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How Far Do Children Move?

Spatial Distances After  
Leaving the Parental Home

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# How Far Do Children Move?

## Spatial Distances After Leaving the Parental Home

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### **Abstract**

Little is known about how far young adults move when they leave their parental home initially. We addressed this question using data from ten waves (2000 – 2009) of the German Socio-economic Panel Study on spatial distances calculated by the geo-coordinates of residential moves ( $N = 1,425$ ). Linear regression models predicted young adults' moving distance by factors at the individual, family, household, and community level. Overall, spatial distances of initial move-outs were strikingly small with a median value of only 9.5 kilometers. Those who were well-educated, female, single, childless, had highly educated fathers and high parental household incomes moved across greater distances. The effect of young adults' education was moderated by the local community's degree of urbanization, supporting the brain drain assertion. In line with developmental models of migration, our results further show that young adults stayed closer if the parental household was still located at their place of childhood. We found two interactions with gender: At the family level, daughters stayed closer when leaving a single-parent household. At the community level, women from Eastern Germany moved farther, suggesting that the surplus of men in the Eastern periphery is at least to some extent an outcome of initial migration decisions.

## 1. Introduction

Leaving the parental home is considered an integral part of the passage to adulthood that has important long-term implications in individual, family, and residential spheres. At the individual level, a move-out reflects young adults' personal development in establishing autonomy and economic independence (Goldscheider & DaVanzo 1986). At the family level, this transition affects (and reflects) the strength of kinship ties and the opportunities for face-to-face contact and support exchange between family members. At the community level, it concerns issues such as everyday mobility, patterns of internal migration, 'brain-drain', and rural depopulation.

Analytically, young adults' move-outs involve two main dimensions: timing and distance. A considerable amount of research has studied coresidence and the timing of exits from the parental home (e.g., Aassve et al. 2002, Rusconi 2004, Ward & Spitze 2007). Far less is known, however, about the spatial distance of these initial move-outs. Research on parent-child proximity typically sets in *after* children have left the parental household, that is, after geographical distance has already been produced. In addition, many analyses included proximity as an explanatory variable representing 'structural opportunities' for other types of family solidarity, such as social support (e.g., Greenwell & Bengtson 1997). Although more recent research has stressed the endogenous character of spatial distance as an outcome of residential choice, no study has systematically investigated the spatial distance of *initial* migration decisions: How far do children move when they leave the parental home?

This gap of research is due in part to a shortage of suitable data on the distances of residential moves. In recent years, however, large-scale panel studies that follow individuals and their descendents across their life courses have begun to make detailed geographical information

available for scientific use. In the year 2000, the German Socio-economic Panel Study<sup>1</sup> (SOEP) started to collect data on the geo-coordinates of each sample household on an annual basis, allowing to calculate exact air-line distances of respondents' residential moves. Nine years later, this information was available for 1,425 first move-outs of young adults who left the parental household between the years 2000 and 2009.

These new data present a unique opportunity to investigate the spatial distances of initial move-outs. In this study, we capitalize on these data to answer the following key questions. How far do adult children move upon their initial departure from the parental home? What factors lead young adults to stay near their parents or to move further away from them? As our investigation represents the first large-scale analysis drawing on detailed geographical data to address these questions, we take an exploratory approach analyzing how factors at the individual, family, household, and local community level influence young adults' decisions where to locate geographically upon moving out. To study these choices of migration destination, we estimate linear regression models on air-line distances (in meters) of young adults' residential moves.

## **2. Theoretical Background and Previous Research**

Previous research on parent-child proximity has examined the characteristics of young adults as well as factors at the family, household, and local community level (e.g., Cadwallader 1992; Elder et al. 1996, Garasky 2002). This classification provides a useful point of departure for the present study. As we focus only on first move-outs that create spatial distance between the generations, we restrict the following discussion to factors that are relevant for young adults' initial migration decisions.

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<sup>1</sup> The data used in this publication have been made available by the German Socio-Economic Panel Study (SOEP) at the German Institute for Economic Research (DIW), Berlin.

### *Individual Characteristics*

From an individual perspective, spatial distance usually results from young adults' choice of a location. In standard economic theory, individuals choose a location that maximizes their utility (Helderma et al. 2005). Young adults weigh the expected gains of alternative locations against the costs. Gains and costs are both financial and nonfinancial (Greenwood 1975, Sjastaad 1962). For example, adult children may benefit from employment opportunities, but also from independence and privacy, in particular when moving to a partner. Costs may be incurred by the loss of parents' provision of low-cost services, but also from fewer opportunities of face-to-face contact, which is often highly valued.

Considering such costs and benefits, different individual characteristics might influence young adults' location decisions at their first move-outs. Several authors have reported that age is an important correlate of parent-child proximity. In Germany and the United States, adult children typically leave the parental home between the end of their teenage years and the end of their twenties (Goldscheider & Goldscheider 1993, Corijn & Klijzing 2001). At this early stage of adulthood, parents are still an important source of instrumental, emotional, and financial support, suggesting that initial move-outs rarely bridge greater geographical distances. Farley (1996), for example, reported that 80% of young adults' moves in the United States between 1985 and 1990 were local. For Germany, Wagner (1989) found that the prevalence of young adults' short-distance migration even increased between 1950 and 1980: By the beginning of the eighties, the geographical distance was less than 20 kilometers in about 50% of all residential moves by German adults aged between 20 and 30.

If larger distances occur, one apparent motive is to move for educational or occupational purposes. According to human capital models, highly-educated individuals with more specialized abilities have higher propensities to migrate in order to make further progress and optimize their educational returns (Featherman & Hauser 1978). Accordingly, numerous studies have shown that the spatial distance between the generations is positively associated with children's educational attainment (e.g., Silverstein et al. 1995, Malmberg & Pettersson 2007).

With regard to gender differences, Fuguitt et al. (1989) posited that daughters are more likely to 'escape' to urban areas if their personal autonomy is strongly restricted by traditional gender roles in rural communities. Alternatively, a higher propensity of daughters to move farther away may be related to their relationship status if a partner's household is the migration destination (Mulder & Wagner 1993). The direction of such an effect, however, is unclear as the partner may often live near the daughter's parental household. Another reason for assuming higher proximity are daughters' stronger affective ties to parents that may lead to a higher valuation of face-to-face contact (Lawton et al. 1994). Given these ambiguities, it is not surprising that recent empirical findings on the relationship between the spatial distance to parents and the adult child's gender are mixed. Analyses of register data from the Netherlands (Michielin & Mulder 2007a) and Sweden (Malmberg & Pettersson 2007) suggested that daughters lived farther away than sons in early and middle periods of parent-child relationships. In contrast, studies using US-data (Lin & Rogerson 1995) and data on eleven European countries (Fokkema et al. 2008) reported no gender differences in parent-child proximity.

