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External Effects of 'Daddy Months': How Fathers' Parental Leave Changes Social Norms

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External Effects of ‘Daddy Months’: How Fathers’ Parental Leave Changes Social Norms

*Ulrike Unterhofer and Katharina Wrohlich**

February 2017

*Preliminary and incomplete.
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Abstract: We address the question whether the introduction of the fathers’ quota in parental leave (‘Daddy months’) in Germany in 2007, that caused a sharp increase in the take-up of parental leave by fathers, has changed the attitudes towards gender roles in the grandparents’ generation. To this end, we exploit the quasi-experimental setting of the 2007 reform and compare grandparents whose son had a child born shortly before the 2007 reform to grandparents whose son had a child born shortly after it. The empirical analysis is based on the *pairfam* data set that contains information on anchor persons and their parents. Our findings point to a positive effect of the fathers’ quota on attitudes concerning gender equality. The results suggest that programs such as father’s quota within parental leave not only induce direct behavioral responses by the target group but also have indirect effects on non-treated individuals through social interaction and can thus change attitudes towards gender roles in a society as a whole.

JEL-Classification: J16, H31, J18, D13, J22

Key-Words: parental leave, gender equality, social norms,
social interaction, policy evaluation

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1. Introduction

Despite a constant increase in the female labor force participation rate over the last decades, women and men have still not reached an equal position in the labor market. In all OECD countries, there is a considerable gender wage gap, a gender gap in working hours as well as a gender representation gap. Closely linked to the labor market position of men and women is their involvement in child care and housework. Up to today mothers perform a considerably larger share of care work at home than fathers (see, e.g. *Bianchi, 2011*). Many studies have shown that labor supply, and the time allocation within families in general, are strongly influenced by social norms (e.g. *Duncan et al., 2003* and *Fortin, 2005* and *2015*). Family policies such as fathers' quota within parental leave programs aim at directly influencing the behavior of fathers with newborn children and are also motivated by the idea that they might change social norms and gender attitudes within society.

Numerous studies show that gender identity as well as attitudes towards gender roles are strongly determined by one's parents (e.g. *Olivetti et al. 2016*, *Farré and Vella, 2013* *Fernandez et al., 2004* or *Cunningham, 2001*). On the other hand, it has been shown that also institutional environments or policies can influence attitudes (e.g. *Sjöberg, 2004*), for example as policy feedback effects (e.g. *Ellingsaeter et al., 2016*).

We contribute to both strands of the literature by addressing the question whether the introduction of the fathers' quota in parental leave ('Daddy months') in Germany in 2007, that caused a sharp increase in the take-up of parental leave by fathers, has changed the attitudes towards gender roles in the grandparents' generation. To this end, we exploit the quasi-experimental setting of the 2007 reform and compare grandparents whose son had a

child born shortly before the 2007 reform to grandparents whose son had a child born shortly after it. The empirical analysis is based on the *pairfam* data set (“Panel Analysis of Intimate Relationships and Family Dynamics”), which is a longitudinal survey that interviews anchor persons and their partners, parents and children (see *Huinink et al., 2011*).

Our findings point to a positive impact of the fathers’ quota on attitudes concerning gender equality and thus provide evidence for policy feedback effects that have also been shown in other contexts.¹ Specifically, we find that grandmothers whose sons were more likely to take parental leave as their child was born after the reform, are less likely to agree with the statement “*Women should be more concerned about their family than about their career*”. For grandfathers, we find point estimates of similar direction and magnitude, however, they are not statistically significant. These results provide evidence that the formation of gender role attitudes is not finished at a certain age. Moreover, attitudes towards gender roles are not only transmitted from parents to children but also from (grown-up) children to their parents. From a policy perspective, these results provide evidence that programs such as father’s quota within parental leave schemes not only induce direct behavioral responses by the target group but also have indirect effects on non-treated individuals through social interaction and can thus meet the goal of changing attitudes towards gender roles in a society as a whole.

¹ For example, *Ellingsaeter et al. (2016)* have shown evidence for policy feedback effects of childcare reforms in Norway.

2. Institutional Set-up: Parental Leave in Germany

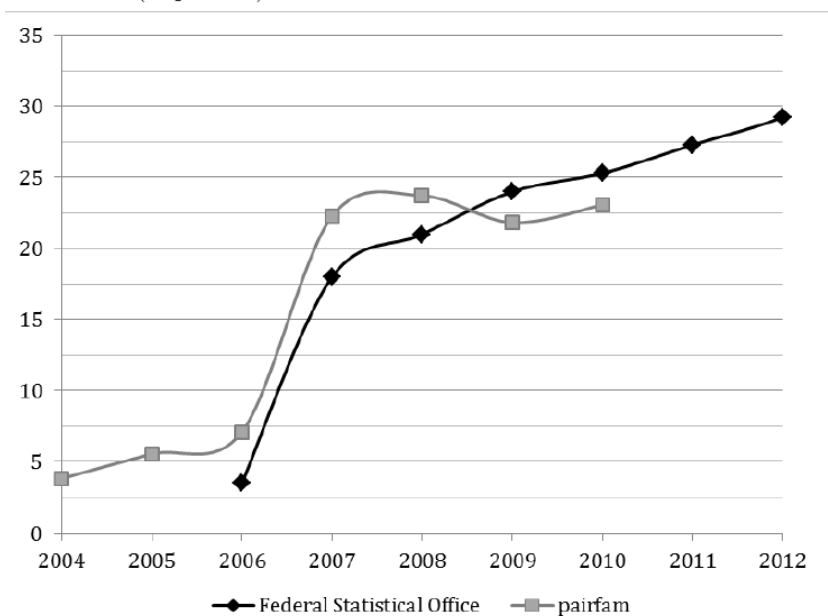
Traditionally, mothers in Germany have taken very long parental leaves, particularly in West Germany (e.g. *Hanel and Riphahn, 2012*). This can be attributed both to an institutional setting that discourages secondary earners through the tax system (e.g. *Steiner and Wrohlich, 2004*) as well as the lack of affordable child care (e.g. *Wrohlich, 2008*) and to relatively conservative gender role attitudes (*OECD, 2017*). However, in the last decade, family policy has changed and there has also been a shift in attitudes towards gender roles (*OECD, 2017*).

