Do Intergenerational Residential Choices Affect Fertility?

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Abstract

Support from parents or parents in-law has been shown to influence fertility in some studies, but other research contradicts this. We aim to assess how residential closeness to own parents or parents-in-law influences the fertility of cohabiting and married Norwegian mothers. We also examine possible effects of relocations towards or away from parents or parents-in-law prior to possible childbirths.

We employ discrete-time hazard regression models to estimate the probability of becoming mothers for the second, third or fourth time from 2000 through 2012 for all women age 17-46 in Norway, utilizing rich registry data on a total of around 600 000 cohabitating or married women, their partners, their parents and their in-laws.

Preliminary results indicate that intergenerational support, measured indirectly through close residential location, appears to be slightly fertility enhancing, net of individuals' other characteristics. This is particularly evident for individuals with married parents.

In preliminary models not fully adjusted, the effects appear somewhat stronger for second-order child births as compared to third- and fourth-order child births.

Analyses on grandparents' resources in terms of age, education and work engagement are still in progress, but preliminary results suggest that these factors appear to modify effects on residential closeness on their children's fertility. Preliminary results appear to be somewhat stronger for co-location with in-laws as compared to parents. No clear gender pattern is observed. All reported results represent work in progress, and are thus not suitable for citation.

The increased mobility and the relatively high degree of centralization observed for younger cohorts often results in relocations in geographical areas different from that of their parents or in-laws. As such, our findings may suggest that the current development may be slightly unfavorable for future fertility. From a policy perspective, ensuring perceptions of social support and child care possibilities for couples in childbearing ages may help counteract such possible consequences. However, more research on future developments, mechanisms

involved as well as possible policy measures is clearly warranted before conclusions may be drawn.

Keywords: Fertility, Intergenerational support, Married; Norway; Parent; Relocation; Residential

Extended abstract: Do Intergenerational Residential Choices Affect Fertility?

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Introduction

Fertility levels have declined over the past decade across most of Europe. According to the framework of the Second Demographic Transition, the increased value placed on autonomy has increased the opportunity costs associated with parenthood (Lesthaege, 2010). This is especially so for women, due to their higher educational attainment and thus greater expectations for labor market careers today compared to earlier. The question of how to combine family life with a working career has thus become more relevant for childbearing decisions, and opportunities for formal and informal child care are thus likely to play a role for fertility levels, from an individual as well as a societal perspective.

Earlier research has primarily focused on effects of the availability of formal child care provision, i.e. public or private day care. There is some evidence that an increase in the provision of child care result in a slight increase of completed cohort fertility or prohibit a further postponement of births (Kravdal, 1996; Rindfuss, Guilkey, Morgan, Kravdal & Guzzo, 2007; Rindfuss, Gulkey, Moragn & Kravdal, 2010). In contrast, other studies find no statistically significant impact of costs or availability of formal child care on fertility (see for instance overview by Gauthier, 2007). As parents have different needs when it comes to child care and changes in child care provision correspond with changes in female labor market participation, it is methodically challenges to estimate such effects. From a policy perspective, public child care is primarily an instrument to reduce the conflict between work and family in order to support female labor market participation. Possible effects in helping maintain or increase fertility levels are thus subordinate. Nevertheless, in times of below replacement level fertility in Europe, research on effects of formal as well as informal social support on fertility appears warranted.

There is comparatively little research on the role of the extended family and especially the role of grandparents in this setting. Can the older generations support younger couples in their family formation transitions? Can parents or parents-in-law reduce their children's work family conflict by aiding in the provision of care to their grandchildren? Can such support alter childbearing decisions and thus influence either the timing of births or increase the total number of children younger couples have? In this study, we aim to assess how residential closeness to own parents or parents-in-law influences the fertility of married Norwegian women and men, through a possible increase in the availability of informal care. As residential mobility is becoming increasingly more common, we will

also examine possible effects of relocations towards or away from parents or parents-in-law prior to possible childbirths.

