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Master thesis

Differences in parental proximity of children of immigrants and natives in Germany

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ABSTRACT

Family geography is the result of migration decisions. Intergenerational proximity enables frequent face-to-face contact and support exchange and thus, has been suggested to indicate family solidarity. Research has identified the migration status to be an important determinant of intergenerational proximity, whereby consensus has not been reached. Even though one third of the people with migration background in Germany are children of immigrants, hardly any research has yet focused on the parental distances of children of immigrants compared to natives. Feelings of higher family solidarity and support exchange have been found among immigrant families, suggesting children of immigrants to rather live in parental proximity than natives. Following the theoretical assumption, this master thesis addresses the research gap by a two-fold approach. By using data of the *German Socio-Economic Panel*, firstly, differences in parental proximity will be examined, and subsequently associated factors with distance of adult children to their parents identified. Results suggest that children of immigrants are indeed more likely to live close to their parents (< 40 km) than natives. However, migration status is not significantly associated with parental distance among those living far away. It can be concluded that migration status is particularly salient when determining parental proximity, whereby future research should differentiate between migrant generations.

Keywords: Geographic proximity, family ties, internal migration, migration status, children of immigrants

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LIST OF ABBREVIATIONS

LPM	Linear probability model
Max	Maximum
Min	Minimum
N	Number of observations
n	Number of individuals
pp	Percentage points
ref.	Reference category
SD	Standard Deviation
SOEP	German Socio-Economic Panel

1 INTRODUCTION

Family geography is the result of migration decisions, either from the parents or their children. Since internal migration is mostly undertaken by the younger generation, particularly adult children determine intergenerational distances (Mulder & Kalmijn, 2006). At the same time, parental proximity is a prerequisite of intergenerational face-to-face interaction as well as instrumental support exchange, with distance serving as the strongest predictor of family support exchange (Hank, 2007; Hank & Buber, 2009; Hünteler & Mulder, 2020; Knijn & Liefbroer, 2006; Mulder & Kalmijn, 2006; Mulder & van der Meer, 2009; Van der Pers & Mulder, 2013). Hence, spatial distances to parents are often associated with the extent and intensity of previous as well as present family solidarity, whereby it indicates future opportunities to maintain contact and support (Bengtson, 2001; Michielin & Mulder, 2007). That is why parental distance has been described as "key to understanding intergenerational relationships" (Chan & Ermisch, 2015, p. 355). In previous research, most people were found to live in intergenerational proximity (Choi et al., 2020; Malmberg & Pettersson, 2007; Mulder & Kalmijn, 2006), especially after an initial move out (Leopold et al., 2012).

Migration has been generally argued to be undertaken if the expected subjective benefits of movements exceed their costs (DaVanzo, 1981). Thereby, not only economic factors were found to determine internal migration (Van Der Gaag & Van Wissen, 2008), but also social factors. Social capital and particularly, the parental proximity was found to significantly decrease the likelihood of migrating (Clark et al., 2017; Ermisch & Mulder, 2019; Kan, 2007; Michielin et al., 2008; Mulder & Wagner, 2012; Mulder & Malmberg, 2014). Furthermore, internal migration patterns were found to be different between foreigners and natives, whereby consensus has yet not been reached. Whereas foreign-born people were found to be less likely to move away from their parents than natives and more likely to move towards them (Michielin et al., 2008), suggesting closer intergenerational distances among foreign-born people compared to native-born, in contrast, scholars have also identified foreign-born people to be more likely to live farther away from their parents than native-born (Chan & Ermisch, 2015; Ermisch & Mulder, 2019). Other scholars, on the other hand, have found no significant differences between foreigners and natives (Leopold et al., 2012; Mulder & Kalmijn, 2006). Previous research predominantly focused on the parental distance of natives while only controlling for migration status. However, barely any research has yet included a generational approach by focusing on the geographical distances of the *children* of immigrants in comparison to those of natives.

In 2019, Germany was home to 21.2 million people with migration background[1], who constitute over one quarter of the whole German population (Destatis Statistisches Bundesamt, 2020). Most of the people with a migration background in 2019 came from Turkey (13.3 %), followed by Poland (10.5 %), Russia (6.5 %), Romania and Italy (4.8 % and 4.1 % respectively) (Bundeszentrale für politische Bildung, 2020). Due to Germany's migration history (Van Mol & de Valk, 2016), the proportion of those with a migration background has increased over the past decades as immigrants settled down permanently, reunified with their families and got

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[1] Having a migration background account for all people who have at least one parent who was born without the German nationality (Destatis Statistisches Bundesamt, 2020). If not stated otherwise, this definition is used throughout the thesis.

further children. However, even though one third of people with migration background are (grand-) children of immigrants (Bundeszentrale für politische Bildung, 2020), research has yet paid only little attention to their spatial dispersion while considering parental distance. However, since intergenerational distance is the strongest predictor of support exchange (Hünteler & Mulder, 2020), this thesis tries to establish *whether there are differences in parental proximity between children of immigrants and natives in Germany*. The overarching research question will be answered by focusing on two different sub-questions. First, to account for the fact that most people are living in parental proximity, this master thesis examines whether there are differences between children of immigrants and natives in the likelihood of living close to the parents. Second, focusing on those who are living in far distance to their parents, the question is answered whether there are differences in parental distance between children of immigrants and natives. Using this two-fold approach enables to answer the overarching research question wholesomely.

Against this backdrop, this master thesis contributes to existing literature in two important ways. Firstly, it offers a first approach for detailed information about the intergenerational proximity of *children* of immigrants and their parents in Germany. Previous research has yet not addressed potential differences in intergenerational proximity to natives. Secondly, this thesis is using a two-fold approach to answer the overarching research question. Prior research has predominantly focused on the likelihood to migrate (Ermisch & Mulder, 2019; Hünteler & Mulder, 2020; Mulder & Malmberg, 2014) whereas the actual distance to the parents after the move has been simplified in a binary or categorical logic, such as moving longer than a certain distance or within a certain travel time (Chan & Ermisch, 2015; Choi et al., 2020; Malmberg & Pettersson, 2007; Van der Pers & Mulder, 2013; van der Pers et al., 2015). In contrast, this thesis will use the binary logic to determine who is more likely to live in parental proximity, whereby intergenerational spatial distance is examined as a continuous variable among those living in far intergenerational distance. Combining the two approaches and acknowledging distances of adult children to their parents is crucial to get a bigger picture of the dispersion of adult children. Moving away from parents has severe consequences not only for the own, but also for the parents' support and contact (Ermisch & Mulder, 2019), which highlights the importance of studying spatial distance while considering the location of the parents.