Apart from potential interactions with the adult child's gender, relationship status per se is considered an important individual determinant of parent-child proximity. However, the direction of the expected effect is again unclear. One hypothesis is that individuals living in a relationship

are less mobile than singles. But the presence of a partner may also decrease the need for frequent contact with family members. Michielin and Mulder (2007a) found that in the Netherlands, transitions to marriage or cohabitation (which implies a move) led to greater distances rather than local moves. In contrast, Lauterbach and Pillemer (2001) reported that married individuals lived closer to their parents than singles both in Germany and in the United States.

Finally, migration background has been discussed as an individual factor influencing parent-child proximity. Immigrants strongly rely on local networks of relatives and friends from their country of origin that often constitute the only sources of support (Aslund 2005). Therefore, immigrants' offspring should frequently move to locations within the same local community. This reasoning is supported by the research on immigrants' residential behavior, indicating higher parent-child proximity (e.g., Mulder 2007).

### *Family and Household Characteristics*

From a family perspective, individual dimensions of residential choice are inextricably linked to the presence and quality of kinship ties. That is, "individual choices oriented towards reaching personal goals might compete or interfere with the desire to maintain family solidarity" (Michielin & Mulder 2007b: 656). Bengtson (2001) emphasized the increasing importance of intergenerational contacts in modern 'beanpole' families. In the typology of intergenerational solidarity, residential proximity is both an indicator of earlier and present parent-child relationships and a key determinant for other dimensions of solidarity, pointing to future opportunities to maintain contact, share activities, and exchange support. In this respect, the relevance of young adults' early residential decisions is twofold: First, the spatial distance of initial move-outs reflects earlier and present family life. This includes characteristics of family

members and of the parental household. Parents and siblings, for example, may serve as role models influencing young adults' initial residential decisions. They also constitute "location-specific social capital" (DaVanzo 1981) that increases the costs of moving far away, in particular when family relations are close. Second, geographical distance in early adulthood has important long-term implications for the development of parent-child relationships (Myers 2005). For example, greater spatial distance reduces the opportunities to benefit from parental support, such as (grand-) childcare. In addition, it decreases the contact frequency between the generations (Lawton et al. 1994), which in turn may also diminish the strength of affective ties.

Previous research using cross-sectional data has analyzed parent-child proximity at different stages of the family life cycle, assuming that spatial distance reflects specific age-related needs of both parties. At a general level, one consistent finding in the United States as well as in Europe is that although residential proximity tends to decrease temporarily when adult children reach middle ages, at least one child lives within one hour to the parents in most families (Hank 2007, Lauterbach & Pillemer 2001).

More specifically, a number of family and household characteristics have been related to different levels of parent-child proximity. Parents' education and economic resources, for example, were found to be positively correlated with spatial distances to adult children both in Germany (Lauterbach & Pillemer 2001) and in United States (Garasky 2002). One potential reason is a motive of status maintenance, suggesting that parents from higher social strata are more inclined to accept greater distances resulting from children's moves to areas that allow maximizing educational attainment and returns to education. As an alternative pathway, we may assume a transmission effect: If well-educated parents' own initial move-outs bridged greater distances, they may constitute important points of reference for their children's later residential

decisions. Considering economic resources, well-off parents have the means to support their children with transferable (i.e., financial) resources over greater distances.

The marital status of parents, on the one hand, indicates whether young adults' families of origin are 'intact'. In this respect, one assumption is that marital disruption increases the tension between the generations, leading to greater distances when leaving the parent with whom the children remained, typically the mother. Leaving behind a lone parent, however, may also lead to short-distance moves in order to facilitate emotional support exchange. The latter motive should be less relevant for sons, as feelings of affection and obligation have been found to be more pronounced in relationships between daughters and parents, in particular within the mother-daughter dyad (Kaufman & Uhlenberg 1998, Silverstein et al. 1995). Although we are not aware of any study that has investigated the effect of parents' marital disruption on the distance of children's initial move-outs, the literature on parent-child proximity in middle and later life points to greater spatial distances to divorced parents, especially to fathers (Fokkema et al. 2008, Lawton et al. 1994).

Another influential factor at the family level is the presence of an own child augmenting young adults' need for parental help. Regular childcare assistance from parents is a location-specific type of support that requires residential proximity. Again, previous research has not examined this relationship with respect to the distance of youths' initial departures from the parental home, but cross-sectional evidence from the United States (Clark & Douglas 1992) and Sweden (Malmberg & Pettersson 2007) has shown higher parent-child proximity in the presence of a grandchild.

A further set of family-related factors that influence residential decisions refers to the characteristics of siblings. One aspect is sibship size: If parents' resources are distributed over a

larger number of siblings, the reduced supply of support may lower a child's expected utility of living near the parental home. A number of studies have shown that the number of siblings is negatively correlated with parent-child proximity (e.g., Shelton & Grundy 2000), although this effect is probably not causal (Holmlund et al. 2009). A second aspect is birth order: One hypothesis that has been advanced in the literature is that first-borns move farther away as they are less constrained in their location decisions, whereas later-born children must consider the residential choices of their siblings who moved out previously (Konrad et al. 2002).

### *Characteristics of the community*

Addressing the question of how far young adults move upon their initial exit from the parental home only with respect to individual or family factors would deny "the fact that individuals live in a wider world that stretches beyond the boundaries of their immediate environment" (Juang et al. 1999: 513). We consider two perspectives on the influence of the community in which the parental household is located (cf. Garasky 2002, Goldscheider & DaVanzo 1985).

