

Parental investment and adult children's fertility intentions in Germany

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Abstract: Several studies have investigated the association between parental investment and childbearing decisions of adult children. However, studies testing whether changes in parental investment are associated with subsequent changes in fertility intentions over time are lacking. We investigated whether parental investment, measured as contact frequency, emotional closeness, financial support, and childcare, is associated with adult children's intentions to have a first and a second, or subsequent, child. These associations were studied in four different parent-adult child dyads based on the sex of parents and adult children. We used eight waves from the longitudinal German Family Panel (pairfam) and exploited both between-person and within-person (or fixed-effect) regression models. Between-person associations represent the results across individuals and within-person associations represent an individual's variation over time (i.e., whether changes in parental investment frequencies are associated with subsequent changes in adult children's fertility intentions). We found that statistically nonsignificant associations outweighed significant ones. Significant associations were also more often present in the between-person than within-person models. Two of the three significant within-person effects were negative, meaning that when parental investment increased, adult children's intentions to have a/another child decreased. In between-person models, the parental investment was associated with the childbearing intentions of adult sons rather than those of adult daughters. The present findings indicate that parental investment may not increase adult children's intentions to have a/another child in Germany.

Keywords: Adult children, fertility intentions, fixed-effect regression, pairfam, parental investment

Introduction

It is often argued that parental investment plays an important role in the childbearing decisions of younger adults (e.g., Sear & Coall, 2011). Parental investment refers to all support that parents channel towards their children, including material (e.g., financial support), practical (e.g., childcare help), and time (e.g., emotional support) transfers (Trivers, 1972). Such investments may significantly decrease the costs related to raising children and can also signal that having children is a potential option to consider (Tanskanen & Rotkirch, 2014). Indeed, prior studies have indicated that family support is often associated with increased intentions to have children (e.g., Balbo & Mills, 2011; Fiori, 2011; Lehrer & Kawasaki, 1985; Miller, 1992; Modena & Sabatini, 2011; Raymo et al., 2010). However, there is a lack of studies exploring whether changes in parental investment are associated with subsequent changes in fertility intentions in younger adults.

As fertility intentions can change in either way (i.e., one can first intend to have a/another child and then intend to not have one, or vice versa), with panel data, it is possible to study whether changes in parental investment frequencies are associated with changes in fertility intentions among younger adults over time. Methodologically, we differentiate between-person and within-person variation: between-person associations represent the results across individuals, whereas within-person associations represent an individual's variation over time (Curran & Bauer, 2011; Morgan, 2013). By concentrating on within-person variation, we are able to examine 'more causal' associations between parental investment and fertility intentions (Jokela et al., 2018). As prior studies have indicated that associations between parental support and adult children's fertility intentions may vary by sex, lineage, and parity (e.g., Tanskanen & Rotkirch, 2014), we conduct separate models for four different parent-adult child dyads (i.e., mother-daughter, mother-son, father-daughter,

father son), for those who intend to enter into parenthood and those who intend to have another child.

Methods

Data

To detect associations between parental investment and the fertility intentions of adult children, we used data from the German Family Panel (pairfam), which offers longitudinal information on intergenerational relations, childbearing intentions, and several socioecological factors. Pairfam provided data on three birth cohorts of those who were born in 1991–1993, 1981–1983 and 1971–1973. The first pairfam wave was conducted in 2008–2009, when the cohort members were aged approximately 15–17, 25–27 and 35–37, respectively. Further data collections have been conducted annually (see Brüderl et al., 2016; Huinink et al., 2011 for full data description). In the pairfam wave 2, the panel attrition was 23%, and in subsequent waves, it stabilized to approximately 10%, which is a normal attrition rate when compared to other German panel studies (Müller & Castiglioni, 2015). The achieved pairfam samples varied between 12,402 respondents in the first wave and 4,727 respondents in the eighth wave.

Sample

We have excluded the youngest generation from the analytic sample, as they are so young that they had not yet considered starting a family in the first few data waves, and thus, retaining them may bias the results. In addition, only heterosexual respondents with a partner were included. Individuals who were pregnant or whose partners were pregnant during the survey collection, as well as those

who stated that they or their partners are infertile, were excluded. We included all person-observations from respondents who have data available concerning all the studied variables. After these selections, the data of 16,400 person-observations from 4,500 unique people remained.