In Germany, mothers are entitled to 14 weeks of paid maternity leave around childbirth. This maternity leave benefit is only paid to mothers and cannot be transferred to fathers. Before 2007, there has been a means-tested child-rearing benefit (*Erziehungsgeld*) after the 14 week maternity leave period. This benefit amounted to 300 Euro per month and could be drawn for a maximum of two years either by the father or the mother. Income thresholds, however, have been relatively low, such that only roughly 50 percent of families received this benefit. In practice this resulted in a very low share of fathers taking leave (*Geisler und Kreyenfeld, 2012*), and relatively long employment interruptions of mothers (e.g. *Hanel and Riphahn, 2012*).

The reform that was introduced in 2007 replaced the means-tested *Erziehungsgeld* with an earnings-replacement benefit called *Elterngeld*. This benefit replaces 65 percent of net earnings and can be drawn either by the father or the mother for a maximum of 12 months. If both parents share parental leave, they get two additional months, i.e. if one parent takes at least two months of parental leave, the total duration for the couple amounts to 14 months.

Enhancing gender equality was one important policy goal of the introduction of the new parental leave scheme in 2007. Its design as an earnings replacement benefit was meant to allow both parents to preserve their personal economic independence. The fathers' quota of two out of 14 months was explicitly introduced to increase the share of fathers taking parental leave. Several empirical evaluation studies of this reform show that these goals were at least partly met: The share of mothers going back to work in the second year after giving child birth has increased. The duration of parental leave has decreased in particular for lower educated mothers (see, among others, *Geyer et al., 2015, Kluge and Tamm, 2013* or *Bergemann and Riphahn, 2010*). Moreover, the share of fathers taking parental leave increased from less than three to 34 percent in the past 10 years (*Huebener et al., 2016*).

Figure 1: Share of children born between 2004 and 2012 whose fathers took parental leave



Source: Own depiction based on data from the Federal Statistical Office (*Bundeselterngehaltstatistik*) and *pairfam*.

3. Research Design and Identification

The objective of this paper is to estimate social interaction effects between fathers and their parents. In particular, we are interested whether grandparents who observe their son taking parental leave change their attitudes towards gender roles. As *Manski* (1993) pointed out, there are several threats to the identification of endogenous, i.e. 'true', social interaction effects. In the context of social interaction within the family, two major challenges arise. First, it is difficult to distinguish endogenous social interaction effects from correlated effects. Unobservable (but relevant) variables could cause omitted variable bias, if they are correlated among individuals belonging to the same family. For example, neighborhood characteristics could be distributed non-uniformly across families and thus bias the results. Second, there exists a simultaneity in the behavior of interacting individuals. The choice of the individuals in one group have an influence on the choices of other group members, which hampers the identification of true social interaction effects (reflection problem, see *Manski*, 1993).²

In the literature on social interaction effects, different approaches for the identification of social interaction effects have been employed. Several non-experimental studies try to solve the problems arising from potential simultaneity, correlated unobservables and endogenous group membership by narrowing peer groups and controlling for covariates.³ Others have exploited random assignment to peer groups.⁴ More recently, several studies have used quasi-experimental settings to solve the simultaneity problems in the context of social interaction within naturally occurring peer groups. For example, *Angelucci et al.*

² In other contexts, endogenous group membership is another problem for identification. However, in the family context, this is not relevant as the member status is predetermined by birth.

³ See, for example, *Bertrand et al.*, 2000.

⁴ *Sacerdote*, 2001 or *Kling, Ludwig and Katz*, 2005.

(2010) and *Lalive and Cattaneo* (2009) study indirect effects of a social assistance program in Mexico, *Brown and Laschever* (2012) examine the peer effects of a pension reform. *Dahl et al.* (2014) exploit the introduction of a fathers' quota in parental leave in Norway in order to analyze peer effects in parental leave taking among brothers, neighbors and colleagues at work. *Welteke and Wrohlich* (2016) use a similar identifications strategy and exploit the introduction of the German 2007 parental leave reform in order to analyze peer effects in parental leave taking of mothers who are colleagues at work.

We follow the same identification approach and use the introduction of the fathers' quota in parental leave in 2007 in Germany as a natural experiment in order to avoid simultaneity issues.⁵ As has been shown in Figure 1, the reform resulted in a large increase in the share of fathers who take parental leave. This discontinuity is exploited for identification of the social interaction effect.