First, demographic 'push-pull' models posit that individuals are attracted by prospering areas and pushed from regions that are less developed and/or in decline. In Germany, the standard of living remains considerably higher in the former West of Germany than in the former East even two decades after reunification. This suggests that young adults from Eastern regions are more likely to move across greater geographical distances. Furthermore, substantial gender differences in mobility were found among Eastern-Germans living in the periphery. Young women frequently depart from these areas whereas men are left behind. The resulting surplus of young men has received a lot of attention in the public debate. The most common assumption is that women's higher levels of education drive this selective outmigration (Kroehnert & Klingholz 2007).

Considering young adults' initial move-outs, the local youth unemployment rate should be another relevant factor at the community level. If the parental household is located in a district with a high level of youth unemployment, difficulties to find adequate jobs locally should lead to greater moving distances. A further aspect reflecting occupational and educational opportunities is the degree of urbanization. Those living outside larger cities in suburbs or in rural areas should have higher propensities of moving farther away. In line with this reasoning, empirical findings indicated that children from larger cities lived closer to their parents (e.g., Lauterbach & Pillemer 2001, Malmberg & Pettersson 2007). As discussed above, it is reasonable to assume that the relationship between the residential area and parent-child proximity is moderated through educational attainment and aspirations. That is, children from rural areas move farther away only if they have reached higher educational degrees that, in turn, necessitate moves across greater distances to locations where tertiary education and specialized job markets are available (Hektner 1995).

Second, developmental models of migration emphasize the individual's familiarity with his or her home region. Young adults are not only emotionally attached to the local community where they grew up, but also have better access to its resources, such as the job and marriage market, through dense networks of friends and relatives (Goldscheider & DaVanzo 1989). If social capital is tied to the community of the parental home, it may increase the costs of long-distance migration (Elder et al. 1996). The duration of residence at a specific location prior to moving out should therefore lead to higher parent-child proximity, in particular if the parental household is still located where young adults spent their childhood. Findings from the United States supported this reasoning. Lin and Rogerson (1995) found the expected positive correlation between the duration of residence and proximity. Bures (2009) reported lower levels of mobility for persons still living in their home regions.

### 3. Data and Method

Our empirical analyses are based on data from the German Socio-Economic Panel Study (SOEP), which is a large, representative household, and person study (Wagner et al. 2007). SOEP covers a wide range of topics including careers, education, income, demographic developments, health, and use of time, as well as satisfaction and values. Each person in a household aged 17 or older gives his or her own answers. For children under 17, proxy information is available from the parents' and household questionnaires. In 1984, the SOEP started in West-Germany with a sample of over 12,000 individuals in almost 6,000 households. Several new subsamples were added in the following years, notably a sample of Eastern Germans in the year of reunification (1990) and a major enlargement in the year 2000. In the 2009 wave, the study population consisted of 18,587 individuals in 10,394 households. Since the year 2000, information on geographic coordinates is available for each household, allowing to calculate exact air-line distances between two households.<sup>2</sup> Our analysis draws on these data from an observation period covering ten waves between the years 2000 and 2009.

#### *Selection of Young Adults 'At Risk' of Moving Out*

We proceeded in four steps to define a study population. First, we selected a gross sample including all observations of children aged 16 and older who lived with one or both parents in at least one of the twenty-six SOEP waves conducted between 1984 and 2009 ( $n = 9,953$ ). Those included not only biological children, but also adopted, step, and foster children. Second, we restricted this sample to 6,003 persons observed at least once between the years 2000 and 2009, removing 3,950 young adults who left the parental home or dropped out of the survey before the

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<sup>2</sup> In Germany, detailed regional data are subject to strict conditions of processing. Most of our analyses were therefore carried out on-site at the German Institute for Economic Research, DIW Berlin, and via remote execution services (SOEPrmote).

SOEP began to collect information on the geocodes of residential moves. The third step was aimed at identifying *initial* move-outs. Although the rates of home returning are considerably lower in Germany than in the United States (Goldscheider et al. 1999; Corijn & Klijzing 2001), some young adults living in the parental home might be ‘boomerang kids’ who already experienced their first move-outs. To reduce the probability of such unobserved instances in our sample, we further removed 754 individuals that were living in the parental household but were older than 20 years when *first* observed in the SOEP, confining the study population to 5,249 individuals that entered the panel aged 20 or younger. This restriction also reduced the potential age bias in our sample towards stay-at-home children that still lived with their parents at advanced ages. Fourth, we defined a further upper age bound because our focus is on residential mobility at earlier life course stages and the factors related to leaving home at older ages are distinctive. Even after the previous restriction, the theoretical maximum age of a child observed in the parental household between the years 2000 and 2009 remained rather high: A child who was first observed at age 20 in the year 1984 and never left the parental home would have entered our window of analysis aged 36 and been followed up to the age of 45 in the year 2009. We therefore excluded 244 individuals that crossed an age limit of 30 while living in the parental household between 2000 and 2009. After this final exclusion, the study population consisted of 5,005 young adults ‘at risk’ of initially moving out between 2000 and 2009.

#### *Definition of Move-outs*

The SOEP assigns a household identification number to each respondent. Two or more persons living in the same household all share one household number. If a person leaves a household between two waves and is followed up in the later wave, a new household number is assigned to

this person. A change of household numbers between two waves therefore indicates a residential move.

We defined a move-out from the parental home between two waves if (a) the child shared a household number with at least one parent in the earlier wave, (b) the child's household number changed between the waves, and (c) the child's new household number did not equal the household number of any one parent in the later wave. Therefore, our definition did not only identify departures from a household shared with both parents, but also move-outs from only one parent. Furthermore, it is important to note that this definition concentrated on young adults who establish own households, that is, individual decisions to live independently. It did not include move-outs to colleges for post-secondary undergraduate education or residential moves that were forced by military service obligations. Based on this identification strategy, we observed a total of 1,913 young adults leaving the parental home between the years 2000 and 2009.

*Dependent Variable: The Spatial Distance of Initial Move-outs*

After the move-out had taken place, our dependent variable was calculated as an exact air-line distance in meters between the parental home and the child's new residence from the geographical coordinates of each household. In 488 cases (25.5 %), the spatial distance of the move-out could not be calculated because respondents were not followed up and thus, geographical information on the location of the new residence was missing. This concerned a few young adults left the SOEP because they moved abroad. Those cases automatically dropped out of the study. The majority of missing cases, however, represent unsuccessful attempts to follow up respondents after residential moves within Germany. The remaining number of 1,425 move-

outs for which data on spatial distances were available constitutes our sample for the descriptive and multivariate analyses.