In the following, the importance of intergenerational proximity will be highlighted from the perspective of adult children. Potential differences by migration background will be hypothesised and statistically tested while including further factors determining migration and thus, spatial distance. Intergenerational distance is measured as the geographical distance between the respective counties within Germany of adult children and their mothers. After describing the data, measurements and methods used, the findings will be presented. Finally, conducted analyses are critically discussed and an outlook for future research is given.

2 THEORETICAL FRAMEWORK AND LITERATURE

In this thesis, migration literature and the literature on family support are used to develop arguments for the theoretical background and to derive hypotheses. The first is highlighting the importance of parents for migration decisions and provides information about general triggers of moving from which distance to parents is established. The latter provides theoretical

insight in potential differences between the parental distance of children of immigrants in comparison to those of natives.

2.1 PARENTAL PROXIMITY

It is safe to state that during childhood and adolescence, people mostly live with their parents. Hence, the distance to parents is a result of at least one relocation in which the parental home is left (Liefbroer & Mulder, 2006). As a result, Liefbroer & Mulder (2006) postulate that explanations for parental distances should be explained by factors determining migration. That is why the importance of family as main provider of social capital, particularly for migrants, reasons for relocations and the effects on parental distance will be described in the following.

In general, migration is undertaken if the expected subjective benefits of movements exceed their costs (DaVanzo, 1981). Thereby, costs can be of financial as well as social nature. Even though locally bound social ties have long been recognised (McGinnis, 1968), migration research has only started to emphasise the importance of local social ties in internal migration decisions more recently. These ties have been termed as 'local social capital' (Kan, 2007) or 'location-specific capital' (DaVanzo, 1981) and refer to household resources that are provided by the local social networks and ties, such as local friends (Ermisch & Belot, 2009), contact with neighbours and family (David et al., 2010) as well as social ties which can be approached in case of an emergency (Kan, 2007). Accordingly, these local networks have been found to significantly deter moves and thereby, particularly long-distance moves (David et al., 2010; Ermisch & Belot, 2009; Ermisch & Mulder, 2019; Kan, 2007; Mulder & Malmberg, 2014). That is because, the local social capital is endangered by internal migration in comparison to residential mobility, which describes relocations over shorter distances (Mulder & Kalmijn, 2006).

Particularly, ties to family and especially parents are a major source of social capital (Bengtson, 2001; Ermisch & Mulder, 2019). That is because primarily parents provide intergenerational support to their adult children, such as instrumental and emotional support as well as childcare (Hünteler & Mulder, 2020). Receiving and providing intergenerational support mostly requires face-to-face contact and thus, spatial proximity (Clark et al., 2017; Hank & Buber, 2009; Hünteler & Mulder, 2020). Hence, especially local ties to parents deter individuals to move far away from their parents. Indeed, a close parental proximity was found to be an important inhibitor of migration (Ermisch & Mulder, 2019; Michielin et al., 2008; Mulder & Wagner, 2012; Mulder & Malmberg, 2014). In Britain and Sweden, research has found that individuals and couples were significantly less likely to move long distances (40 or 50 km) when living within a travel time of one hour (Ermisch & Mulder, 2019), or respectively 2 km to their parents (Mulder & Malmberg, 2014). The residential location of the parents of adult children becomes particularly salient for the children's moving behaviour in cases of higher needs for support and contact, such as divorce (Michielin et al., 2008) and widowhood (de Jong Gierveld & Dykstra, 2002). In case of co-residing couple separation, Mulder & Wagner (2012) found the partner with at least one parent living within the same municipality to be less likely to move than the other partner. Indeed, intergenerational support seems to be an explanation for the negative association between the proximity to parents and the likelihood to move. In the German context, Hünteler & Mulder (2020) identified people receiving instrumental support from their parents to be less likely to move, whereas emotional support of the parents,

which does not require spatial proximity, was associated with an increased likelihood to migrate, and thus, also living farther away.

Thereby, research has mainly focused on the likelihood to migrate from which increasing intergenerational distances have mainly been assumed. Only a few scholars have examined the actual intergenerational distances, whereby they found the majority of their study population to live in intergenerational proximity (Choi et al., 2020; Malmberg & Pettersson, 2007; Mulder & Kalmijn, 2006), especially after an initial move out (Leopold et al., 2012). Furthermore, Michielin et al. (2008) have found the intergenerational proximity to be smaller in cases of adult children's increased need for contact or support, such as divorce. In contrast, the support needs of parents were described to have a smaller influence on intergenerational proximity. Indeed, Michielin & Mulder (2007) found life course-characteristics of adult children to be stronger predictors for intergenerational proximity than parental characteristics. In contrast, most of the studies found intergenerational spatial distances to substantially differ among sociodemographic groups, with disadvantaged people being more likely to live in parental proximity (Chan & Ermisch, 2015; Choi et al., 2020; Leopold et al., 2012; Michielin & Mulder, 2007; Michielin et al., 2008; Mulder & Kalmijn, 2006).

2.2 FAMILY GEOGRAPHY OF IMMIGRANTS AND THEIR CHILDREN

Internal migration patterns were found to differ between natives and international immigrants, with the latter being more mobile than natives (Bunea, 2012; Recaño & Roig, 2006; Silvestre & Reher, 2014). That is because internal migration choices are strongly connected to the initial reasons of international migration (Rimoldi et al., 2020). Various theories attribute internal migration to be the consequence of diverse reasons. Internal migration may occur as a consequence of the assimilation process (Massey, 1985; Portes & Zhou, 1993; Silvestre & Reher, 2014), might be related to human capital investments (Korpi & Clark, 2015; Sjaastad, 1962), as the consequence of discrimination (Aguirre et al., 1989; Reyneri & Fullin, 2011; Silvestre & Reher, 2014) and ethnic disadvantage or lastly, internal migration may be a way to adjust one's location after a non-optimal first location (Clark & Withers, 2007; DaVanzo, 1983; Nogle, 1994). Furthermore, social ties were found to be more important for immigrants than natives in the decision to migrate, rather than economic reasons (Recaño & Roig, 2006). Silvestre & Reher (2014) identified the sharing of social capital among social network to be an important determinant for the migration of foreigners, whereby family ties were more influential than friends or acquaintances. Considering the importance of family ties, Michielin et al. (2008) found foreign-born people to be less likely to move away from their parents than natives and more likely to move towards them, suggesting closer intergenerational distances among foreign-born people in comparison to native-born. In contrast, Ermisch & Mulder (2019) identified foreign-born people to be more likely to live farther away from their parents than natives. Supporting the latter, also Chan & Ermisch (2015) found large (ethnic) differences in intergenerational proximity between foreign-born and UK-born, with the first showing greater parental distances. Focusing on the average distance to the children of foreign-born, scholars have not found significant differences between foreign- and non-foreign born in the Netherlands (Mulder & Kalmijn, 2006) or in Germany respectively (Leopold et al., 2012). However, it must be emphasised that previous research has mostly focused on the parental distance of natives while only controlling migration status in terms of country of birth. Thereby, consensus has

not been reached. However, barely any research has yet focused on the spatial distances of the *children* of immigrants in comparison to those of natives.