In our empirical analysis, we apply the partial population approach developed by Moffitt (2001)⁶, which exploits the fact that a policy intervention exogenously⁷ assigns a treatment only to a subset of the population. For illustration, consider the following system of simultaneous equations:

⁵ However, our analysis differs from the aforementioned studies in the way that we analyze the effect of the behavior of one individual (namely parental leave-taking of a father) on the attitudes of another individual (namely the attitudes towards gender roles of the grandmother or the grandfather). Most other studies in the literature on peer effects analyze the effects of the behavior of one group member on the behavior of other group members.

⁶ *Dahl et al.* (2014) were the first to use this approach in the context of peer effects.

⁷ See *Kluve and Tamm* (2013) for a detailed discussion in how far and for what groups the parental leave reform of 2007 in Germany can be interpreted as an exogenous event.

$$(1) y_{Pg} = \alpha_F + \beta_F y_{PUg} + \gamma_F x_{Fg} + \delta_F x_{PUg} + \theta_F w_g + \lambda p_g + \varepsilon_{Fg}$$

$$(2) y_{PUg} = \alpha_{PU} + \beta_{PU} y_{Pg} + \gamma_{PU} x_{PUg} + \delta_{PU} x_{Pg} + \theta_{PU} w_g + \varepsilon_{PUg}$$

Suppose that there are $g = 1, \dots, G$ groups (i.e. families) and two individuals $i = F, PU$, the father (F) and his parental unit (PU). In our context, y_P denotes the probability of father p to take parental leave while y_{PU} contains the grandparent's gender attitudes. Let x_{ig} denote observable characteristics of individual i in group g , w_g are characteristics varying at group level and epsilon be the unobservable error term. Based on the definition of Manski (1993), δ presents the presence of exogenous effects, while β measures endogenous social interactions. The policy variable p_g in equation (1) that can be interpreted as the price of taking parental leave, serves as exclusion restriction.

The reduced form of this model can be interpreted as the intention to treat effect of having a son who had a child after the reform on the grandparents' attitudes towards gender roles:

$$(3) y_{PUg} = \alpha_{PU} + \gamma_{PU} x_{PUg} + \delta_{PU} x_{Fg} + \theta_{PU} w_g + \lambda p_g + \varepsilon_{PUg}$$

One of the identifying assumptions is that this policy variable is independent of all unobservables in the model. In our context, this variable relates to the cost of paternity leave that changed with the German parental leave reform in 2007 (see section 2). This reform encouraged fathers to stay at home for at least two months, creating a discontinuity to compare parents of fathers who had children born shortly before 2007 to parents of fathers who had children shortly after this cut-off. The reform changed the cost of taking parental leave for fathers, however it did not affect the generation of grandparents.

Therefore, it is possible to isolate the social interaction effect on attitudes, as the grandparents' attitudes are only affected by the parental leave reform through the behavior, i.e. leave-taking, of their sons.⁸ We use the implementation date of the reform to define the treatment and control groups.

Figure 2: Identification of social interaction effects

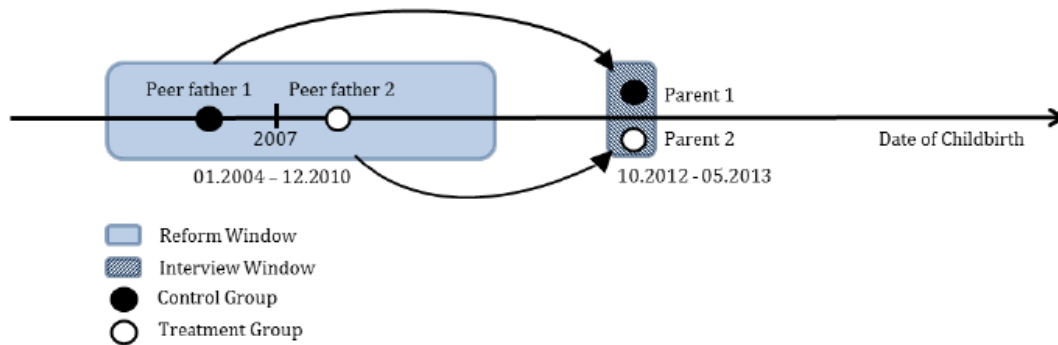


Figure 2 illustrates the identification strategy based on two exemplary families. Fathers who got a child in the observation period determine the treatment status of their parents (grandmother or grandfather of the child). Parents differ only in whether their son had a child before or after the cut-off. They are comparable since they are asked about their attitudes towards gender roles at the same point in time (in 2012/13) and are not directly affected by the reform.

⁸ Hypothetically, the reform could have affected grandparents in a direct way. For example, the time that grandparents allocate to the care of their grandchildren could have been reduced in the first 14 months after childbirth if the parents themselves delay their return to the labor market as a response to the reform. On the other hand, the increase of the employment rate of mothers with children in the second year after birth could encourage grandparents to play a more active role in childcare in the medium and long run. Nevertheless, a change in the involvement of grandparents would undermine our identification strategy only if the changing patterns of time use would somehow affect the grandparents' attitudes related to gender equality.