*Independent Variables: Characteristics of the Individual, Family, Household, and Community*

We included the respondent's age, gender, education, relationship status, and migration background as individual characteristics hypothesized to influence the distance of move-outs. Young adults' education was measured by three indicator variables: education attained was equal or less than basic secondary school (9 or less years of education); education attained equaled intermediate secondary school (10 years of education); and education attained was equal or greater than high secondary school (12 or more years of education). Relationship status was operationalized through a binary variable indicating whether the respondent had a partner. Finally, we used an indicator variable for migration background (first- or second-generation).

The survey design of the SOEP allows combining individual data with detailed information on family members and household characteristics. We first included the father's education, measured by two indicator variables analogical to the respondent's education. As an indicator for economic resources, we used the logged per-capita income (in Euros) of the parental household. Furthermore, a binary variable indicated whether the respondent lived with only one parent. This variable was coded one if the parent was widowed, divorced or separated from the other parent. Sibling characteristics were operationalized by two measures, the logged number of siblings and an indicator variable for first-born children. Finally, we introduced two measures of fertility, one indicating whether the respondent already had an own child living in the parental household, the other, whether a respondent was pregnant.

All individual and household data collected by the SOEP can be linked to regional information from external sources using the NUTS (Nomenclature of Units for Territorial Statistics) geocode standard that is developed and regulated by the European Union (Goebel et al. 2008). At the NUTS-3 level, regional data is available for 429 German districts. This enabled us to introduce two measures reflecting the economic and demographic conditions of each household's local community. First, we used the local youth unemployment rate,<sup>3</sup> a continuous variable ranging from 2.2 % to 26.8 %, as an indicator for labor market conditions of the district in which the respondent resided prior to moving out. Second, we included three indicator variables measuring the urbanization of the district: rural area, rural hinterland, and urban hinterland. Nucleated town (more than 100,000 inhabitants) is the omitted category.<sup>4</sup> In addition to these measures, a binary variable indicates whether the parental household was located in Eastern Germany (new federal states). Finally, we operationalized the duration of residence in the local community using information from the biographical questionnaire. The respondents reported on whether they still lived at the place where they spent their childhood. A binary variable was coded one if the answer was no, that is, if the parental household was no longer located at the respondent's place of childhood.

The values for almost all predictor variables, including external data on the degree of urbanization and the youth unemployment rate, were obtained from the (year of) the earlier wave, that is, before a residential move took place. The only exceptions are the indicator variables for young adults' education: In Germany, educational degrees are mostly awarded in May or June.

The annual data collection of the SOEP, however, is typically carried out in March. We therefore

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<sup>3</sup> The youth unemployment rate is the proportion of the youth labor force that is unemployed. Young people are defined as persons aged between 15 and 24.

<sup>4</sup> We used the definitions of the German Federal Institute for Research on Building, Urban Affairs and Spatial Development. Outside nucleated towns, the urbanization of districts is defined by residential area and population density. Urban areas include urban districts of more (urban hinterland) or less (rural hinterland) than 150 people per km<sup>2</sup>. Rural areas include rural districts of more or less than 100 people per km<sup>2</sup>.

used the updated information on young adults' education from the later wave in which the move-out was recorded.

Our measures of education were the only variables with substantial shares (i.e., more than 10 %) of missing data. Information on the respondent's education was missing in 19 % of all cases, information on the father's education in 30 % of all cases. In the multivariate analyses, we flagged missing values with indicator variables (see Acock 2005, for a general discussion). Table 1 presents descriptive information on all variables.

- Table 1: Descriptive Statistics –

*Method*

We used ordinary least squares regression (OLS) models to estimate the spatial distance of young adults' move-outs. As the distance variable was skewed to the right ( $M = 68.3$  km,  $Median = 9.5$  km), we estimated its logarithmic calculus which was distributed approximately normal.

The conventional estimator of variance in the OLS regression requires that the observations are independent. This was not the case in our data as we observed departures of two or more children from the same parental household in 550 of 1425 cases (38.6 %). In the majority of these cases ( $n = 450$ ), two children moved out from the same parental household. But we also observed 100 instances of three up to five children leaving the same household between the years 2000 and 2009. In technical terms, these observations are clustered within groups (i.e., households). Clustering does not affect the parameter estimates, but the standard errors of the estimated

coefficients as the error terms are not identically distributed across all move-outs observed. One strategy to analyze such data is to calculate robust standard errors that account for clustering at the individual level (Bye and Riley 1989). In the present study, we used the clustered sandwich estimator that allowed for intra-household correlation and only required that move-outs were independent across households.

#### **4. Results**

##### *Descriptive Results*

Table 2 presents descriptive information on the distribution of the dependent variable, the spatial distance of young adults' initial move-outs. Overall, the distances were strikingly low. Ten percent moved an air-line distance of less than 554 meters, the first quartile was less than two kilometers, and over half of the sample relocated less than ten kilometers from the parental home. Even the 75 percentile (74.0 km) remained within one hour of travel time. Only the upper ten percent of the distribution can be considered long-distance moves, bridging more than 250 kilometers.

- Table 2: Distribution of Moving Distance by Level of Education -

Table 2 further shows the conditional distribution of moving distance for different levels of young adults' education. We observed a clear-cut pattern reflecting the expected positive association between educational attainment and moving distance. This relationship held for each percentile displayed, but sizable differences appeared only in the upper half of the distribution.

The 75 percentile, for instance, revealed a considerable educational gradient of moving distance. Three quarters of young adults with low levels of education moved across less than 20 kilometers. At intermediate levels, the corresponding number was not much higher – but for respondents with high educational attainment it amounted to more than 130 kilometers. Overall, 9.7 % of low-educated respondents moved across 100 kilometers or more, compared to 20.7 % of respondents with intermediate secondary education and 31.0 % with high secondary education.

### *Multivariate Results*

Table 3 presents unstandardized estimates predicting young adults' moving distance. The first equation (Model 1) includes only main effects of individual, family, household, and community characteristics. The second equation (Model 2) builds upon this specification, adding three types of multiplicative terms to test for interactions: The first interaction tested whether the effect of “living with one parent” differed between daughters and sons; the second, whether women moved farther away than men in Eastern Germany; the third, whether high education increased spatial distances only if young adults moved out from less urbanized areas.