Until now, the observed differences in spatial mobility and resulting parental distances among migrants have been attributed to differences in family solidarity among immigrant and native families (Mulder & Kalmijn, 2006). It is assumed that migration over national borders is strengthening the child-parent ties, since families are an important source of support and orientation (Bryceson & Vuorela, 2020; Pyke, 2004). Indeed, Bordone & de Valk (2016, p. 267) found higher intergenerational support exchange among migrant families than natives, "suggesting strong intergenerational bonds and/or needs in migrant families". Theories as well as empirical findings suggest migrants to possess substantially different feelings of family ob-ligation (Phalet & Schönpflug, 2001a; Phalet & Schönpflug, 2001b) higher family solidarity (Merz et al., 2009; Rosenthal, 1986) and family attachment (Steinbach, 2013) than those of Germans. Despite ethnic differences (Hank, 2007), with family solidarity being particularly pronounced among families with non-Western migration background (Mulder & Kalmijn, 2006; Phalet & Schönpflug, 2001a; Phalet & Schönpflug, 2001b), immigration is likely to strengthen the intergenerational relationships within *all* immigrant families as it is a stressful process (Bryceson & Vuorela, 2020; Pyke, 2004). Following the Socialisation Theory (Youniss & Smollar, 1987), children of immigrants will adapt greater feelings of family obligations, solidarity and attachment which may subsequently, make them more reluctant to move far away from their parents. Consequently, children of immigrants are assumed to live closer to their parents than their native counterparts.

2.3 FACTORS DETERMINING DISTANCE TO PARENTS

According to Mulder & Kalmijn (2006, p. 44), explanations for parental distances should "be sought in factors hampering or enhancing residential relocations that lead to a change in distance". Since migration is mostly undertaken by the younger generation, adult children's characteristics are expected to have a greater impact on the intergenerational distance than those of the parents (Michielin & Mulder, 2007; Mulder & Kalmijn, 2006). That is why in this work, the focus is mostly on the reasons for children's migration. In this context, Mulder & Kalmijn (2006) have found individual as well as household characteristics being associated with a higher likelihood of migrating to also have substantial influence on intergenerational distances.

2.3.1 Individual characteristics determining distance to parents

Most of the children and their parents coreside in the early stages of the family life cycle, whereby distance to the parents is gained in later life as a consequence of migration, "reflecting changing needs and resources of both generations over time" (Hank, 2007, p. 159). The vast majority of adult children typically leave the parental home between the end of their adolescent years and the end of their twenties (Corijn & Klijzing, 2013; Mulder, 2009), with great ethnic differences among particularly Mediterranean individuals (Hank, 2007). Adult children may continue to rely on their parents for instrumental, emotional, and financial support after moving out of the parental home, reinforcing the notion that initial move-outs should rarely span bigger distances (Leopold et al., 2012). As people get older, they are more likely to have relocated before, which in turn increases the likelihood of an increased distance between

adult children and their parents (Chan & Ermisch, 2015). Indeed, Chan & Ermisch (2015) have found higher parental distances by increasing age of the adult children, aged 31-54 years. On the other hand, higher ages might also be associated a higher likelihood of living closer to the parents. This might be driven by higher rates of return migration among older individuals (Gillespie & Mulder, 2020). Additionally, moves in younger age could also result in farther intergenerational distances as their moves are mainly driven by occupational and educational opportunities (Thomas, 2019). In contrast to the first view, this might altogether suggest older adult children to be more likely to live in parental proximity than younger adult children.

Furthermore, prior literature has not found consensus on gender differences in migration and the resulting parental distance. On the one hand, daughters are investing more in family relationships in terms of providing support, than sons and thus, may value parental proximity more to enable face-to-face contact (Bordone & de Valk, 2016; Leopold et al., 2012; Rossi & Rossi, 1990). On the other hand, women were found to be more likely to move farther for reasons of marriage (Mulder & Wagner, 1993). These ambiguities are also reflected by previous research. Whereas Chan & Ermisch (2015) found daughters to be more likely to live in proximity to their parents, further scholars found the opposite, namely daughters living farther away from their parents than sons (Malmberg & Pettersson, 2007; Michielin et al., 2008; Mulder & Kalmijn, 2006). Furthermore, other scholars have found no evidence for gender differences in parent-child proximity (Fokkema et al., 2008; Leopold et al., 2012).

Prior studies have found people with lower education to be more likely to live closer to their parents than people with higher education (Chan & Ermisch, 2015; Choi et al., 2020; Leopold et al., 2012; Mulder & Kalmijn, 2006). That is because education is a key mobility factor (Hank, 2007). Thereby, people with higher education are more likely to have migrated for educational purposes (Leopold et al., 2012). Additionally, in line with the human capital model, better educated people are more likely to face a greater range of earning opportunities, causing them to be more selective in the occupations they accept and making them search over a wider geographic area (Börsch-Supan, 1990; Ermisch & Mulder, 2019). Numerous studies have shown the positive association between intergenerational distance and educational attainment (Börsch-Supan, 1990; Leopold et al., 2012; Malmberg & Pettersson, 2007).

Similar to the educational effect on parental proximity, also the employment status is a key mobility factor (Hank, 2007). Thereby, the importance of employment-led migration factors was found to increase with distance (Thomas, 2019). Higher wages, job transfers and labour market prospects are assumed to motivate particularly long-distance migration. (Böheim & Taylor, 2002; Clark & Withers, 2007). In contrast, unemployed people might be particularly (economically) vulnerable and thus, in higher need for support from their parents. Indeed, Thomas & Dommermuth (2020) found adult children who received social security, such as while being unemployed, to be more likely to move towards the parents, than those being employed, suggesting unemployed people to be more likely to live in parental proximity than employed people.

Furthermore, marital status has also been found to influence relocations and thus, intergenerational distances. According to the "commitment hypothesis" (Mulder & Wagner, 1993), married people have a lower propensity to migrate than single individuals, as moving would disrupt (at least) two individuals' local ties. For example, Wagner (1989) found 80 % of all marriage-related moves did not exceed a distance of 20 km. On the other hand, long-distance

moves are linked to greater sacrifices and, as a result, are more likely to be linked to the event of union formation, which represents a substantial change in life (Guzzo, 2006). This view is empirically supported by a positive association between marriage or cohabitation and moving longer distances, rather than local moves (Guzzo, 2006; Michielin et al., 2008). Furthermore, the residential location of the parents of adult children becomes particularly salient for the children's moving behaviour in cases of higher needs for contact and support, such as divorce (Michielin et al., 2008), couple separation (Mulder & Malmberg, 2011; Mulder & Wagner, 2012) and widowhood (de Jong Gierveld & Dykstra, 2002).