4. Data

The analysis is based on the German Family Panel *pairfam* (“Panel Analysis of Intimate Relationships”). This longitudinal study focusses on the partnership and family formation process and development as well as intergenerational relationships. It has been launched in 2008 and collects data from a nationwide random sample of more than 12,000 persons of the three birth cohorts 1971-73, 1981-83 and 1991-93. In addition to the interviews of these anchor persons, the data set also provides detailed information on the anchor person’s partners, parents and children.⁹ This multi-actor design is the main advantage of the *pairfam* data in our context. In addition to the anchor persons, from which we draw the sample of fathers in our analysis, interviews are conducted with the anchor’s parents. Moreover, the data contain very detailed information on the relationship between family members such as emotional closeness or the frequency of contact to the other person.

In our analysis, we use data from wave 5 (2012/13) where the anchor persons as well as their parents are asked about gender related values such as the attitudes towards the division of labor in the partnership and to mothers’ and fathers’ professional or occupational commitment. We restrict the sample to male anchor persons who had their youngest child born between January 2004 and December 2010. This leaves us with 740 fathers. In the next step, the (grand)parents are matched to the sample of anchor persons (fathers). Each anchor is linked to a maximum of three parents, i.e. either the biological father and mother or step-parents. Unfortunately matching parent units can only be identified for 36 percent of the anchor persons¹⁰ so that we end up with a final sample of

⁹ A detailed description of the study can be found in *Huinink et al.* (2011).

¹⁰ The *pairfam* sampling report (*Suckow, Schneekloth and Wich, 2010*) documents the matching process of anchors and their parents and the reasons why matches are not successful in many cases.

265 anchor-(grand)parent matches (156 father-grandmother and 109 father-grandfather matches).

As mentioned in section 3, grandfathers and grandmothers should only differ in having a son who had a child born before or after January 2007. Table 1 shows descriptive statistics of all relevant observable characteristics of fathers and grandparents for the treatment and control group. T-tests show that there is no statistically significant difference in mean values of these variables except for “age of the youngest” child – which is true per definition (see Figure 1). Grandfathers and –mothers are in their 60s and have comparable years of education. More than one third of grandfathers is still working while the share of working grandmothers is slightly lower. On average, 72 percent of grandmothers have been working when their son was under the age of six. Emotional closeness and frequency of contact between family members is evenly distributed across groups.¹¹ On average, grandmothers report to be more attached to their sons than grandfathers. Also fathers’ characteristics are similar across treatment and control groups. Due to the identification design, fathers in the treatment group are younger at the time of the interview. The difference in father’s age is thus statistically significant.

A potential threat to identification is the diverging age of the youngest child. By construction, the average age of the youngest child in the treatment group is significantly lower than in the control group. This might affect the attitudes of grandparents. One could imagine that grandparents in the treatment group might react differently to the questions related to gender roles in child care as they will perceive the statements in the survey out of

¹¹ The variable „frequent contact“ is a dummy taking on the value 1 if the father and his mother or father are in contact at least once a week. “Emotional closeness” is also a dummy that is equal to 1 if grandparents describe their relationship to their son as being “very close”.

a different context (with a baby or toddler in mind) than grandparents in the control group (potentially having in mind an older child). Consequently, one could argue that it is not the reform causing a change in attitudes but that the results are rather driven by the age of the grandchild. We take this potential effect into account by including age of the youngest child as a control variable in the regression.

Table 1: Descriptive Statistics of relevant variables in treatment and control group

	<i>Grandmothers</i>			<i>Grandfathers</i>		
	Control	Treated	t-Test	Control	Treated	t-Test
Age	65.65 (7.109)	63.27 (6.791)	1.865 (1.247)	68.18 (7.303)	65.74 (6.700)	2.466 (1.581)
Age (father)	39.50 (3.187)	37.03 (5.084)	2.578** (0.829)	39.07 (3.701)	37 (4.833)	1.89 (0.978)
Age youngest child	7.279 (0.984)	3.903 (1.224)	3.376*** (0.209)	7.345 (0.936)	3.875 (1.247)	3.470*** (0.254)
Number of kids (father)	2 (0.816)	1.920 (0.888)	0.0796 (0.154)	2.069 (0.842)	2 (0.900)	0.0690 (0.192)
Years of education	12.61 (2.855)	12.43 (2.437)	0.186 (0.458)	12.84 (3.030)	12.94 (2.461)	-0.101 (0.568)
Years of edu (father)	14.53 (3.349)	14.78 (3.022)	-0.128 (0.557)	14.45 (3.143)	15.01 (3.159)	-0.568 (0.679)
Currently employed	0.275 (0.452)	0.336 (0.475)	-0.0340 (0.085)	0.357 (0.488)	0.397 (0.493)	-0.080 (0.107)
Employed when kids <6	0.721 (0.454)	0.717 (0.453)	0.004 (0.081)			
Employed (father)	0.950 (0.221)	0.965 (0.186)	-0.011 (0.035)	0.964 (0.189)	0.986 (0.117)	-0.022 (0.029)
Married (father)	0.850 (0.362)	0.770 (0.432)	0.044 (0.074)	0.821 (0.390)	0.808 (0.396)	0.015 (0.085)
Migration background	0.0250 (0.158)	0.124 (0.331)	-0.101 (0.0525)	0.036 (0.189)	0.096 (0.296)	-0.066 (0.060)
Frequent contact	0.800 (0.405)	0.832 (0.376)	-0.0877 (0.071)	0.714 (0.460)	0.767 (0.426)	-0.061 (0.097)
Emotional closeness	0.425 (0.501)	0.478 (0.502)	-0.083 (0.090)	0.357 (0.488)	0.397 (0.493)	-0.030 (0.105)
East Germany	0.375 (0.490)	0.354 (0.480)	-0.005 (0.0862)	0.429 (0.504)	0.397 (0.493)	0.001 (0.108)
Father takes parental leave	0 (0)	0.239 (0.428)	-0.239*** (0.066)	0 (0)	0.247 (0.434)	-0.237** (0.080)
Observations	43	113	156	29	80	109

Source: Calculations based on *pairfam*, wave 5 (2012/13).