#### - Table 3: Ordinary Least Squares Regressions of Logarithmic Moving Distance -

Model 1 shows that age was negatively associated with moving distances within the interval under study (16 to 30). Women moved farther than men, but this effect was only marginally significant (less than .06). Not surprisingly, the estimates for the respondents' education resembled the descriptive results. We did not observe statistically significant differences between

low and intermediate educational levels. High levels of education, however, were associated with significantly larger moving distances. The presence of a partner reduced the spatial distance of young adults' move-outs, but the estimate did not reach conventional levels of significance. The indicator for migration background suggests that immigrants' moving distances did not differ from those of natives.

Among the family and household variables, the estimates for the father's education were similar to the corresponding estimates of young adults' education. These results suggest that higher parental education was associated with increasing spatial distances of children's departures even after controlling for their own educational attainment and the per-capita income of the parental household. The latter, a direct measure for economic resources, showed a positive and significant effect – net of the indicators for the father's education. In regard to the presence of one or both parents, spatial distances did not differ significantly between young adults who were living with a single parent compared to those living in intact families. The indicators for sibship size and birth order did not show any effects either, suggesting that sibling characteristics were not related to the spatial distances of initial move-outs. We tested a series of alternative specifications introducing, for example, an indicator variable for only children, birth order as a continuous variable instead of an indicator variable for first-born versus later-born children, and an indicator variable for whether a sibling had moved out previously. However, all alternative specifications led to a worse model fit and no significant impact of sibling characteristics on moving distance was observed (estimates not displayed). With regard to the respondent's fertility, both measures indicated negative effects on the distances of move-outs, but only the estimate for the presence of an own child was statistically significant.

The results for community-level measures suggest that a district's local youth unemployment rate was not related to the spatial distance of young adults' move-outs. We found significant differences, however, between the moving distances of Eastern Germans and Western Germans. The indicator for Eastern regions pointed to greater distances of young adults' initial move-outs. We further observed the expected relationship between a district's urbanization and moving distances. The lower the degree of urbanization, the farther young adults moved: Move-outs from rural areas bridged significantly greater distances compared to departures from parental households located in nucleated towns. A sizeable effect was also found for the variable indicating whether the parental household was still located at the respondent's place of childhood. If this was the case, young adults moved across significantly smaller distances upon leaving the parental home.

Finally, we turn to the interaction effects presented in Model 2. The first interaction term tested whether the effect of living with only one parent varied between sons and daughters, revealing significant differences: Daughters stayed closer when moving out from a divorced, separated, or widowed parent. The second interaction supported the hypothesis that more mobile women leave behind a surplus of men in Eastern Germany. The main effect of Eastern versus Western Germany became insignificant once the interaction with gender was introduced. This result indicated that the greater spatial distances observed for Eastern Germans concerned only women's move-outs. The remaining set of interaction terms suggest, as expected, that the relationship between urbanization and parent-child proximity was moderated through educational attainment. The interaction terms, all three significant, indicate that longer-distance moves from less urbanized areas concerned primarily the well-educated children. This interaction accounted largely for the main effects of low urbanization and high education.

The F-value shows that the model fit was improved by the inclusion of interaction terms in Model 2. Overall, the low R-squares indicate that a substantial share of the variance of moving distance remained unexplained in our models.

## **5. Discussion**

The prime aim of this study was to shed new light on the initial migration decisions of young adults. Despite a considerable amount of research on the timing of exits from the parental home, little was known about the spatial distance of these move-outs. Our exploratory investigation addressed this deficit. Panel data from ten waves of the SOEP (2000 – 2009) enabled us to predict moving distances by factors at the individual, family, household, and community level. Rich personal and contextual information was available in high resolution for a substantial number of move-outs, allowing to include regional indicators at the district level and, most importantly, an exact outcome measure of geographical distance in meters.

An important general finding from these data is that initial move-outs rarely bridged greater distances. Our detailed outcome measure identified such short-distance moves and the results pointed to the relevance of these types of move-outs: One in four did not exceed two kilometers and over half of the sample moved across less than ten kilometers. Even among the highly educated, longer-distance move-outs were the exception rather than the rule. These findings suggest that spatial distances after children's initial move-outs are so remarkably small that the parental home remains not only within one hour of travel, but often within walking reach. Previous research has consistently found high levels of parent-child proximity, but most of these studies used rather crude measures of high proximity, such as "lives within one hour of travel" (e.g., Lauterbach & Pillemer 2001). Within such categories, however, a potential right-skewed

distribution of distances cannot be identified. Our results are therefore best compared with those of Malmberg and Petterson (2007) who analyzed Swedish register data and found that 38 % of adult children lived less than five kilometers from at least one of their parents and 18 % even less than one kilometer. It is important to note that their study population consisted mainly of adult children aged 40 to 50. The similarity to our results on move-outs in early adulthood points to the potential long-term relevance of distances produced by children's initial departures, suggesting a considerable temporal stability of very small geographical distances to parents.

In our multivariate models, we further explored what factors lead young adults to stay near their parents or to move further away from them. Based on these models, we would predict the smallest distances for the offspring of low-educated and low-income families, moving out from the household where they spent their childhood, located in a nucleated town. In contrast, we would predict the greatest distances for childless and well-educated daughters from higher social strata who move out from a household distant to their place of childhood, located in the periphery of Eastern Germany.

Most of these findings on the spatial distance of initial move-outs are in line with previous research on proximity at earlier stages of the relationships between parents and their adult children. Education, for example, emerged as one of the key predictors of moving distance among the individual factors. Our results support the 'brain drain' assertion as the positive effect of young adults' education on moving distance was moderated by the degree of urbanization and primarily concerned those moving out from rural areas.