Measures

Our dependent variable indicated respondents' fertility intentions. In the pairfam questionnaires, respondents were asked the following: 'Do you intend to become a mother or father (again) over the next two years?'. The response categories were 'yes, definitely', 'yes, maybe', 'no, rather not' and 'no, certainly not', but for the analysis, we have classified these responses into two categories: 0 = no ('no, rather not' and 'no, certainly not') and 1 = yes ('yes, definitely' and 'yes, maybe'). The fertility intention question indicated parity progression intentions and referred to a specific period (i.e., two years). Thus, based on prior evidence, one can consider that these intentions could be quite reliable predictors for actual childbearing (Billari et al., 2009; Philipov, 2009).

The main independent variables are parental investment indicators. Contact frequency and emotional closeness were measured in all eight pairfam waves and financial support and childcare in waves 2, 4, 6 and 8. All these questions were asked so that they concerned the responding persons' mothers and fathers, respectively. Contact frequency was measured through a single question by asking the respondents how often they are in contact with their parents (ranging from 0 = yearly or less often to 5 = daily). Respondents were asked to consider all types of contacts, including visits, letters, phone calls, and other types of contacts. Emotional closeness was measured using three indicators: how close the respondents felt towards their parents currently (ranging from 0 = not at all close to 4 = very close), how often the respondents told their parents what they are thinking (ranging from 0 = never to 4 = always), and how often they shared secrets or private

feelings with parents (ranging from 0 = never to 4 = always) (Cronbach's alpha for mothers = 0.81 and for fathers = 0.78). Financial support was indicated by asking how often participants receive gifts of money or valuables from parents (ranging from 0 = never to 4 = very often). Finally, it was asked how often respondents receive help with childcare from parents (ranging from 0 = never to 4 = very often): this question was asked only to those participants who had children under 15 years of age and who lived in the same household as them.

We conducted separate analyses for the four different adult child-parent sex constellations: daughter-mother, daughter-father, son-mother, and son-father. As associations between parental investment and fertility may vary by parity, we ran separate analyses for those who intended to have a first child and for those who intended to have a second or subsequent child. To obtain more robust results, we controlled for several potentially confounding variables. These covariates included the respondents' age at interview, ethnicity, education, partners' age at interview, partners' education, relation duration between respondents and partners, household income quintiles, and travel time distance (in minutes) to parents. Further, we controlled for whether respondents live in East or West Germany because individuals living in these two regions tend to differ highly from each other when it comes to fertility related issues (Kreyenfeld et al., 2012). Moreover, in the analyses considering intentions to have a second or subsequent child, we controlled for respondents' number of children and the age of the youngest child. Covariates whose values may change between study waves were modelled as time-varying variables in the within-person models. The descriptive statistics are presented in Table 1.

< Table 1 >

We analysed the longitudinal pairfam data by using multilevel linear regression models in which the repeated measures (i.e., person-observations) are nested within the respondents. Although our dependent variable was dichotomous, we did not use logit models due to their limitations (see Mood, 2010 for discussion). We ran both between-person and within-person (or fixed-effect) models, where the between-person effects represent the results across individuals and the within-person effects show the individual's variation over time (Jokela et al., 2018). The between-person models show mean scores for respondents. In this study, between-person results have been presented because previous studies on the topic have concentrated on fertility decision differences between younger adults who receive more parental investment and those who receive less investment than subsequent changes in fertility decisions within-individuals who experience changes in the amount of parental investment.

This study primarily aimed to investigate whether changes in parental investment frequencies are associated with subsequent changes in adult children's fertility intentions. To study this question, we used within-person regression models. In within-person models, the observed participants served as their controls, and these models eliminate all the time-invariant components (Allison, 2009), such as numerous genetic factors and other selection effects. Thus, within-person models provide a test for causality in the associations between parental investment and adult children's fertility intentions. The magnitude of the difference between within-person and between-person regression coefficients was tested using the Wald test (Carlin, 2005).

Results

Table 2 shows the results on the associations between mothers' investment and adult daughters' intentions to have a/another child. We were unable to find significant associations between

mothers' investment and fertility intentions in either between-person nor within-person models.

Based on the within-person models in Table 3, increased emotional closeness between fathers and daughters was associated with daughters' increased intentions to enter into motherhood, but increased contact frequency was associated with decreased intentions to have a second or subsequent child. Fathers' increased financial support was also associated with daughters' intentions to have another child in the between-person model. The Wald test indicated that in the aforementioned models providing significant results, differences between within-person and between-person coefficients were statistically significant ($p < 0.05$).