As can be seen from Table 1, in our sample, no father in the control group took parental leave. In the treatment group, the share of fathers taking parental leave is 24 percent. In the whole sample of the *pairfam* data set, the share of fathers taking parental leave nicely fits

the aggregate statistics provided by the German Federal Statistical Office (see Figure 1 in section 2).

The main variable of interest in our analysis are the attitudes towards gender roles in the grandparent generation. In the *pairfam* survey several questions are related to this topic. All these questions have to be answered on a 5-point Likert scale ranging from “disagree completely” (1) to “agree completely” (5). Respondents are asked to rate the degree to which they approve or disapprove of the following statements:

(1) *“Women should be more concerned about their family than about their career.”*

(2) *“A child aged under 6 will suffer from having a working mother.”*

(3) *“Men should participate in housework to the same extent as women.”*

Figures 3 to 5 present the distribution of the three Likert-type questions for grandmothers and grandfathers of the fathers affected by the reform (“treated”) and those not affected (“control”). As far as the first statement (Figure 3) is concerned, both grandmothers and grandfathers in the treatment group express a higher degree of disapproval than grandparents in the control group. The shift to an overall rejection of the statement is visible for both mothers and fathers, but seems to be more pronounced for women.

Figure 3: Histogram of answers to statement (1): “Women should be more concerned about their family than about their career.”

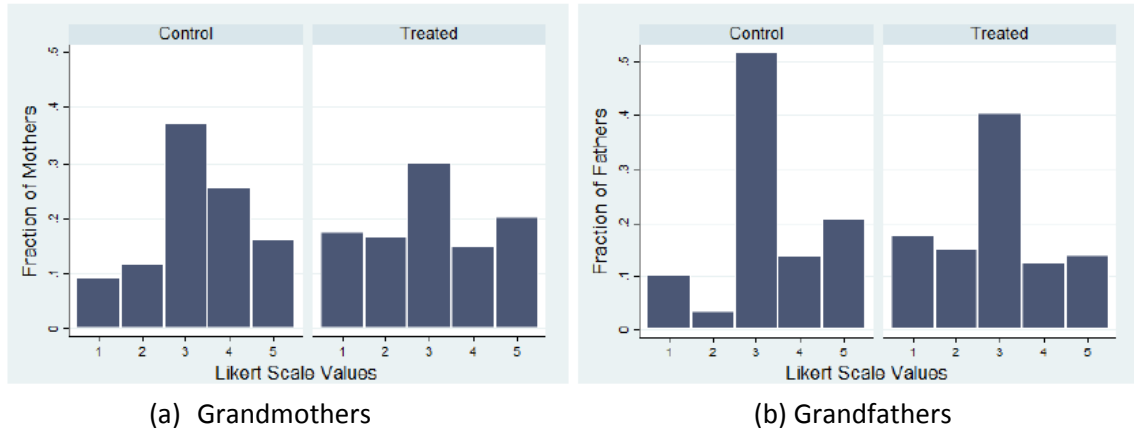


Figure 4: Histogram of answers to statement (2): “A child under the age of three will suffer from having a working mother.”