At the family level, our findings on the respondent's fertility indicated that young adults who had an own child and therefore relied on location-specific social capital (i.e., parents' childcare assistance) stayed closer to their parental home. Furthermore, we found the expected positive

correlation between fathers' education and children's moving distances. This result is consistent with previous findings on parent-child proximity (e.g., Garasky 2002, Lauterbach & Pillemer 2001). In these studies, however, parental education has been interpreted mainly as a proxy for economic resources. We were able to measure those more directly using an indicator for the per-capita income of the parental household. This measure showed the expected positive relationship between transferable economic resources and moving distances, but the effect of the father's education remained positive and significant. This finding suggests that parents' education may influence moving distances through additional pathways, such as motives of status maintenance or transmission effects. Among the family factors, we also explored the importance of an intact family for young adults' moving distances. Although moving out from a parent that was widowed, divorced or lived separated from the other parent did not affect the overall distance of move-outs, a significant interaction with the child's gender was found. Daughters who left behind a 'lone parent' stayed closer. Such differential migration decisions may reflect daughters' stronger affective ties to parents (in particular to mothers) and also their stronger endorsement of norms of filial obligation to support the parent emotionally and to maintain frequent face-to-face contact. With regard to the influence of siblings, neither sibship size nor birth order appeared to affect youths' migration decisions.

At the community level, our findings on the degree of urbanization are consistent with previous research indicating that the emerging geographical distances between parents and children are smaller in nucleated towns (e.g., Malmberg & Pettersson 2007). In contrast, the expected positive effect of the youth unemployment rate was not observed. In additional analyses we included the total unemployment rate instead, but still found no significant effect. It therefore appears that local unemployment is not a relevant push factor for initial migration decisions of young adults. With regard to differences between Eastern and Western Germany, our empirical results support

the contention of female outmigration from the East, suggesting that the surplus of men in the Eastern periphery is at least to some extent an outcome of initial migration decisions. Finally, we found that persons who still lived at their place of childhood upon moving out were more likely to relocate within the same local community. This result is in line with previous studies from the United States (e.g., Lin & Rogerson 1995) and supports developmental models of migration.

There are some limitations to this study that should be noted. First, some potentially important variables were not available in our data. For instance, we lacked information on the strength of emotional ties in parent-child relationships, which we consider one of the most appealing predictor variables of the spatial distance of move-outs. Although the SOEP collected information on the quality of parent-child relationships in the 2001 wave, valid responses were only available for a very small fraction of our sample. In terms of the model of intergenerational solidarity, these missing data precluded analyses on the relationship between the affective and the structural dimension of solidarity, investigating, for example, the early characteristics and emergence of “intimate but distant”, “tight knit”, or “detached” types of parent-child relationships (Silverstein et al. 1997). In addition, this omission did not allow any definitive conclusions with regard to gender differences in leaving a ‘lone parent’. Therefore, our hypothesis that shorter distances of daughters’ moves may reflect a more intimate relationship to the parent left behind remains speculative.

Second, we recorded a total of 1,913 move-outs but data on the outcome variable were only available for 1,425 cases that were followed up in the SOEP. The remaining cases were almost certainly not missing at random. The few instances of long-distance moves abroad, for example, were not included in the sample, indicating a slight under-estimation of moving distances. Concerning the other drop-outs, it is less clear whether children who moved across greater

distances were more or less likely to drop out of the study. Overall, our explorative approach was aimed at collecting information on a sufficient number of move-outs to conduct multivariate analyses. One drawback of this strategy is that we could not obtain a strictly representative sample at the same time.

Third, although we identified a number of significant predictors, a substantial share of the variance of moving distance remained unexplained in our models. As a result, our capacity of predicting the distances of initial move-outs is rather limited. This shortcoming calls for more refined models that include additional predictor variables. Furthermore, we consider it worthwhile to look more closely at particular relationships. For example, we only included an indicator variable for immigrants in the present study. But given that immigrants rely more strongly on local networks of relatives and friends from their country of origin, a desirable model would additionally include the proportion of their ethnic group at the district level.

From a family life course perspective, future research should build upon this study to investigate long-term implications of spatial distances in early adulthood. How does local mobility affect parent-child relations compared to long-distance moves? How predictive are the spatial distances of first move-outs for parent-child proximity in middle and later life? To answer these questions, information on initial move-outs should be combined with data on subsequent moves and later parent-child proximity as well as measures of support, affection, association, and conflict.

Along with the SOEP, other large-scale panel surveys with genealogical designs such as the Panel Study of Income Dynamics now provide geographical data in sufficient detail to investigate the distance of initial move-outs as well as their long-term outcomes over the family life course. Future research should capitalize on this potential for comparative longitudinal analyses. Until now, only one cross-sectional study by Lauterbach and Pillemer (2001) exists, suggesting that the

determinants of parent-child proximity are surprisingly similar in Germany and the United States, despite considerable institutional variation in public welfare provision.

Finally, we began by noting that little is known about the spatial distance of initial move-outs, whereas many studies have examined the timing of exits from the parental home. In view of that, it seems like a natural step for future research to incorporate both dimensions into joint decision making models of destination choice.

## References

- Aassve, Arnstein, Francesco C. Billari, Stefano Mazzucco, and Fausta Ongaro, 2002: Leaving home: a comparative analysis of ECHP data. *Journal of European Social Policy* 12: 259–275.
- Acock, A. C., 2005: Working with missing values. *Journal of Marriage and Family* 67: 1012–1028.
- Aslund, O. 2005: Now and forever? Initial and subsequent location choices of immigrants. *Regional Science and Urban Economics* 35: 141–165.
- Bengtson, Vern L., 2001: Beyond the Nuclear Family: The Increasing Importance of Multigenerational Bonds. *Journal of Marriage and Family* 63: 1–16.
- Bye, B. V. and G. F. Riley, 1989: Model estimation when observations are not independent: Application of Liang and Zeger's methodology to linear and logistic regression analysis. *Sociological Methods Research* 17: 353–375.
- Bures, Regina M., 2009: Moving the Nest: The Impact of Coresidential Children on Mobility in Later Midlife. *Journal of Family Issues* 30: 837–851.
- Cadwallader, M., 1992: *Migration and Residential Mobility: Macro and Micro Approaches*. University of Wisconsin Press, Madison, WI.
- Clark, Rebecca L. and Douglas A. Wolf, 1992: Proximity of children and elderly migration. pp. 77–97 in: Rogers, Andrei (Ed.), *Elderly migration and population redistribution. A comparative study*. London, New York: Belhaven Press; Halsted Press.
- Corijn, M. and E. Klijzing, 2001: *Transitions to Adulthood in Europe*. Dordrecht: Kluwer Academic Publishers.
- DaVanzo, J., 1981: Repeat migration, information costs, and location-specific capital. *Population and Environment* 4: 45–73.
- Elder, G. Jr., V. King, and R. Conger, 1996: Attachment to place and migration prospects: a developmental perspective. *Journal of Research on Adolescence* 6: 397–425.
- Farley, R., 1996: *The new American reality. Who we are, how we got here, where we are going*. New York: Russell Sage Foundation.
- Featherman, D. and R. Hauser, 1978: *Opportunity and Change*. New York: Academic Press.