< Table 2 >

< Table 3 >

Table 4 shows that increased financial support from mothers to adult sons was associated with sons' decreased intentions to enter into fatherhood in the within-person model (the Wald test showed that the difference between the within-person and between-person coefficient was statistically significant: $p < 0.05$). Moreover, in between-person models, increased contact frequency and emotional closeness with mothers were associated with increased intentions to have both a first child and a second or subsequent child. These differences between the within-person and between-person coefficients were statistically significant (Wald test: $p < 0.05$), with the exception of models concerning mother-son contact and a sons' intentions to have a second or subsequent child. Based on Table 5, in between-person models, increased contact frequency with fathers was associated with sons' increased intentions to have a first child, and increased emotional closeness was associated with increased intentions to have both a first child and a second or subsequent child. Conversely, financial support was associated with decreased intentions to enter into fatherhood in between-

person models. According to the Wald test, in the case of all abovementioned models providing significant results in Table 5, the differences between the within-person and between-person coefficients were statistically significant ($p < 0.05$).

< Table 4 >

< Table 5 >

Discussion

This study investigated associations between parental investment and the fertility intentions of younger adults from Germany. The main findings are summarized in Table 1A, and three main trends can be detected. First, statistically nonsignificant associations tend to outweigh significant associations. Second, significant associations are present in the between-person rather than the within-person models. Only three significant associations were present in within-person models, and two of them indicated that parental investment decreases intentions to have a/another child. The increased amount of contact between fathers and daughters was associated with daughters' decreased intentions to have a second or subsequent child and increased maternal financial support with sons' decreased intentions to enter into parenthood. The only positive within-person association indicated that increased emotional closeness between fathers and daughters increased adult daughters' intentions to have a first child. Finally, it was detected in the between-person models that parental investment more often associated with the childbearing intentions of adult sons than those of adult daughters.

One explanation for the two negative within-person effects (i.e., father-daughter contact decreased daughters' intentions to have another child, and maternal financial support decreased sons' intentions to enter into fatherhood) could be that parental investment serves as a response to increased need for help. Thus, parental support may increase during the times when adult children experience an unstable phase of life, and simultaneously, intentions to have children may decrease. It is not clear, however, why similar associations were not present when parental investment was measured with other factors. Making the interpretation even more challenging, it was found that when emotional closeness between fathers and daughters increased, daughters' intentions to have a first child also increased. Thus, it cannot be ruled out that the within-person effects found here are only chance findings.

Compared to previous studies that have detected associations between parental investment and the fertility of adult children, this study has several strengths. We have analysed large-scale and population-based longitudinal data, which have gathered repeated information on the same respondents annually or bi-annually. The data were analysed using fixed-effect regressions that focused on within-person variation over time. In the within-person models the individuals served as their own controls and thus all time-invariant components were eliminated in the models. In addition, we were able to control for several time-variant factors.

To conclude, we were unable to provide evidence for the prediction that parental investment increases adult children's fertility intentions. One should note that our findings are based on data from Germany, where relatively generous public support for families exist (Saraceno, 2011). Owing to the relatively generous public support, younger adults in Germany are not as dependent on parental investment compared to countries with less beneficial public support, meaning that

childbearing decisions could be based on other factors than opportunities to receive kin support. Perhaps, different results could be found from countries with less generous public support.

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Table 1. Descriptive statistics over waves 1-8 in the pairfam

	Total no.	No. of persons	%	Mean (SD)	Within SD
Gender					
Male	7,251	2,021	44.2		
Female	9,149	2,479	55.8		
Age at interview	16,400	4,500		34.8 (5.40)	1.65
Ethnicity					
German native	13,244	3,575	80.8		
Other	3,156	925	19.2		
Education					
Lower level education	10,100	2,988	61.6		
Higher level education	6,300	1,666	38.4		
Area					
West Germany	10,941	3,080	66.7		
East Germany	5,459	1,493	33.3		
Partner age	16,400	4,500		35.5 (7.18)	1.85
Partner education					
Lower level education	10,352	3,119	63.1		
Higher level education	6,048	1,670	36.9		
Relationship duration (in months)	16,400	4,500		122.1 (80.51)	21.70
Family income deciles	16,400	4,500		6.2 (2.66)	1.16
Number of children (a)	11,586	3,218		1.8 (0.80)	0.23
Age of youngest child (a)	11,586	3,218		5.7 (4.47)	1.56
Travel time distance mother					
Living in the same house	1,861	729	11.4		
Less than 10 minutes	4,502	1,554	27.5		
10 to 30 minutes	3,714	1,447	22.7		
30 to 60 minutes	1,883	780	11.5		
1 to 3 hours	1,993	688	12.2		
3 hours or more	2,447	809	14.9		