2.3.2 Household characteristics determining parental proximity

Despite individual characteristics, also family and household characteristics were found to determine or enhance parental proximity.

The presence of at least one own child is argued to decrease intergenerational proximity due to higher support need of the adult children. Regular grandparental childcare is a sort of location-specific support that necessitates close intergenerational proximity. Surprisingly, Hünteler & Mulder (2020) have found no significant association between grandparental child-care and the likelihood of migrating, which has been attributed to higher support need when the children are of preschool ages. Also, adult children who require help with childcare from their parents might have also already moved closer to their parents, acknowledging reversed causality. Accordingly, scholars have found closer intergenerational distances when the adult children have children on their own compared to childless individuals (Malmberg & Pettersson, 2007).

Additionally, social ties were found to be particularly important people with lower income (Dawkins, 2006). Thereby, the benefit of being close to family members and especially parents may be greater for lower income households than the benefits of migration with an increasing intergenerational distance. That is why more economic resources are assumed to be associated with higher intergenerational distances.

Furthermore, the degree of urbanisation was found to be another explanatory factor of intergenerational spatial distance. Urban areas are more densely populated which would intuitively suggest people living in urban areas to live closer to their parents than people in less urban areas. Indeed, Van der Pers & Mulder (2013) have found individuals living in urban areas to live in closer intergenerational proximity than those in more rural areas, whereby this only held among parents. In contrast, adult children were found to be more likely to live in parental proximity when living in less urbanised areas (Van der Pers & Mulder, 2013). Also, Mulder & Kalmijn (2006) found adult children in less urbanised areas to live closer to their parents than those in urban areas. This has been attributed to the assumption that the degree of urbanisation is reflecting occupational and educational opportunities, which are higher in urban than rural areas. Whereas individuals living in metropolitan areas are likely to have relocated to these areas, quite likely while they were young, people living in rural areas are likely to have grown up there (Mulder & Kalmijn, 2006). Accordingly, people in urban areas are expected to live farther away from their parents than individuals in rural areas.

2.4 HYPOTHESES

Following the argumentation above, Table 1 provides an overview over the nine hypotheses which can be derived.

Table 1 Hypotheses about the likelihood of living in parental proximity

Individual characteristics (see section 2.3.1)

H1	*Children of immigrants are more likely to live in parental proximity than children of natives.*
H2	*Older adult children are more likely to live in parental proximity than younger adult children.*
H3	*Daughters are not more or less likely to live in parental proximity than sons. No significant association of gender and the likelihood of living close is expected.[2]*
H4	*Higher educated people are less likely to live in parental proximity than lower educated people.*
H5	*Unemployed individuals are more likely to live in parental proximity than employed people.*
H6	*Widowed and divorced individuals are more likely to live in parental proximity compared to singles, partnered people are less likely to live in parental proximity than singles.*

Household characteristics (see section 2.3.2)

H7	*Adult children with at least one dependent child in the household are more likely to live in parental proximity, than those without dependent children.*
H8	*Higher household income is associated with a lower likelihood of living close to parents.*
H9	*Adult children in rural areas are more likely to live in parental proximity than those in urban areas.*

3 DATA, MEASURES AND METHODS

3.1 DATA

In order to examine the association between migration status and intergenerational distance, the Germany Socio-Economic Panel Study (SOEP) is used. It is an annually conducted, representative person and household study with information on the parents as well as their (adult) children (Wagner et al., 2007). In 1984, the SOEP interviewed over 12,000 individuals in approximately 6,000 households in West Germany. Several new subsamples were added in the following years to account for panel attrition and notably, a sample of East Germany in the year of reunification in 1990. In 2019, the wave accordingly consisted of more than 30,000 individuals from 14,000 households (Bahr et al., 2020). Observations before the survey year 1994 were excluded from the sample since the fall of the German wall in 1989 and the resulting

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[2] Strictly speaking, H3 is no hypothesis as no association is expected. However, since no consensus of the influence of gender has been found, also here, gender is included in the models. Thus, phrasing a hypothesis over the effect facilitates further interpretation and discussion.

migration flows are assumed to bias the distances of migration and consequently, intergenerational proximities. Additionally, the SOEP provides information on county level for each household since 1985 (Knies & Spiess, 2007), enabling to not only include regional level information, such as the degree of urbanisation, but also to calculate geographical distances between the respective counties in Germany of parents and their non-residing adult children.

However, intergenerational distances are not provided by the SOEP[3], which is why the distances from the centroids of each county to another in Germany was calculated by the GeoDienst of the University of Groningen and further merged with the SOEP data. To account for temporal changes in county codes, the recoded county codes have been used to enable the matching of the data over multiple waves. Since geo-referenced data at county level are extremely sensitive and thus, under data protection law, merging processes, calculations and analyses were carried out through the SOEP remote access.

Four steps were taken to define the study population. Firstly, a gross sample including all observations of individuals with geographical information on their parents in Germany in at least one of the waves conducted between 1994 and 2019 was selected (n=180,441). Secondly, children residing with their parents were excluded to maintain the focus on the distance of non-resident children to their parents only (n=46,183). Thirdly, due to small sample sizes, age boundaries were defined, restricting the sample to 20 years to 40 years old adult children (n=39,668). Fourthly, the distance between adult children and their mothers has been used as dependent variable, which is why only those with a living mother were included. Fifthly, observations with missing values on one of the respective variables were not taken into account. After these steps, the study population consists of 35,526 observations of 5,432 adult children, which constitute the basis for the following analyses to the first research question. As the second research question examines the spatial distances between adult children and their parents only among those living in far parental proximity, those living close (< 40 km) are not considered for the analyses of the second research question. As a result, the study population of the second research question consists of 9,078 observations of 1,750 individuals.

3.2 MEASURES

In order to ensure the transparency and comprehensibility of the analyses, the operationalisation of the dependent and independent variables will be presented in the following. The distance from the adult children to their mothers is basis for the dependent variables, whereby the distinction between children of immigrants and natives is the main independent variable.