Previous research has evaluated the extent to which grandparents provide child care and their role in such care. On the one side, care for grandchildren appears to be related to characteristics of the grandparents themselves: Grandparents in good health, who are not too old, who have reduced their working hours or stopped working altogether, who live with a partner and have comparatively few children and grandchildren, and who reside in proximity to their children, are most likely to provide child care to their grandchildren (Aassve, Meroni & Pronzato, 2012; Gray, 2005; Hank & Buber, 2009; Igel & Szydlik, 2011). On the other side, grandparents more often take an active part if the parents themselves are working or if their children are single parents (Koslowski, 2009). However, there are substantial cross-national variations in grandparents' extent of child care and the role they play in general in such care. The availability of other child care facilities is among one of the strongest predictors for grandparental care. A European comparison of kinship networks and grandparents' involvement finds a strong North/South divide, with higher levels of contact and support in Southern than Northern Europe (Aassve, Meroni & Pronzato, 2012; Murphy, 2008; Hank & Buber, 2009). In settings with comparatively low formal or public child care availability, as is the case in Southern Europe, a regular and extensive support of grandparents (grandmothers in particular) is necessary when mothers want to keep up their working careers (Aassve, Arpino & Goisis, 2012). In Northern European countries like Norway, where public child care is widely available and extensively used by young families, grandparents tend to take the role of a "reserve army" that can step in and support the working parents when needed (Hagestad, 2006; Herlofson & Hagestad, 2012).

We found two studies which explicitly focus on the role of grandparents on childbearing decisions. Aassve, Meroni and Pronzato conclude that the availability of grandparents plays an important role in individuals' decision of having children, based on SHARE panel data for eleven European countries on grandparents' information on intergenerational care transfers and the fertility behavior of their children (2012). The authors account for siblings' fertility, as grandparents have limited resources and can only take care of so many grandchildren at a given time, and find that if grandparents provide child care for a young mother or her sibling, the likelihood of the mother having another child increases, but only if the other child is older than three years. Grandparental child care for a younger child of a sibling thus seems to be in conflict with the possibility of taking care of an additional grandchild. In this scenario, adults thus have a lower likelihood for another birth. Interestingly, the authors find no positive effect of grandparents' support for childless couples. If an adult without children observes that grandparents already help their siblings, this has no significant effect on the transition to parenthood. The authors also conclude that grandparents help more in countries where

public child care is less available. Due to sample size limitations, they cannot estimate the specific effect of grandparents' help in specific countries or by the level of child care availability. Thomese and Liefbroer use data from the Netherlands' Kinship Panel Study where the parent generation themselves provide information on intergenerational support (2013). They include couples with at least one child, where the mother is working and at least one grandparent at the mothers' and the fathers' side is alive. Their main finding is that additional child births were more likely when grandparents provided child care, while the use of paid child care had no such effect (Thomese & Liefbroer, 2013). Interestingly, the results suggest that parents first turn to maternal grandparents for child care support, whereas paternal grandparents are used as additional providers of support. On both sides, it is most common for the grandmother to provide child care. These findings are based on a relatively small sample, and the focus is on dual-earning parents.

Instead of evaluating the actual contact or support given by the grandparents, other studies focus on the opportunity structure of the kin-network. This includes the availability of grandparents and the geographical distance between grandchildren and grandparents. From a historical perspective, the availability of grandparents has increased strongly (Uhlenberg, 2004). In Norway, currently almost half of the children age six or younger have all four grandparents alive (Lyngstad, Dommermuth & Noack, 2010). Although countries vary in size and family relations, a common finding is that the geographical distance between generations often is minor. The aforementioned SHARE study finds for instance that around 70% of the selected sample lives within a radius of 25 km to the grandparents (Aasve et al, 2012). Similar findings have been reported for Sweden (Malmberg & Petterson, 2007) and Germany (Lauterbach, 2004).