- Fokkema, Tineke, Susan ter Bekke, and Pearl A. Dykstra, 2008: Solidarity between parents and their adult children in Europe: Nederlands Interdisciplinair Demografisch Instituut. NIDI report no. 76. The Hague: Netherlands Interdisciplinary Demographic Institute.
- Fuguitt, G., D. Brown, and C. Beale, 1989: Rural and small town America. New York: Russell Sage Foundation.
- Garasky, Steve, 2002: Where are they going? A comparison of urban and rural youths' locational choices after leaving the parental home. *Social Science Research* 31: 409–431.
- Goebel, Jan, Peter Krause, Rainer Pischner, Ingo Sieber, and Gert C. Wagner, 2008: Daten- und Datenbankstruktur der Längsschnittstudie Sozio-oekonomisches Panel (SOEP). SOEPpapers on Multidisciplinary Panel Data Research. Berlin.
- Goldscheider, Frances K. and Julie DaVanzo, 1985: Living Arrangements and the Transition to Adulthood. *Demography* 22: 545–563.
- Goldscheider, Frances K. and Julie DaVanzo, 1986: Semiautonomy and Leaving Home in Early Adulthood. *Social Forces* 65: 187–201.
- Goldscheider, Frances K. and Julie DaVanzo, 1989: Pathways to Independent Living in Early Adulthood: Marriage, Semiautonomy, and Premarital Residential Independence. *Demography* 26: 597–614.
- Goldscheider, Frances K. and Calvin Goldscheider, 1993: Whose nest? A two-generational view of leaving home during the 1980s. *Journal of Marriage and the Family* 55: 851–862.
- Greenwell, Lisa and Vern L. Bengtson, 1997: Geographic Distance and Contact Between Middle-aged Children and Their Parents: The Effects of Social Class Over 20 Years. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 52B: 13–26.
- Greenwood, M. J., 1975: Research on internal migration in the United States: A survey. *Journal of Economic Literature* 13: 397–433.
- Hank, Karsten, 2007: Proximity and Contacts Between Older Parents and Their Children: A European Comparison. *Journal of Marriage and Family* 69: 157–173.
- Hektner, Joel H., 1995: When Moving Up Implies Moving Out: Rural Adolescent Conflict in the Transition to Adulthood. *Journal of Research in Rural Education* 11: 3–14.

- Helderman, Amanda C., Maarten Ham, and Clara H. Mulder, 2005: Migration and Home Ownership. *Tijdschrift voor Economische en Sociale Geografie* 97: 111–125.
- Holmlund, Helena, Helmut Rainert, and Thomas Siedler, 2009: Meet the Parents? The Causal Effect of Family Size on the Geographic Distance between Adult Children and Older Parents: IZA. Bonn.
- Juang, Linda P., Rainer K. Silbereisen, and Margit Wiesner, 1999: Predictors of Leaving Home in Young Adults Raised in Germany: A Replication of a 1991 Study. *Journal of Marriage and the Family* 61: 505–515.
- Kaufman, Gayle and Peter Uhlenberg, 1998: Effects of Life Course Transitions on the Quality of Relationships between Adult Children and Their Parents. *Journal of Marriage and the Family* 60: 924–938.
- Konrad, Kai A., Harald Künemund, Kjell Erik Lommerud and Julio R. Robledo, 2002: Geography of the Family. *The American Economic Review* 92: 981–998.
- Kröhnert, Steffen and Reiner Klingholz, 2007: Not am Mann. Von Helden der Arbeit zur neuen Unterschicht? Lebenslagen junger Erwachsener in wirtschaftlichen Abstiegsregionen der neuen Bundesländer. Berlin Institut für Bevölkerung und Entwicklung.
- Lauterbach, Wolfgang and Karl Pillemer, 2001: Social Structure and the Family: A United States – Germany Comparison of Residential Proximity Between Parents and Adult Children. *Journal of Family Research* 13: 68–88.
- Lawton, Leora, Merril Silverstein and Vern L. Bengtson, 1994: Affection, Social Contact, and Geographic Distance between Adult Children and Their Parents. *Journal of Marriage and the Family* 56: 57–68.
- Lin, Ge and Peter A. Rogerson, 1995: Elderly Parents and the Geographic Availability of their Adult Children. *Research on Aging* 17: 303–331.
- Malmberg, Gunnar and Anna Pettersson, 2007: Distance to elderly parents: Analyses of Swedish register data. *Demographic Research* 17: 679–704.
- Michielin, Francesca and Clara H. Mulder, 2007a: Distance to parents and geographical mobility. Paper for the PAA Annual Meeting. New York.

- Michielin, Francesca and Clara H. Mulder, 2007b: Geographical distances between adult children and their parents in the Netherlands. *Demographic Research* 17: 655–678.
- Mulder, Clara H., 2007: The family context and residential choice: A challenge for new research. *Population, Space and Place* 13: 265–278.
- Mulder, Clara H. and Marieke J. van der Meer, 2009: Geographical distances and support from family members. *Journal of Comparative Family Studies* 15: 381–399.
- Mulder Clara H. and M. Wagner, 1993: Migration and marriage in the life course: a method for studying synchronized events. *European Journal of Population* 9: 55–76.
- Myers, Scott M., 2005: Childhood and Adolescent Mobility and Adult Relations With Parents. *Journal of Family Issues* 26: 350–379.
- Rusconi, Alessandra, 2004: Different Pathways out of the Parental Home: A Comparison of West Germany and Italy. *Journal of Comparative Family Studies* 35: 627–649.
- Scherger, Simone, 2007: Destandardisierung, Differenzierung, Individualisierung. *Westdeutsche Lebensläufe im Wandel*. Wiesbaden: VS.
- Shelton, Nicola and Emily Grundy, 2000: Proximity of Adult Children to their Parents in Great Britain. *International Journal of Population Geography* 6: 181–195.
- Silverstein, Merrill, 1995: Stability and Change in Temporal Distance between the Elderly and Their Children. *Demography* 32: 29–45.
- Silverstein, Merrill, Tonya M. Parrott and Vern L. Bengtson, 1995: Factors That Predispose Middle-Aged Sons and Daughters to Provide Social Support to Older Parents. *Journal of Marriage and the Family* 57: 465–475.
- Silverstein, Merrill, Vern L. Bengtson, and Leora Lawton, 1997: Intergenerational solidarity the structure of adult child-parent relationships in American families. *American Journal of Sociology* 103: 429–460.
- Sjaastad, Larry A., 1962: The Costs and Returns of Human Migration. *The Journal of Political Economy* 70: 80–93.