3.2.1 Dependent variables: intergenerational proximity and distance

The distance in kilometres between adult children and their mothers constitutes the basis of the dependent variables. The distances were calculated from each centroid of the counties to every other centroid of a county in Germany and provided by the GeoDienst. Since Germany has 401 counties and county-free cities, 160,801 distances were calculated which were further

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[3] The SOEP only provides a data file on distances after moving. However, focusing on parent-child distances, this can only be used for initial move-outs, e.g., by Leopold et al. (2012). Since the focus of this study is the intergenerational distance between *non-residential* adult children and their parents, this data file could not be used.

matched through the regional information of the adult child as well as their parents. Calculations have been made for mothers as well as fathers. However, since mothers not only tend to have stronger ties to their family members but also to be familial kin-keepers in families (Rossi & Rossi, 1990), mother-child distances can be assumed to be more meaningful than father-child distances. Indeed, Michielin et al. (2008) found the results to be nearly identical when using motherly distance instead the one to the closest parent. That is why the main analyses will be conducted using distances from adult children to their mothers. However, the same analyses are conducted using father-child distances as dependent variable, which suggests the results to be robust regardless of the distance to mothers or fathers (see 4.3 Sensitivity analyses). This results in distances varying from zero kilometres to a maximum of 711 km intergenerational distance from adult children to their mothers, whereby the latter is quite close to the theoretical maximum of 824 km in Germany. Thereby, a distance of zero means that both generations live in the same county.

Following Ermisch & Mulder (2019), living close or far to parents is constructed by distinguishing between adult children living up to 40 km away from their parents and those living in at least 40 km parental distance or farther. Here, the interest lies in the first, namely the **probability of living in parental proximity**. The resulting binary variable constitutes the dependent variable of the first research question, which wants to examine whether there are differences in the likelihood of living in parental proximity between children of immigrants and natives.

To answer the second research question, which seeks to examine, whether there are differences in **parental distance** between children of immigrants and natives among those living farther away from their parents, the dependent variable only includes those living at least 40 km away from their parents. Furthermore, the distance in kilometres is used to account for spatial distance. However, distance in kilometres has been argued to not be the most suitable specification of the dependent variable (Mulder & Kalmijn, 2006). There might be a difference in factors influencing a one-kilometre distance between close and far intergenerational proximity (e.g., between zero and one kilometre vs. between 200 and 201 kilometres). Since the second research question focuses on those already living in far parental proximity, the criticism does not apply in this case. Indeed, the distribution of distances among those living farther than 40 km from their parents, is only moderately skewed (skewness=0.9). Also, when using the logarithmic distance as dependent variable, the results remain robust (see 4.3 Sensitivity analyses). Furthermore, to allow for a meaningful interpretation, the 40 km threshold is set to zero.

3.2.2 Key independent variable: migration status

The main independent variable is migration status in terms of whether individuals are children of immigrants, natives or immigrants themselves. Contrary to previous studies, which either accounted for immigrants and their children as one category (Leopold et al., 2012) or solely focused on immigrants without accounting for their children (Chan & Ermisch, 2015; Michielin et al., 2008; Mulder & Kalmijn, 2006; Mulder & van der Meer, 2009), here, the focus is on the generational differentiation. Thus, the variable migration status comprises three categories: children of natives, children of immigrants and immigrants. Whereas children of natives are defined by themselves, and their parents being born in Germany, children of immigrants are also born in Germany, whereas their parents were born in another country. Additionally,

immigrants are people with own migration experiences and thus, were born in another country than Germany. They are included as separate category to specifically account for generational differences between immigrants and their children.

3.2.3 Independent variables

Furthermore, the central relationship between having immigrant parents and intergenerational distance will be examined while accounting for age, gender, education, employment, marital status, having dependent children, household income and the degree of urbanisation.

The age of the adult child has been calculated by subtracting the year of interview from the year of birth. To facilitate a better interpretation, the age of 20 has been set to zero.

The respondents' education was measured in four categories. Respondents with primary educational level (reference category) are differentiated from those who obtained secondary or tertiary educational level or who are still in education.

To account for the employment status of respondents, it was distinguished between individuals still being employed (reference category), unemployed (and not in education), in education or differently employed, such as work for handicapped people, voluntary (military) service or doing an internship. Differently employed people are summarised in the category 'other'.

Furthermore, the martial status was found to influence relocations and thus, intergenerational distances. Thereby, single people are constituting the reference category. Furthermore, it is distinguished between residing and non-residing (married) partners as moving would disrupt (at least) two individuals' local ties and hence, deters the likelihood of migration and intergenerational distance (Mulder & Wagner, 1993). Additionally, it was accounted for divorced or widowed individuals as they are expected to have a higher need for support and thus live closer to their parents (de Jong Gierveld & Dykstra, 2002; Michielin et al., 2008).

Furthermore, also household characteristics were found to determine distances between adult children and their parents. Following Ermisch & Mulder (2019), having dependent children was measured as a dummy variable that accounts for whether people have any children under the age of 16 living in their household.

Also, economic resources are included in the analyses on a household level as higher economic resources are associated with higher mobility (Dawkins, 2006) and thus, assumed to widen the intergenerational distance. Thereby, monthly household income is included in the analysis as metric variable which ranges from zero to 18,000 € with a mean value of 1,963.32 €[4]. Since the distribution of the variable is highly skewed to the right (mean=1,963 €, median=1,600 €, skewness=1.8), its logarithmic calculus was estimated which accordingly was distributed approximately normal (mean=7.35, median=7.37, skewness=-0.6).

Additionally, the degree of urbanisation was found to be another explanatory factor of intergenerational distance, as adult children in less urbanised areas were found to live closer to their parents than those in urban areas (Mulder & Kalmijn, 2006; Van der Pers & Mulder, 2013). Following Leopold et al. (2012), the degree of urbanisation is measured by four indicator variables in accordance with the definitions of the German Federal Institute for Research on Building, Urban Affairs and Spatial Development (Bundesamt für Bauwesen und

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[4] Since 2002, Germany has used the Euro as its official currency. As a result, all values in Deutsche Mark (DM) prior to 2002 were translated to Euros (1 DM = 0.5113 Euros).

Raumordnung, 2021). Cities with a population of more than 100,000 people are referred to as nucleated towns (reference category). Outside of nucleated towns, a district's urbanisation is determined by its residential area and population density. Urban areas are defined as urban districts with a population density of more than 150 persons per square kilometre (urban hinterland) or less than 150 people per square kilometre (rural hinterland). Accordingly, rural areas are defined as places with a population density of less than 100 people per square kilometre.

3.3 METHODS

In the following, the research questions will be answered by analysing the data with a combination of methods. Close to 75 % of the study population live in the same county as their parents or within their daily activity space (< 40 km), through which familial relations and support exchange can be maintained (Ermisch & Mulder, 2019). Simply ignoring this skewedness in the dependent variable would not only lead to biased outcomes but also simplify the results. To account for the skewed distribution of the dependent variable, this master thesis will firstly examine whether there are differences in the likelihood of living close to the parents between children of immigrants and natives. Secondly, it will focus on those living farther away, and analyse whether there are differences in parental distance between children of immigrants and natives.

Following the spatial threshold used by Ermisch & Mulder (2019), the first question will inform about the likelihood of living in parental proximity (< 40 km), compared to living farther away from the parents (≥ 40 km). Accordingly, the dependent variable is dichotomous, which is why the first question will be answered by using a linear probability model (LPM). Contrary to a logit model, in which a logistic relation between the dependent and independent variable is assumed, the LPM assumes a linear association. That is why the LPM might predict probabilities outside the logical range, which can be criticised. On the other hand, a logistic model requires assumptions about the functional form as well, which limit its functionality. It assumes a linear relation between the independent variables and the log odds, which may not match the underlying functional relationship in the data. Since the assumptions of the logistic model have also been widely and repeatedly criticised, recent scholars prefer LPMs over logistic models to facilitate interpretation (Angrist & Pischke, 2008; Holm et al., 2015; Uanhoro et al., 2019). That is why also here a LPM is used to answer the first research question. Nevertheless, the same analyses were conducted using a logistic model (see 4.3 Sensitivity analyses), which indeed suggest the results to be robust and independent of the methods used. The variables are included in the models hierarchically to test for the main association's stability of migration status and the likelihood of living in parental proximity while including individual or household characteristics.

The question whether there are differences in parental distance between children of immigrants and natives among those living farther away (≥ 40 km), will be answered by using a multivariate linear regression model, with intergenerational distance in kilometres being the dependent variable. Also here, the variables will be included hierarchically.

To account for the clustering of observations within respondents, cluster robust standard errors are used throughout all models. Here, it must be mentioned that some level of heteroscedasticity might still exist due to regional differences in socio-spatial characteristics, which cannot be controlled for.

As briefly mentioned beforehand, sensitivity analyses (4.3) will be conducted to test for the robustness of the results. First, the first research question was examined by using a Logit model instead of the LPM. Both models have been criticised, whereby the latter was preferred due to its better interpretability. Second, the same analyses were conducted while considering distances from the adult child to the father, instead of mother-child distances. The latter has been argued to be more meaningful since mothers tend to have stronger ties to their children are more likely to be familial kin-keepers (Rossi & Rossi, 1990). A third robustness check tests whether the effects remain similar when using the logarithmic calculus of the dependent variable, instead of distances in kilometres. That is because Mulder & Kalmijn (2006) have argued distance in kilometres to not be the most suitable specification of the dependent variable as there might be different factors influencing a one-kilometre distance between close and far proximity.

4 ANALYSES AND RESULTS

4.1 DESCRIPTIVE ANALYSES

The average distance between adult children and their parents is 55 km, whereby it ranges from living in the same county (zero km) to a maximum distance of 711 km. Thereby, 61 % live in the same county as their parents, 13 % live in parental proximity (< 40 km), but not in the same county as their parents. Hence, around 74 % live in parental proximity (< 40 km), whereas approximately 26 % live at least 40 km away. Among those living in far parental proximity, the average intergenerational distance is 163 km with a standard deviation of 151 km. Table 2 provides an overview of the descriptive statistics of the variables.

When looking at intergenerational distances by migration status (see Table 5 in *appendix*), one can already determine the average parental distance of children of natives (60 km) to be higher than those of children of immigrants (41 km) as well as immigrants themselves (30 km). Additionally, the distribution is the least positively skewed among children of natives, which suggests (children of) immigrants to overall settle in closer parental proximity. This assumption seems to also hold when regarding Figure 1, which shows the average distance of adult children to their parents while distinguishing for migration status. Thereby, it becomes evident that children of natives show higher intergenerational distances across all ages than children of immigrants. The latter have particularly lower intergenerational distances than their native counterparts from the ages 24 to 34. Additionally, considering the confidence intervals, their intergenerational distances do not seem to differ significantly from those of immigrants.

Table 2 Descriptive statistics

Variables	Mean/ Proportion [a]	SD	Min	Max	N
Distance in km	54.93	115.84	0	711	35,526
Living close	0.74		0	1	35,526
Distance ≥ 40km [b]	162.77	151.04	0	671	9,078
Migration status					
Children of natives (ref.)	0.78		0	1	35,526
Children of immigrants	0.11		0	1	35,526
Immigrants	0.10		0	1	35,526
Age [c]	9.55	5.25	0	20	35,526
Female	0.53		0	1	35,526
Education					
Primary education (ref.)	0.24		0	1	35,526
Secondary education	0.54		0	1	35,526
Tertiary education	0.15		0	1	35,526
In education	0.06		0	1	35,526
Employment status					
Employed (ref.)	0.54		0	1	35,526
Unemployed	0.37		0	1	35,526
In education	0.07		0	1	35,526
Other	0.01		0	1	35,526
Marital status					
Single (ref.)	0.53		0	1	35,526
Non-coresiding (married) partner	0.01		0	1	35,526
Coresiding (married) partner	0.43		0	1	35,526
Divorced	0.02		0	1	35,526
Widowed	0.00		0	1	35,526
Dependent child(ren)	0.38		0	1	35,526
Income (logarithm)	7.35	0.72	0	9.8	35,526
Urbanisation					
Nucleated town (ref.)	0.38		0	1	35,526
Urban hinterland	0.43		0	1	35,526
Rural hinterland	0.12		0	1	35,526
Rural area	0.07		0	1	35,526

Note: SOEP (v36), own calculations = no missing data, values are rounded

[a] Means are presented for continuous variables and the proportions for categorical variables

[b] The minimum distance of zero describes living in a 40km distance to parents.

[c] The minimum age of zero represents an age of 20 years.

When answering the first research question descriptively, clear differences in parental proximity between children of natives and immigrants can be seen (see Table 6 in *appendix*). While only 72 % of the natives live in proximity to their parents, it is approximately ten percentage points more among children of immigrants (82 %). With 85 %, immigrants have the highest share of living close to their parents. This clearly hints towards natives being more likely to live far away from their parents than children of immigrants or immigrants.