Other studies of fertility behavior use administrative registries and include measures on the geographical distance between the (coming) parent and grandparent generation. Rindfuss, Gulkey, Morgan, Kravdal and Guzzo focus on the role of public child care for the transition to motherhood in Norway, but they also include a time-varying variable measuring if the mother (e.g. grandmother) lives in the same municipality, lives in a different municipality, is emigrated from Norway or is deceased (2007). This variable is a measure for the opportunity structure of grandmothers' provision of child care, and one could expect that living in the same municipality as the mother increases first birth rates. Their results do not support this hypothesis. The authors point out this might be due to limitations inherent to the variable. Their measurement does not provide information on the actual geographical or travel distance (mothers in another municipality can still live very close) and those living in the same municipality might include especially children still living in the same household as their parents. Relocations are not accounted for.

Studying the intergenerational transmission of fertility across three generations in Sweden, Kolk includes a time-varying measure on municipality residence from administrative register data (2013). He calculates the geographical distance between the family members by comparing the distance between the population-weighted geographical midpoints of their municipalities of residence and also includes if grandparents have died. He concludes that geographic proximity has almost no effect on intergenerational transmission of fertility. Nevertheless, estimates from event history models on the transition to first birth for women show lower relative risks when living further away from the mother compared to living within a radius of 20 km.

It is evident, that the focus of these two latter studies is not the geographical distance between the generations and they include this perspective only roughly and rather as a control variable in their models. From our perspective it seems plausible, that more accurate measures of the geographical distance and geographical relocations affecting such distances might reveal a higher association to childbearing decisions. First of all, earlier research has shown that specific life course events can lead to a reduction of the geographical distance between family members (Lauterbach, 2004). This also means that grandchildren and grandparents first move closer to each other after the birth of the grandchild, and nevertheless reflecting a decision already made before the birth. How this may affect again further births, remain less clear. In a setting were parental leave benefits are based on labor market participation, parents will stay employed during pregnancy. Moving closer to parents might not be possible at this stage, but first when actually on parental leave.

This is in line with the finding that moving patterns are often driven by the parent and not the grandparent generation (Løken, Lommerud & Lundberg, 2013). They move closer to their parents when they are in need of support (e.g. after a divorce), while parents' need for support has smaller influence on children's mobility (Michielin and Mulder, 2007; Michielin, Mulder & Zorlu, 2008). Secondly, the geographical distance to other family members has to be taken into account. This includes not only the distance to all grandparents, but also the distance between grandparents and their other children (e.g. the siblings of the index generation). As the findings from Aassve et al. (2012) indicate, grandparents who already provide child care to other grandchildren, might have fewer opportunities for taking care of additional grandchildren. If grandparents reside close to family members with young children, other young couples might anticipate that they will receive less support, especially if they live further away. Lastly, it is possible that geographical distance comes into play at different stages in different countries. In Norway, there is a strong two-child norm, suggesting that many couples will have two children regardless of grandparental support. However, the transition to a possible third or fourth child may depend on extended support from the family, and grandparents in particular.

We thus aim to examine the extent to which opportunity structures for the provision of child care by grandparents as measured through geographical distance and relocation(s) influence the probability of becoming parents for the second, third or fourth time in Norway during the last decade, accounting for important characteristics of grandparents, parents and children. More specifically, our research questions are i) Does co-localization with parents or in-laws enhance fertility among cohabiting or married women who do not relocate during childbearing years? and ii) Do relocations towards parents or in-laws during childbearing years enhance fertility? In this preliminary draft, we focus solely on question i). Later versions will be extended to include analyses suitable to explore also question ii).

Material and methods

Data from different administrative registers in Norway, including the date of birth, date of emigration or death, dates of all live childbirths, marital status and dates of changes in marital status, municipality residency and dates of municipality changes, yearly educational level and income on all Norwegian residents age 17 to 46 during the period 2000 through 2012 were linked to similar information on partners, parents and parents-in-law based on individuals' personal identification numbers (PIN). No age limitation was imposed on partners or parents. Recently available information on exact locations of individuals utilizing geographic coordinates was added per January 1 each year, and the coordinates were further used to deduce travel distances between family members. Only partners who had similar coordinates were eligible for follow-up for potential births.