- Wagner, Gert G, Joachim R. Frick, and Jürgen Schupp, 2007: The German Socio-Economic Panel Study (SOEP): Scope, Evolution and Enhancements. *Schmollers Jahrbuch: Journal of Applied Social Science Studies* 127: 139–169.
- Wagner, M., 1989: Spatial determinants of social mobility. An analysis with life history data for three West German cohorts. pp. 241–264 in: van Dijk, H., H. Folmer, W. Herzog, and A. Schlottmann (Ed.): *Migration and labor market adjustment*. Dordrecht: Kluwer.
- Ward, Russell A. and Glenna D. Spitze, 2007: Nestleaving and Coresidence by Young Adult Children: The Role of Family Relations. *Research on Aging* 29: 257–277.

Table 1: *Descriptive Statistics (N = 1,425)*

Variables	M	SD	Range
Distance	68,345.17	121,412.20	1 – 686,875
Age	22.08	3.02	16 – 30
Female	.55		0 – 1
Education <sup>a</sup>			
Low	.21		0 – 1
Intermediate	.33		0 – 1
High	.46		0 – 1
In a relationship (1 = yes)	.55		0 – 1
Migrant <sup>b</sup>	.20		0 – 1
Father's education <sup>c</sup>			
Low	.35		0 – 1
Intermediate	.34		0 – 1
High	.32		0 – 1
Per-capita household income <sup>d</sup> (in Euros)	890.01	482.63	100 – 5,000
Living with one parent (1 = yes)	.22		0 – 1
Number of siblings	1.44	1.21	0 – 11
Firstborn <sup>e</sup> (1 = yes)	.59		0 – 1
Own child <sup>f</sup> (1 = yes)	.04		0 – 1
Pregnant (1 = yes)	.03		0 – 1
Moved from place of childhood (1 = yes)	.15		0 – 1
East Germany	.28		0 – 1
District			
Nucleated town	.25		0 – 1
Urban hinterland	.43		0 – 1
Rural hinterland	.16		0 – 1
Rural area	.16		0 – 1
Local youth unemployment rate (%)	10.76	4.88	2.2 – 26.8

*Note:* Means and standard deviations of valid responses. <sup>a,c</sup> low = basic secondary school; intermediate = intermediate secondary school; high = high secondary school. <sup>b</sup> First- and second-generation immigrants. <sup>d</sup> The Euro is the official currency in Germany since 2002; values in Deutsche Mark (DM) from the years 2000 and 2001 were converted into Euros (1 DM = 0.5113 Euros). <sup>e</sup> Includes only children. <sup>f</sup> Own child living in the parental household.

Table 2: *Distribution of Moving Distance<sup>a</sup> by Level of Education*

Percentiles	Total <i>N</i> = 1,425	Level of Education <sup>b</sup>		
		Low <i>n</i> = 237	Intermediate <i>n</i> = 387	High <i>n</i> = 532
5%	266	151	166	506
10%	554	384	388	1,209
25%	1,838	1,207	1,384	4,709
50%	9,453	4,435	6,101	28,326
75%	74,025	18,778	28,764	133,109
90%	250,452	98,692	164,882	294,058
95%	372,653	278,501	283,919	400,180

*Note:* <sup>a</sup> Distance of first move-out from the parental household (in meters). <sup>b</sup> low = basic secondary school; intermediate = intermediate secondary school; high = high secondary school.

Table 3: *Ordinary Least Squares Regressions of Logarithmic Moving Distance (N = 1,425)*

Variables	Model 1		Model 2	
	B	SE B	B	SE B
<b>Individual Factors</b>				
Age	-.07**	.02	-.08**	.02
Female	.23 <sup>†</sup>	.12	.12	.15
Education <sup>a</sup> (ref.: low)				
Intermediate	.11	.19	.09	.19
High	1.29***	.19	.67*	.30
In a relationship (ref.: no)	-.20	.12	-.19	.12
Migrant <sup>b</sup>	.07	.18	.05	.18
<b>Family and Household Factors</b>				
Father's education <sup>c</sup> (ref.: low)				
Intermediate	-.11	.18	-.10	.18
High	.54**	.18	.55**	.18
Per-capita household income (log)	.35*	.14	.34*	.14
Living with one parent (ref.: both)	-.06	.18	.27	.22
Living with one parent x Female			-.65*	.28
Number of siblings +1 (log)	.05	.15	.06	.15
Firstborn <sup>d</sup> (ref.: no)	-.13	.13	-.13	.13
Own child <sup>e</sup> (ref.: no)	-.77*	.33	-.83**	.33
Pregnant (ref.: no)	-.41	.32	-.36	.33
<b>Community Factors</b>				
East Germany (ref.: West)	.68**	.21	.16	.26
East Germany x Female			.95**	.28
Local youth unemployment rate	-.03	.02	-.03	.02
Moved from place of childhood (ref.: no)	.66***	.15	.68***	.15
District (ref.: nucleated town)				
Urban hinterland	.20	.17	-.07	.21
Rural hinterland	.21	.23	-.25	.29
Rural area	.67**	.22	.30	.26
Urban hinterland x Education high			.63*	.30
Rural hinterland x Education high			1.01*	.43
Rural area x Education high			1.09**	.40
Constant	7.77***	1.12	8.24***	1.14
$R^2$	.15		.16	
Adj. $R^2$	.13		.14	
$F$ for change in $R^2$	11.77***		10.97***	

Note: <sup>a,c</sup> low = basic secondary school; intermediate = intermediate secondary school; high = high secondary school. <sup>b</sup> First- and second-generation immigrants. <sup>d</sup> Includes only children. <sup>e</sup> Own child living in the parental household. Number of clusters: 1,131.

<sup>†</sup>  $p < 0.1$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .