take parental leave. The estimated effect of education is positive, which shows the relative importance of social norms.

The education of the partner is even more important. The positive effect for additional education of the partner is supported by neoclassical arguments as well as by social norms. The partner's education entails positive wealth effects, due to the correlation between schooling and income, as well as a positive effect on the modernization of their norms. It has the largest empirical effect, which shows the huge impact of the partner on the father's parental leave decision. Parental leave is a joint decision between the parents, which highlights the role of both partners. By applying the bargaining theory we tried to model the partnership context. It is empirically evident in our analysis that the mother influences the parental leave decision of the father. In return this leads to the question how the father influences the employment decision of the mother.

We took the decision for the family types as predetermined, but the decision for a partnership model or family type share many features with the theoretical framework for parental leave. Breadwinner and dual earner start on different ends of the spectrum of the parental leave decision. We therefore differentiated between the two subgroups in our estimations. The descriptive analysis of the variables showed that both differ significantly from each other. Generally dual earner fathers take parental leave more often than breadwinner fathers. Their families also have a higher household income and breadwinner partners are on average less educated and younger compared to their dual earner counterparts.

These differences meet our expectations. Using the family types as exogenous variables in our estimations showed, that they do not exhibit a simple base effect; rather, the difference in their parental leave taking is represented by the variables in our model.

It is apparent that both, the decision for parental leave and the decision for a family type, are made by both partners together. The decision making process is influenced by economic calculations, social norms and the reciprocal interaction between the partners with different power dynamics. How the parents come to their conclusion is not entirely clear, but the role of the father should not be neglected. The analysis of these joint decisions, whether for parental leave, the division of care work or for a family type, should receive a prominent place on the agenda of further research.

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# Appendix

## Literature overview over aggregated determinants

Determinants	Studies
Financial resources	Brandt (2017), Bünning et al. (2020), Samtleben et al. (2019), Vogl (2009)
Income	Brandt (2017), Pfahl & Reuyß (2009), Reich (2011), Trappe (2013 <i>a</i> ), Trappe (2013 <i>b</i> ), Vogl (2009), Vogt & Pull (2010)
Partners income	Brandt (2017), Bünning et al. (2020), Samtleben et al. (2019), Vogl (2009)
Career opportunities	Brandt (2017), Samtleben et al. (2019), Vogt & Pull (2010)
Problems re-entering the job	Brandt (2017), Pfahl & Reuyß (2009), Vogl (2009)
Culture / Situation in company	Bünning et al. (2020), Kluge et al. (2008), Pfahl & Reuyß (2009), Samtleben et al. (2019)
(Lack of) Support from employer	Brandt (2017), Bünning et al. (2020), Pfahl & Reuyß (2009)
Education	Bünning (2015), Kluge et al. (2008), Reich (2011), Trappe (2013 <i>a</i> ), Trappe (2013 <i>b</i> ), Vogt & Pull (2010)
Partners education	Trappe (2013 <i>a</i> ), Vogt & Pull (2010)
Age	Kluge et al. (2008), Trappe (2013 <i>a</i> ), Trappe (2013 <i>b</i> ), Wrohlich et al. (2012)
One or more children	Bünning (2015), Kluge et al. (2008), Trappe (2013 <i>a</i> ), Trappe (2013 <i>b</i> )
East vs. West Germany	Bünning (2015), Reich (2011), Trappe (2013 <i>a</i> ), Wrohlich et al. (2012)
Mothers want to/ should take parental leave	Brandt (2017), Kluge et al. (2008), Pfahl & Reuyß (2009), Samtleben et al. (2019), Trappe (2013 <i>a</i> )