Altogether, three distinct cohorts were established: 1) One cohort consisting of mothers with one child co-residing with the father of the first child was followed-up for a potential second birth; 2) Another cohort of mothers with two children co-residing with the father of the second child was followed-up for a potential third birth; 3) Lastly, one cohort of mothers with three children co-residing with the father of the third child was followed-up for a potential fourth birth.

We excluded all individuals for whom we could not obtain information on partners, parents or parents-in-law. In total, this led to an exclusion of around 15% of the gross initial sample, mainly immigrants. Immigrants with information on partners and at least one set of identified grandparents were included, but identified as immigrants. This resulted in a sample of around 820 521 person-years for 286 625 women in the analyses of second births, 1 243 135 person-years for 267 769 women for third births, and 513 328 person-years for 94 991 women for fourth births.

Discrete-time hazard regression models were used to estimate the probability of becoming mothers for the second, third or fourth time in 2000-2012 for all women residing with the father of their prior child. Currently, one model is fit for each of the potential births (i.e. birth number two, birth number three and birth number four). The main outcome of interest is the probability of subsequent births, whereas the explanatory variables of interest are geographic distances between couples under risk for another birth and their parents.

In more detail, discrete-time hazard regression models for live births, hereafter called fertility, were used to estimate effects of mothers' residential closeness with parents and in-laws as well as effects of their own relocations for second-, third- and fourth-order birth rates. In the second-order model, each person contributed a series of three month observation intervals from the time of first birth after January 2000 to age 46, until birth, loss of partner (break-up, separation, divorce or death), death of longest living parent or parent-in-law, emigration, death or end of follow-up January 2013. Three-month intervals were chosen for practical purposes, but one-month intervals gave similar (results not shown). Similar separate models were set up also for third- and fourth-order births, with follow-up from time of last birth. In all models, the independent variables were updated every three months, and referred to the mother's situation that month (age, calendar period, residential municipality, residential relocation and vital status of prior children) or year (income, education, work and marital status). Partners' variables were likewise updated. The mother's and father's number of siblings was included as a time invariant characteristic along with immigration status. Likewise was an indicator included to account for the father having prior children other than the one(s) with the mother of his last child. An overview of the variables included and their categorizations are found in Table 1.

As grandmothers and grandparents (as well as in-laws) may be dead, living together of living separately and this all changes during the study period, a complex time-varying matrix of vital status, marital status and geographic location has been put to use (19 categories for each set of grandparents). We are currently working to include additional time-varying and time invariant variables on grandparents (e.g. age, educational level and employment status), but have been struggling to fit adequate models due to the abundance (and complexity) of the data.

Mathematically, the model is:

$$\textbf{log(P/(1-P))} = \alpha_0 + \sum_{j=1}^{m} \alpha_j X_j + \sum_{i=1}^{n} (\delta_i M_i + \varepsilon_i M_i y)$$

where P is the birth probability within the three-month interval, X represents dummy variables for the various covariates, M represents dummy variables for the municipality closeness, M*y* are interactions

between the municipality closeness and calendar year, and α, δ, and ε are the corresponding effects, *m* is the number of covariates, and *n* is the number of residential closeness groups. More specific definitions of the various categories of X are shown in Table 1. Age and calendar period are included in the model because of their effect on both fertility and relocation probabilities. Duration since last birth was included as a possible confounder. Educational level, or socioeconomic resources more generally, is widely known to have a sharp effect on birth rates. It may also affect the likelihood of residential location and relocation, but the causality may also run in the opposite direction as residential location in adolescence and young adult years may affect the chances of getting a higher education. Exclusion of this variable alters our results minimally (not shown, available upon request). Grandparents' characteristics were attempted included to account for resources or perceived resources for child care.