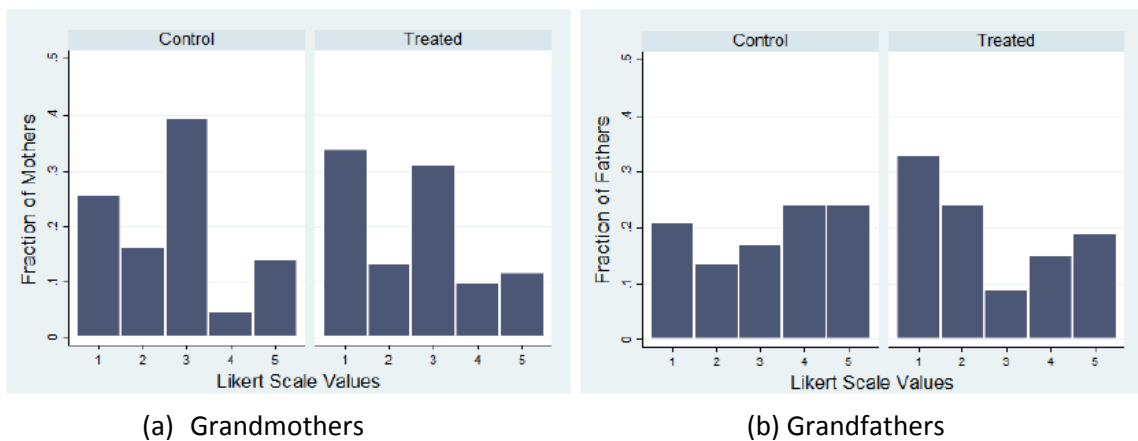
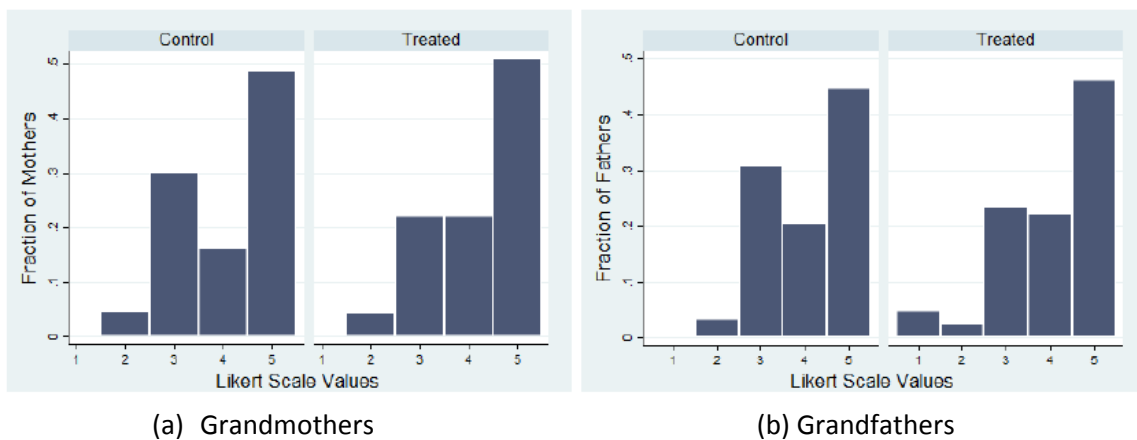


Figure 5: Histogram of answers to statement (3): “Men should participate in housework to the same extent as women.”



A visual evaluation of the distribution of answers to statement (2), *“A child aged under 6 will suffer from having a working mother”* points at treated grandparents having less conservative attitudes (Figure 4). Interestingly, the answers to statement (3), *“Men should participate in housework to the same extent as women”* are very similar for men and women. Moreover, there is not much variation across treatment and control groups. All grandparents largely agree to an equal distribution of housework between men and women. The degree of agreement seems to be slightly higher in the treatment group, originating from a shift in the middle category.

Summing up, a descriptive visual comparison of the Likert-type questions across treated and non-treated individuals gives a first insight on potential shifts in gender-role attitudes. Particularly the first two statements that relate to the labor market involvement of mothers point at an influence of the parental leave reform on the attitude of grandparents. Attitudes related to the sharing of housework between men and women seem to be less affected. The regression analyses in the next section will give further insights on the direction and magnitude effects of social interaction effects induced by an increasing usage of paternity leave.

5. Estimation Results (Preliminary!)

In this section we will focus on the results of the reduced form estimation, i.e. the results for the intention to treat effect (equation 3). We show estimation results for the first statement, *“Women should be more concerned about their family than about their career”* in the main text (Tables 2 and 3) and the results for the other two statements in the Appendix (to be completed).

Table 2 presents results from an estimation of the ITT (equation 3) for grandfathers and grandmothers separately. Note that in this specification, we collapsed the categories of the Likert-scale in order to get a binary variable. The dependent variable (approval of the statement) takes on value 1 if an individual responds to “agree” or to “agree strongly” to the statement and 0 otherwise.¹² The regression is based on a linear probability model.¹³

The variable *Post07* captures the treatment effect. For both grandmothers and grandfathers the plain within-group difference estimator points at a slight reduction in the probability of approval for the treatment group but is not statistically significant. Including the first set of covariates increases the absolute size of the point estimate but statistical precision is rather low. It is the inclusion of the childcare quota on the county level and the age of the child that increases the precision of the estimates, at least for the sample of grandmothers. In our preferred specification (IV), the probability of a grandmother to agree to the statement “*Women should be more concerned about their family than their career*” decreases by 41 percentage points for those with a son who had a child born after 2007 as compared to those with a son who had a child born before this date. This points to a very large social interaction effect.

For grandfathers, we also find negative point estimates that are however estimated with lower statistical precision, which is probably also due to the smaller size of the sample. We do not get statistically significant coefficients in any of the specifications of the grandfather sample.

¹² Since collapsing the Likert-scale variables into binary variables might lead to a loss of information, we also evaluated changes in the lower categories of the scale as a specification test. More specifically, we also run regressions on the disapproval of the statement. In these regressions, we define the binary dependent variable equal to one if the respondent chooses to answer with “disagree” or “disagree” strongly. These estimations yielded the same results as the ones presented here.

¹³ We use heteroscedasticity-consistent standard errors.