Contact mother	16,400	4,500		4.6 (1.15)	0.51
Emotional closeness mother	16,400	4,500		2.18 (0.95)	0.47
Financial support mother (a)	9,176	4,151		0.59 (0.97)	0.54
Childcare mother (a, b)	6,208	2,891		1.81 (1.28)	0.56
Travel time distance father					
Living in the same house	1,399	566	10.3		
Less than 10 minutes	3,656	1,257	26.8		
10 to 30 minutes	2,943	1,196	21.6		
30 to 60 minutes	1,592	668	11.7		
1 to 3 hours	1,824	621	13.4		
3 hours or more	2,219	765	16.3		
Contact father	13,649	3,837		4.3 (1.30)	0.56
Emotional closeness father	13,649	3,837		1.78 (0.92)	0.47
Financial support father (a)	7,619	3,513		0.57 (0.96)	0.55
Childcare father (a, b)	5,097	2,417		1.42(1.25)	0.53

Notes. Total no. = Number of total person-observations; No. of persons = Number of unique persons;

SD = Overall standard deviation; Within-person SD = Within-person standard deviation;

a = Waves 2, 4, 6 and 8; b = Only participants with < 15-year-old children are included.

Table 2. Mothers' investment and adult daughters' intentions to have a/another child over waves 1-8 in the pairfam

First child	Total			Between			Within		
	β	95% CI		β	95% CI		β	95% CI	
		lower	upper		lower	upper		lower	upper
Contact	0.004	-0.02	0.03	0.03	-0.002	0.07	-0.01	-0.05	0.02
Emotional closeness	0.01	-0.02	0.03	-0.002	-0.04	0.04	0.02	-0.02	0.05
Financial support	-0.03	-0.06	-0.01	-0.03	-0.06	0.005	-0.01	-0.04	0.03

Second or subsequent child	Total			Between			Within		
	β	95% CI		β	95% CI		β	95% CI	
		lower	upper		lower	upper		lower	upper
Contact	-0.01	-0.02	0.003	-0.01	-0.02	0.01	-0.01	-0.02	0.01
Emotional closeness	-0.003	-0.01	0.01	0.001	-0.01	0.02	-0.01	-0.02	0.003
Financial support	0.002	-0.01	0.01	0.01	-0.01	0.03	-0.01	-0.03	0.01
Childcare	0.004	-0.01	0.02	0.0002	-0.01	0.02	0.01	-0.003	0.03

Notes. Values are β -coefficients (and 95% confidence intervals) of multilevel regressions;

Contact and emotional closeness: First child $n = 2,221$ person-observations from 749 persons; Second or subsequent child $n = 6,858$ person-observations from 1,898 persons.

Financial support: First child $n = 1,272$ person-observations from 680 persons; Second or subsequent child $n = 3,805$ person-observations from 1,726 persons.

Childcare: Second or subsequent child $n = 3,612$ person-observations from 1,175 persons.

Table 3. Fathers' investment and adult daughters' intentions to have a/another child over waves 1-8 in the pairfam

First child	Total			Between			Within		
	β	95% CI		β	95% CI		β	95% CI	
		lower	upper		lower	upper		lower	upper
Contact	0.01	-0.02	0.03	0.03	-0.004	0.06	0.001	-0.03	0.03
Emotional closeness	0.02	-0.01	0.05	0.01	-0.03	0.05	0.04	0.01	0.08
Financial support	-0.05	-0.07	-0.02	-0.03	-0.07	0.004	-0.03	-0.07	0.01

Second or subsequent child	Total			Between			Within		
	β	95% CI		β	95% CI		β	95% CI	
		lower	upper		lower	upper		lower	upper
Contact	-0.004	-0.01	0.005	0.0003	-0.01	0.01	-0.01	-0.02	-0.001
Emotional closeness	0.01	-0.003	0.02	0.003	-0.01	0.02	-0.0004	-0.01	0.01
Financial support	0.01	-0.004	0.02	0.02	0.01	0.04	-0.01	-0.03	0.01
Childcare	-0.003	-0.01	0.01	0.001	-0.02	0.02	0.001	-0.02	0.02

Notes. Values are β -coefficients (and 95% confidence intervals) of multilevel regressions;

Contact and emotional closeness: First child $n = 1,935$ person-observations from 659 persons; Second or subsequent child $n = 5,610$ person-observations from 1,588 persons.