Several specifications of the residential closeness variable were used. In the models shown here, a distinction was made between individuals residing within 5 km of one another, 6-39 km, and more than 40 km. Also other categorizations were attempted (e.g 0-20, 21-80 and more than 80 km), but the results were very similar. We are currently working to further enhance the distance variable by viewing it in light of the municipality the mother at risk for another birth resides in, as travel times, costs and opportunities vary greatly in Norway.

Interaction terms to assess possible effect modification of relevant variables will be included and reported upon, and subsequently followed-up by stratified analyses once all adjustments are in place. The proc logistic procedure in SAS® 9.3 was used for all estimations, and the statistical significance level was set at 5%.

Preliminary results

The size of the material

In analyses of second births, 286 625 married or cohabiting women were included, contributing an average of 2.9 observation-years. In total, 171 966 second children were recorded among the women. The material used in analyses of third and fourth children was smaller: Altogether 66 404 third children and 11 565 fourth children were registered among the 267 769 and 94 991 women, respectively. The average follow-up times were 4.6 and 5.4 years, respectively. Various descriptive statistics of residential closeness for second, third and fourth births are shown in Tables 2a-2c. Around 25% of the potential mothers and fathers of second, third and fourth children resided quite close to their grandparents (less than 3 km). The median distances were smaller for those at risk for third- and fourth births as compared to those at risk for birth number two. The differences were, however, minor.

Multivariate analyses

To account for potential confounding and to assess possible effect modification, multivariate models including both mother's and father's characteristics were set up (Table 1 shows the covariates for second births, but the effect sizes were fairly similar for the covariates independent of which birth we assessed). All results on parents' covariates were as expected and in line with previous research. Married women were more likely than cohabiting women to go on and have an additional child with their partner. Married mothers may hold more traditional values than cohabitating mothers, and may thus value intergenerational family ties more than cohabiting mothers, with consequences for subsequent childbearing decisions. This will be examined in more detail. A college degree in mothers and/or fathers also enhanced fertility. Couples who lost their child, were much more likely than others to go on and have another child.

Preliminary results indicate that co-location may be mildly fertility enhancing (Table 3). This appears to be particularly evident for women and men with married parents. Additional analyses will be undertaken to examine this in more detail. Further, our preliminary analyses suggest that the effect of close residential location on second births in general is stronger for co-location with paternal parents rather than maternal parents. This is different from what has been reported previously, and will be examined in more detail. For third and fourth births, a tendency towards the opposite was observed: Having married maternal grandparents was more strongly associated with fertility than having married paternal grandparents for the risk of a third birth (odds ratio (OR) 1.1.2 vs 1.07). Further, when grandparents lived apart, there was a negative effect of paternal grandparents on fertility, irrespective of geographic distance (OR 0.85). Fourth births were shown to be much more common among immigrants than the Norwegian-born. At the same time, many of the immigrants do not have parents in Norway. This has made the analyses difficult to set up and interpret, and this is thus still work in progress.

Grandparents' resources in terms of age, education, marital status, work engagement and possible care tasks for other grandchildren has been shown to modify effects on children's fertility, but in slightly different directions. For instance, if grandparents have stopped working, this may enhance the fertility of the younger generation, whereas having older old aged grandparents may have an opposite effect. This is work in progress, and will be reported on once the work has been finished.

Table 1. Effects of covariates on the risk of having a second child[a]

	OR	95% CI
Partners are cohabiting	1,00	ref
Partners are married	1,37	1,36-1.38
Year 2000-2003	1,00	ref
Year 2004-2006	1,22	1,19-1,23
Year 2007-2009	1,26	1,24-1,28
Year 2010-2012	1,22	1,20-1,24
Family receives no social assistance benefits	1,00	ref
Family receives social assistance benefits	0,98	0,95-1,00
Mothers' characteristics		
Age 17-20	1,00	ref
Age 21-24	1,13	1,04-1,22
Age 25-29	1,16	1,07-1.25
Age 30-34	1,23	1,13-1,33
Age 35-39	1,02	0,98-1,10
Age 40+	0,35	0,32-0,38
< 1.0 year since last birth	1,00	ref
1-2 years since last birth	4,77	4,71-4,82
2-3 years since last birth	4,96	4,88-5,03
3-4 years since last birth	3,80	3,72-3,87
5+ years since last birth	2,17	2,12-2,21
No college degree	1,00	ref
College degree	1,22	1,20-1,23
Mother does not work	1,00	ref
Mother works	0,95	0,93-0,96
Norwegian-born	1,00	ref
Immigrant	0,82	0,80-0,84
Remained in municipality prior to birth	1,00	ref
Changed municipality prior to birth	0,96	0,94-0,97
First born alive	1,00	ref
First born dead	2,49	2,29-2,69
Fathers' characteristics		
Age 17-20	1,00	ref
Age 21-24	1,48	1,18-1,85
Age 25-29	1,68	1,34-2,10
Age 30-34	1,84	1,47-2,30
Age 35-39	1,79	1,43-2,24
Age 40+	1,34	1,06-1,67
No college degree	1,00	ref
College degree	1,18	1,17-1,19
Norwegian-born	1,00	ref
Immigrant	1,01	0,99-1,03
No child(ren) before first common child	1,00	ref
Child(ren) before first common child	0,77	0,76-0,78

[a]Also the distance variables were included, but they are shown separately in Table 3. Further, controls for the 428 municipalities were included as fertility levels vary across regions, but the estimates are not shown (available upon request). [b]Odds ratio. [c]Confidence interval.

Tables 2a-2c. Descriptive statistics of distances between parents and their grown children among one-child, two-children and three-children families.

Distance in kilometers	Mean	Median	25th Pctl	75th Pctl	Lower 95%	Upper 95%
A. One-child families						
Maternal grandmothers	102,2	12,7	3,0	86,6	101,9	102,5
Maternal grandfathers	110,8	15,0	3,5	98,7	110,5	111,1
Paternal grandmothers	96,5	9,4	2,1	71,1	96,2	96,8
Paternal grandfathers	102,6	10,6	2,3	80,3	102,3	102,8
B. Two-children families						
Maternal grandmothers	86,7	9,3	2,1	57,8	86,6	86,9
Maternal grandfathers	95,0	10,8	2,5	69,7	94,8	95,2
Paternal grandmothers	84,0	7,2	1,5	48,1	83,8	84,2
Paternal grandfathers	88,8	7,9	1,7	56,0	88,7	89,0
C. Three-children families						
Maternal grandmothers	82,1	8,8	1,9	52,3	81,9	82,3
Maternal grandfathers	88,3	9,8	2,1	61,2	88,1	88,6
Paternal grandmothers	79,6	6,1	1,1	41,2	79,4	79,9
Paternal grandfathers	83,8	6,6	1,2	47,4	83,5	84,1

Table 3. Effects of the geographic distance variables on the risk of having a second child[a]

	OR	95% CI
Maternal grandparents		
Both dead/emigrated/missing	1,00	ref
Married, resides close by	1,16	1,13-1,19
Married, resides medium close by	1,15	1,12-1,19
Married, resides furthest away	1,15	1,11-1,18
Grandfather dead, grandmother close by	1,06	1,02-1,09
Grandfather dead, grandmother medim close by	1,06	1,02-1,10
Grandfather dead, grandmother furthest away	1,08	1,04-1,12
Grandfmother dead, grandfather close by	1,12	1,05-1,18
Grandmother dead, grandfather medim close by	1,11	1,04-1,17
Grandmother dead, grandfather furthest away	1,08	1,02-1,13
Lives apart, both close by	1,14	1,09-1,18
Lives apart, grandmother close/grandfather medium close	1,16	1,11-1,21
Lives apart, grandmother close/grandfather furthest away	1,06	1,01-1,11
Lives apart, grandmother medium close/grandfather close	1,11	1,05-1,17
Lives apart, both medium close by	1,12	1,07-1,16
Lives apart, grandmother medium close/grandfather furthest away	1,10	1,04-1,15
Lives apart, grandmother furthest away, grandfather close	1,06	0,98-1,14
Lives apart, grandmother furthest away, grandfather medium close	1,05	0,98-1,11
Lives apart, both furthest away	1,09	1,05-1,12
Paternal grandparents		
Both dead/emigrated/missing	1,00	ref
Married, resides close by	1,19	1,16-1,22
Married, resides medium close by	1,17	1,14-1,20
Married, resides furthest away	1,18	1,15-1,21
Grandfather dead, grandmother close by	1,08	1,05-1,11
Grandfather dead, grandmother medim close by	1,08	1,04-1,11
Grandfather dead, grandmother furthest away	1,15	1,11-1,19
Grandfmother dead, grandfather close by	1,15	1,09-1,20
Grandmother dead, grandfather medim close by	1,09	1,04-1,14
Grandmother dead, grandfather furthest away	1,14	1,09-1,19
Lives apart, both close by	1,16	1,11-1,21
Lives apart, grandmother close/grandfather medium close	1,09	1,04-1,14
Lives apart, grandmother close/grandfather furthest away	1,12	1,07-1,18
Lives apart, grandmother medium close/grandfather close	1,16	1,11-1,22
Lives apart, both medium close by	1,14	1,10-1,18
Lives apart, grandmother medium close/grandfather furthest away	1,13	1,07-1,18
Lives apart, grandmother furthest away, grandfather close	1,09	1,02-1,17
Lives apart, grandmother furthest away, grandfather medium close	1,10	1,03-1,16
Lives apart, both furthest away	1,12	1,08-1,16

[a]All variables from Table 1 along with controls for the 428 municipalities were included as fertility levels vary across regions, but the estimates are not shown (available upon request). [b]Odds ratio. [c]Confidence interval.

Discussion

Our preliminary results indicate that the opportunity structure for intergenerational support, measured here through common residential location, appears to be fertility enhancing, net of individuals' other characteristics. This is particularly evident for second-order child births, and in particular for couples with married parents. The evidence is further stronger for co-location with paternal parents rather than maternal parents for second births, whereas an opposite tendency is observed for higher-order births. Grandparents' resources in terms of age, education, marital status, work engagement and possible care tasks for other grandchildren have been hypothesized to modify effects on children's fertility, and this will be examined in more detail shortly.

Intergenerational support, or more specifically, the possibility for such support, is here measured through the proxy variable residential closeness, and will be further extended to include also residential relocation towards parents or parents-in-law prior to a possible childbirth. The relevance of such a measure will be discussed further in the finalized paper.

The increased mobility and the relatively high degree of centralization observed for younger cohorts often results in relocations in geographical areas different from that of their parents or in-laws. As such, our findings may suggest that the current development may be slightly unfavorable for future fertility. From a policy perspective, ensuring perceptions of social support and child care possibilities for couples in childbearing ages may help counteract such possible consequences. However, more analyses are clearly warranted before conclusions may be drawn. The discussion remains to be finalized.

Suggested preliminary conclusions

Our preliminary findings suggest that the possibility for intergenerational support appears to increase fertility to a certain extent, for some subgroups of potential parents and parents. This is particularly evident for second-order child births, and for children with married parents. The evidence is further stronger for co-location with in-laws rather than own parents.

Our results suggest that younger cohorts' relatively high mobility rates and their tendency to relocate in central areas may result in slightly unfavorable future fertility rates. From a policy perspective, ensuring perceptions of social support and child care possibilities for couples in childbearing ages may help counteract such possible tendencies. More research on developments in mobility and

centralization, the mechanisms involved, as well as relevant policy measures is clearly warranted before any firm conclusions may be drawn.

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