Table 2: ITT: Approval of Statement “Women should be more concerned about their family than their career”

	Grandmothers				Grandfathers			
	I	II	III	IV	I	II	III	IV
Post07	-0.0646 (0.090)	-0.1283 (0.093)	-0.2618* (0.107)	-0.4144** (0.155)	-0.0790 (0.102)	-0.0901 (0.099)	-0.1587 (0.102)	-0.1031 (0.179)
Age		0.0153 (0.009)	0.0172* (0.009)	0.0163* (0.009)		-0.0047 (0.009)	-0.0039 (0.009)	-0.0042 (0.009)
Years of education		-0.0161 (0.016)	-0.0181 (0.016)	-0.0150 (0.017)		-0.0228 (0.017)	-0.0238 (0.017)	-0.0253 (0.018)
Working when kids u6		-0.0968 (0.098)	-0.1218 (0.097)	-0.1594 (0.100)				
Employed		0.0347 (0.110)	0.0477 (0.113)	0.0427 (0.110)		-0.1014 (0.118)	-0.1164 (0.115)	-0.1172 (0.117)
Frequent contact		0.1277 (0.100)	0.1264 (0.094)	0.1043 (0.095)		-0.2258 (0.104)	-0.2351* (0.103)	-0.2352* (0.104)
Emotional closeness		0.1262 (0.084)	0.1232 (0.084)	0.1205 (0.084)		0.1724* (0.097)	0.1818* (0.099)	0.1901* (0.101)
Migration background		0.0886 (0.128)	0.0820 (0.118)	0.0885 (0.116)		0.3968* (0.197)	0.3899* (0.196)	0.3827* (0.198)
Age (father)		-0.0120 (0.012)	-0.0137 (0.012)	-0.0094 (0.012)		0.0040 (0.012)	0.0024 (0.012)	0.0016 (0.012)
Years of edu (father)		0.0064 (0.016)	0.0119 (0.016)	0.0056 (0.016)		0.0263 (0.017)	0.0294* (0.017)	0.0310* (0.018)
Child care quota			2.0247* (0.826)	1.5105* (0.877)			1.1157 (0.790)	1.2366 (0.782)
Child age				0.0607 (0.042)				-0.0200 (0.046)
Constant	0.4186** (0.078)	-0.0471 (0.554)		-0.3830 (0.552)	0.3448 (0.089)	0.6216 (0.597)	0.5477 (0.639)	0.6399 (0.674)
Observations	156	156	156	156	108	108	108	108
R ²	0.004	0.117	0.156	0.168	0.006	0.253	0.269	0.271
Adj. R ²	-0.003	0.016	0.052	0.058	-0.003	0.132	0.140	0.133
Regional dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Pre-mean	0.419				0.345			
Post-mean	0.354				0.266			

Source: Calculations based on pairfam, wave 5 (2012/13).

Estimations based on ordered logit models to be completed.

6. Conclusion (Preliminary!)

Policy programs such as fathers' quota in parental leave are often argued not only to serve as means to change behavior of the target group but also potentially change attitudes towards gender roles and stereotypes within society as a whole. Germany introduced such a program within the parental leave reform of 2007. As a result, the share of fathers who took (at least two months of) parental leave increased sharply from less than three percent in 2006 to 34 percent ten years later.

In this paper, we analyze the question whether the introduction of the fathers' quota in parental leave has changed the attitudes towards gender roles in the grandparents' generation. To this end, we exploit the quasi-experimental setting of the 2007 reform and compare grandparents whose son had a child born shortly before the 2007 reform to grandparents whose son had a child born shortly after it.

Our findings point to a positive impact of the fathers' quota on attitudes concerning gender equality. Specifically, we find that grandmothers whose sons had children who were born after the reform are less likely to agree to the statement "*Women should be more concerned about their family than about their career*". For grandfathers, we find point estimates of similar direction and magnitude, however, they are not statistically significant, which is probably due to the small size of the estimation sample.

The results suggest that the formation of gender role attitudes is not finished at a certain age. Moreover, attitudes towards gender roles are not only transmitted from parents to children but also from (grown-up) children to their parents.

From a policy perspective, these results provide evidence that programs such as father's quota within parental leave schemes not only induce direct behavioral responses by the target group but also have indirect effects on non-treated individuals through social interaction. The evidence suggests that such programs indeed are suitable to change attitudes towards gender roles in society as a whole.

Changes in the attitudes of the grandparent generation might produce even more spillover effects if their attitudes affect younger children within the family or – if they are still in the labor market – their younger coworkers. These spillover effects might finally explain why we find a steady increase of the share of fathers taking parental leave even one decade after the 'daddy months' were initially introduced.

References

Angelucci, Manuela, Giacomo De Giorgi, Marcos Rangel, and Imran Rasul (2010): Family networks and school enrolment: Evidence from a randomized social experiment. *Journal of Public Economics* 94 (3-4), 197-221.

Bergemann, Annette and Regina Riphahn (2011): Female Labor Supply and parental leave benefits – the causal effects of paying higher transfers for a shorter period of time, *Applied Economics Letters* 18 (1), 17-20.

Bertrand, M., E. Luttmer and S. Mullainathan (2000): Network Effects and Welfare Cultures, *Quarterly Journal of Economics* 115 (3), 1019-1055.

Bianchi, S. M. (2011): Family Change and Time Allocation in American Families, *The Annals of the American Academy of Political and Social Science* 638 (1), 21-44.

Brown, K. M. and R. A. Laschever (2012): When They're Sixty-Four: Peer Effects and the Timing of Retirement, *American Economic Journal: Applied Economics* 4 (3), 90-115.

Cunningham, Mick (2001): The Influence of Parental Attitudes and Behaviors on Children's Attitudes Toward Gender And Household Labor in Early Adulthood, *Journal of Marriage and the Family* 63, 111-122.

Duncan, S., R. Edwards, T. Reynolds and P. Alldred (2003): Motherhood, paid work and partnering: Values and theories, *Work, Employment and Society* 17(2), 309-330.

Ellingsaeter, Anne L., Ragni H. Kitterod and Jan Lyngstad (2016): Universalising Childcare, Changing Mothers' Attitudes: Policy Feedback in Norway, *Journal of Social Policy* 46 (1), 149-173.

Farré, L. and F. Vella (2013): The intergenerational transmission of gender role attitudes and its implications for female labor force participation, *Economica* 80, 219-247.

Fernandez, Raquel, Alessandra Fogli and Claudia Olivetti (2004): Mothers and Sons: Preference Formation and Female Labor Force Dynamics, *Quarterly Journal of Economics* 119(4), 1249-1299.

Fitzenberger, B., Sommerfeld, K., and Steffes, S. (2013): Causal Effects on Employment After First Birth – A Dynamic Treatment Approach, *Labour Economics*, 25, 49-62.

Fortin, Nicole M. (2005): Gender Role Attitudes and the Labour-Market outcomes of women across OECD countries, *Oxford Review of Economic Policy* 21 (3), 416-438.

Fortin, Nicole M. (2015): Gender Role Attitudes and Women's Labor Market Participation: Opting-Out, AIDS, and the Persistent Appeal of Housewifery, *Annals of Economics and Statistics* 117/118, 379-401.

Geisler, Esther, and Michaela Kreyenfeld (2012): How policy matters: Germany's parental leave reform and fathers' behavior 1999-2009. *Max Planck Institute for Demographic Research Working Paper* 2012-021.

Geyer, Johannes, Peter Haan and Katharina Wrohlich (2015): The effects of family policy on maternal labour supply: Combining evidence from a structural model and a quasi-experimental approach, *Labour Economics* 36, 84-98.

- Hanel, B. and R. Riphahn (2012): The Employment of Mothers – Recent Developments and their Determinants in East and West Germany, *Jahrbücher für Nationalökonomie und Statistik* 232 (2) 146–176.
- Huebener, Mathias, Kai-Uwe Müller, C. Katharina Spieß and Katharina Wrohlich (2016): The parental leave benefit: a key family policy measure, one decade later, *DIW Economic Bulletin* 49, 571-578.
- Huinink, J., J. Brüderl, B. Nauck, S. Walper, L. Castiglioni and M. Feldhaus (2011): Panel Analysis of Intimate Relationships and Family Dynamics (pairfam): Conceptual framework and design, *Zeitschrift für Familienforschung (Journal of Family Research)*, 23(1), 77-101.
- Kling, J.R., J. Ludwig and L. F. Katz (2005): Neighbourhood effects on crime for female and male youth: Evidence from a randomized housing voucher experiment, *Quarterly Journal of Economics* 120 (1), 87-130.
- Kluve, Jochen and Marcus Tamm (2013): Parental leave regulations, mothers' labor force attachment and fathers' childcare involvement: evidence from a natural experiment, *Journal of Population Economics* 26 (3), 983-1005.
- Lalive, R. and M. A. Cattaneo (2009): Social Interactions and Schooling Decisions, *Review of Economics and Statistics* 91 (3), 457-477.
- Manski, C. F. (1993): Identification of Endogenous Social Effects: The Reflection Problem, *The Review of Economic Studies* 60 (3), 531-542.
- Moffitt, R. (2001): Policy Interventions, Low-Level Equilibria and Social Interactions, In: *Social dynamics*. Ed. By S. N. Durlauf and P. H. Young. Cambridge MIT Press, Chapter 3, 45-82.
- Mogstad, M. G. Dahl and K. Løken (2014): Peer Effects in Program Participation, *American Economic Review*, 104(7), 2049-2074.
- OECD (2017), *Dare to Share – Deutschlands Weg zur Partnerschaftlichkeit in Familie und Beruf*, OECD Publishing, Paris.
- Olivetti, Claudia, Eleonora Patacchini and Yves Zenou (2016): Mothers, Peers and Gender Identity. *Mimeo*.
- Sacerdote, B. (2001): Peer Effects with Random Assignment: Results for Dartmouth Roommates, *Quarterly Journal of Economics* 116, 681-704.
- Sjöberg, O. (2004): The Role of Family Policy Institutions in Explaining Gender Role Attitudes: A Comparative Multilevel Analysis of Thirteen Industrialized Countries, *Journal of European Social Policy* 14 (2), 107-123.
- Steiner, Viktor and Katharina Wrohlich (2004): Household Taxation, Income Splitting and Labour Supply Incentives - A Microsimulation Study for Germany, *CESifo Economic Studies* 50(3), 541-568.
- Suckow, J., U. Schneekloth and P. Wich (2010): Beziehungen und Familienleben in Deutschland (2009/2010) Welle 2. Tech. Rep. München: TNS Infratest Sozialforschung.
- Welteke C. and K. Wrohlich (2016): Peer Effects in Parental Leave, *IZA Discussion Paper No. 10173*.
- Wrohlich, Katharina (2008): The Excess Demand for Subsidized Child Care in Germany, *Applied Economics*, 40(10) 1217-1228.

Appendix

Table A1: ITT: Approval of Statement “*A child aged under 6 will suffer from having a working mother*”

- To be completed

Table A2: ITT: Approval of Statement “Men should participate in housework to the same extent as women”

- To be completed