Financial support: First child $n = 1,102$ person-observations from 594 persons; Second or subsequent child $n = 3,116$ person-observations from 1,444 persons.

Childcare: Second or subsequent child $n = 2,997$ person-observations from 1,405 persons.

Table 4. Mothers' investment and adult sons' intentions to have a/another child over waves 1-8 in the pairfam

First child	Total			Between			Within		
	β	95% CI		β	95% CI		β	95% CI	
		lower	upper		lower	upper		lower	upper
Contact	0.02	0.001	0.05	0.05	0.02	0.08	0.004	-0.03	0.04
Emotional closeness	0.03	0.01	0.05	0.04	0.01	0.08	0.02	-0.01	0.05
Financial support	-0.03	-0.06	-0.01	-0.01	-0.04	0.03	-0.05	-0.10	-0.01

Second or subsequent child	Total			Between			Within		
	β	95% CI		β	95% CI		β	95% CI	
		lower	upper		lower	upper		lower	upper
Contact	0.01	-0.001	0.02	0.02	0.003	0.04	0.002	-0.01	0.02
Emotional closeness	0.01	0.001	0.03	0.04	0.01	0.06	0.01	-0.01	0.02
Financial support	0.005	-0.01	0.02	0.002	-0.02	0.03	-0.01	-0.03	0.02
Childcare	0.01	-0.004	0.03	0.01	-0.01	0.03	0.01	-0.01	0.03

Notes. Values are β -coefficients (and 95% confidence intervals) of multilevel regressions;

Contact and emotional closeness: First child $n = 2,592$ person-observations from 929 persons; Second or subsequent child $n = 4,439$ person-observations from 1,241 persons.

Financial support: First child $n = 1,471$ person-observations from 840 persons; Second or subsequent child $n = 2,464$ person-observations from 1,148 persons.

Childcare: Second or subsequent child $n = 2,407$ person-observations from 1,131 persons.

Table 5. Fathers' investment and adult sons' intentions to have a/another child over waves 1-8 in the pairfam

First child	Total			Between			Within		
	β	95% CI		β	95% CI		β	95% CI	
		lower	upper		lower	upper		lower	upper
Contact	0.02	-0.003	0.04	0.04	0.01	0.06	0.001	-0.03	0.03
Emotional closeness	0.02	-0.01	0.04	0.05	0.01	0.08	-0.004	-0.04	0.03
Financial support	-0.04	-0.07	-0.02	-0.04	-0.07	-0.00001	-0.03	-0.07	0.01

Second or subsequent child	Total			Between			Within		
	β	95% CI		β	95% CI		β	95% CI	
		lower	upper		lower	upper		lower	upper
Contact	0.01	-0.01	0.02	0.02	-0.001	0.04	0.00004	-0.02	0.02
Emotional closeness	0.02	0.003	0.03	0.03	0.01	0.06	0.01	-0.01	0.03
Financial support	-0.0001	-0.02	0.02	-0.003	-0.03	0.03	-0.01	-0.03	0.02
Childcare	0.01	-0.01	0.02	0.01	-0.01	0.03	0.01	-0.01	0.03

Notes. Values are β -coefficients (and 95% confidence intervals) of multilevel regressions;

Contact and emotional closeness: First child $n = 2,271$ person-observations from 820 persons; Second or subsequent child $n = 3,627$ person-observations from 1,056 persons.

Financial support: First child $n = 1,287$ person-observations from 740 persons; Second or subsequent child $n = 1,998$ person-observations from 956 persons.

Childcare: Second or subsequent child $n = 1,966$ person-observations from 947 persons.

Table 1A. Summary of results: Parental investment and fertility intentions of adult children

	Contact		Emotional closeness		Financial support		Childcare	
	Between	Within	Between	Within	Between	Within	Within	Between
Mother-daughter								
First child	ns	ns	ns	ns	ns	ns	—	—
Second or subsequent child	ns	ns	ns	ns	ns	ns	ns	ns
Father-daughter								
First child	ns	ns	ns	POS	ns	ns	—	—
Second or subsequent child	ns	NEG	ns	ns	POS	ns	ns	ns
Mother-son								
First child	POS	ns	POS	ns	ns	NEG	—	—
Second or subsequent child	POS	ns	POS	ns	ns	ns	ns	ns
Father-son								
First child	POS	ns	POS	ns	NEG	ns	—	—
Second or subsequent child	ns	ns	POS	ns	ns	ns	ns	ns

Notes. POS = positive association; NEG = negative association; ns = non-significant association.