Accordingly, it is valuable to ask whether the differences in parental proximity between children of immigrants and natives depicted in Figure 1 are due to the high differences of them living close to their parents or whether they remain among those living far away (N=9,078). Figure 2 depicts the average intergenerational distances by age and migration status among those living in far parental proximity. Hereby, potential differences between children of immigrants and natives cannot be observed as their average distances are close to each other and confidence intervals overlap.
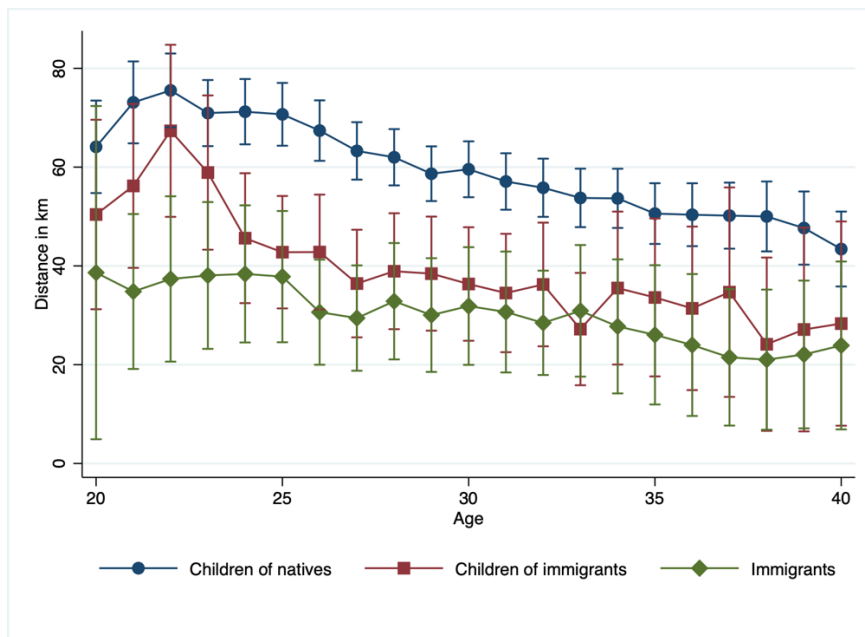

Figure 1 *Average intergenerational distance by age and migration status*
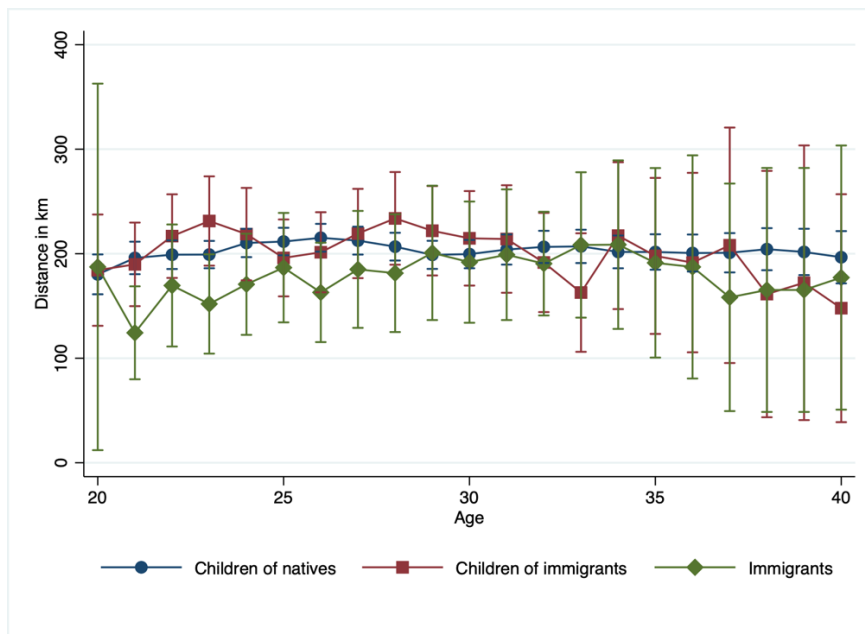

Figure 2 *Average intergenerational distance by age and migration status, among those living far away (≥ 40km)*

4.2 MULTIVARIATE ANALYSES

In the following, the research questions and the suggested hypotheses are tested by multivariate analyses. To answer the first research question, a linear probability model will be used and in a further step, linear regression will enable to focus on the second research question.

4.2.1 Intergenerational proximity

To enable depicting differences in the probability of living in parental proximity between children of immigrants and natives, Table 3[5] contains information on the probability to live close to parents by migration status while adjusting for individual as well as household characteristics. In model 1, only the effect of migration status is included in the LPM to estimate the 'pure' association between it and the probability to live close. Whereas model 2 further includes the predefined individual variables, model 3 contains solely the household and family characteristics besides the migration status. Subsequently, all variables are included in model 4.

Regarding model 1, children of immigrants as well as immigrants are both significantly more likely to live close to their parents than natives. This association remains highly significant even when individual (model 2) and/or household characteristics (model 3) are included.

Finally, all independent variables are included in model 4. Just like the previous models, the association of migration status and the probability of living in parental proximity remains stable and is highly significant. Children of immigrants have indeed a 9 percentage points (pp) higher probability of living in parental proximity than natives. The same association can be found among immigrants, whereby the difference between them and natives is nearly half the effect size (5 pp) than those of children of immigrants. Additionally, the probability for immigrants of living in parental proximity halves when including further, particularly individual, characteristics, whereas the one of children of immigrants decreases only slightly. However, the effect remains significant when including further variables, which suggests migration status to be an important predictor of the probability to live in parental proximity. Moreover, this association is according to the aforementioned theoretical expectations (H1).

Besides, model 4 shows that, higher age, having residing dependent children, as well as a residing (married) partner and living in less urbanised areas are associated with a higher probability of living in parental proximity. According to the theoretical expectations (H2), people in higher ages have a higher probability of living close to their parents than younger individuals. Having a dependent child is associated with a 4.5 pp higher probability to live close, compared to childless people and those with non-dependent children (H7). People with residing (married) partners have a 3.2 pp higher probability of living in parental proximity than singles, which is in line with the assumptions (H6). Lower degrees of urbanisation are associated with a higher probability to live in parental proximity, with the effects increasing in size (H9). Whereas people living in the urban hinterland have a 10 pp higher probability of living close to their parents compared to those living in nucleated towns, people residing in rural areas have a 12.9 pp higher probability to live in parental proximity.

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[5] Unfortunately, it is not possible to display the table on one page due to its length. The repeated header on the consecutive page should facilitate the readability.

Table 3 *Linear probability models predicting the probability to live close to the parents*

	Model 1	Model 2	Model 3	Model 4
Migration status (ref. natives)				
Children of immigrants	0.101***	0.079***	0.113***	0.090***
	0.018	(0.017)	(0.017)	(0.017)
Immigrants	0.111***	0.049**	0.097***	0.050**
	(0.017)	(0.017)	(0.017)	(0.001)
Age		0.007***		0.005***
		(0.001)		(0.013)
Female (ref. male)		0.000		-0.006
		(0.013)		(0.013)
Education (ref. primary)				
Secondary		-0.132***		-0.119***
		(0.012)		(0.012)
Tertiary		-0.292***		-0.259***
		(0.019)		(0.019)
In education		-0.200***		-0.175***
		(0.020)		(0.021)
Employment status (ref. employed)				
Unemployed		-0.047***		-0.046***
		(0.009)		(0.009)
In education		0.064***		0.055**
		(0.016)		(0.016)
Other		0.020		0.026
		(0.037)		(0.036)
Marital status (ref. single)				
Non-coresiding (married) partner		0.036		0.023
		(0.029)		(0.029)
Coresiding (married) partner		0.050***		0.032***
		(0.009)		(0.009)
Divorced		0.034		0.026
		(0.030)		(0.031)
Widowed		-0.095		-0.143
		(0.168)		(0.179)
Dependent child(ren) (ref. no dependent children)			0.075***	0.045***
			(0.011)	(0.011)
Log. household income			-0.006	0.000
			(0.008)	(0.008)
Urbanisation (ref. nucleated towns)				
Urban hinterland			0.131***	0.100***
			(0.013)	(0.013)
Rural hinterland			0.162***	0.124***
			(0.019)	(0.019)
Rural area			0.159***	0.129***
			(0.024)	(0.024)

Table 3 continued	Model 1	Model 2	Model 3	Model 4
Year	-0.008***	-0.005***	-0.006***	-0.005***
	(0.001)	(0.000)	(0.000)	(0.001)
Constant	16.547***	11.026***	13.290***	9.872***
	(1.454)	(1.488)	(1.576)	(1.577)
N	35,526	35,526	35,526	35,526
n	5,432	5,432	5,432	5,432

Robust standard errors in parentheses
$^+ p < 0.10,\, ^* p < 0.05,\, ^{**} p < 0.01,\, ^{***} p < 0.001$

Contrary, higher education as well as unemployment is associated with a lower probability of living in close parental distance. In line with the theoretical assumptions (H4), higher educated people are less likely to live in parental proximity. In comparison to people who have primary education levels, having secondary education was associated with 11.9 pp higher probability of living far away, whereas the effect size is double as high for those with tertiary education (25.9 pp). Contrary to the assumptions (H5), unemployed people have a significantly lower probability (4.6 pp) of living close to their parents than employed people.

According to the expectations (H3), daughters and sons do not differ in their probability to live close to their parents. Furthermore, neither household income nor divorce or widowed are significantly associated with the probability to live in parental proximity.

4.2.2 Intergenerational distance

To further examine whether there are differences in parental distance between children of immigrants and natives and what additional factors potentially hold also over longer distances, Table 4[6] shows the associations among those living far proximity (N=9,078). Just like the previous models, also here, the models are hierarchically nested. Regarding the modelfit, the models do not differ greatly, as the test statistics are quite similar. However, just like the models predicting parental proximity, also here, the combination of individual as well as household characteristics seems to predict intergenerational distance the best compared to the other models.

Just like model 1, model 5 contains the pure association of migration status and intergenerational distance. The model only explains 0.8 % of the variance. Here, migration status is not significantly associated with parental distance. Neither children of immigrants nor immigrants differ in their intergenerational distance from those of natives. This association remains stable when either including household and family characteristics (model 7) or individual characteristics (model 6) into the model.

When including all independent variables in model 8, the model only explains 1.6 % of the variance. Just like in the previous models, migration status is not significantly associated with parental distance. Neither children of immigrants, nor immigrants differ significantly from their native counterparts. However, regarding the directions of the effect, it is interesting that children of immigrants tend to live farther away than natives, whereas immigrants tend to live in closer parental distance. It must be noted that these are only tendencies and should not be overinterpreted, as both effects are not significant on any reliable significance level.

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[6] Unfortunately, it is not possible to display the table on one page due to its length. The repeated header on the consecutive page should facilitate the readability.

In contrast to the results of the first research question, none of the included variables seem to significantly predict parental distance. Apparently, age, educational levels, employment status, marital status and urbanisation only seem to be significantly associated with the likelihood of living close to the parents, but do not explain differences in intergenerational distances among those already living far away. An exception are widowed people, who averagely live 87 km closer to their parents than singles. This association is significant to a 5 % level. Additionally, having dependent children is associated with a 17 km closer distance to the own parents than those without any dependent children, whereby this effect is only moderately significant (10 % level). Additionally, whereas income was not significantly associated with the likelihood of living in parental proximity, increasing income is positively associated with increasing distance (significant to a 10 % level).

Table 4 *Multivariate linear regressions of distance to parents*

	Model 5	Model 6	Model 7	Model 8
Migration status (ref. natives)				
Children of immigrants	4.622	5.567	3.890	4.649
	(14.299)	(14.103)	(14.343)	(14.201)
Immigrants	-25.507	-21.902	-22.609	-20.904
	(18.993)	(17.969)	(19.194)	(18.084)
Age		-0.110		0.066
		(0.678)		(0.706)
Female (ref. male)		4.374		5.112
		(8.846)		(8.875)
Education (ref. primary)				
Secondary		14.626		11.398
		(14.326)		(14.416)
Tertiary		24.818		18.690
		(15.217)		(15.234)
In education		6.954		2.103
		(15.172)		(15.229)
Employment status (ref. employed)				
Unemployed		-4.740		-3.273
		(6.313)		(6.164)
In education		2.310		3.040
		(10.574)		(10.453)
Other		-3.033		-4.771
		(18.526)		(18.392)
Marital status (ref. single)				
Non-coresiding (married) partner		40.730		44.150
		(36.100)		(36.150)
Coresiding (married) partner		-1.307		0.776
		(6.714)		(6.357)
Divorced		0.085		3.270
		(25.349)		(25.020)
Widowed		-108.956**		-87.601*
		(44.152)		(44.223)

Table 4 continued	Model 5	Model 6	Model 7	Model 8
Dependent child(ren) (ref. no dependent children)			-17.338[+]	-16.929[+]
			(9.218)	(9.110)
Log. household income			9.133*	7.079[+]
			(4.384)	(4.261)
Urbanisation (ref. nucleated towns)				
Urban hinterland			-5.209	-4.839
			(8.365)	(8.516)
Rural hinterland			-17.196	-16.443
			(14.196)	(14.299)
Rural area			-20.072	-18.589
			(21.073)	(21.070)
Year	-1.736**	-1.730**	-2.185***	-2.078***
	(0.529)	(0.540)	(0.535)	(0.542)
Constant	3650.946**	3618.193**	4493.556***	4276.105***
	(1062.634)	(1083.366)	(1069.021)	(1084.021)
N	9,087	9,087	9,087	9,087
n	1,750	1,750	1,750	1,750
R²	0.008	0.012	0.013	0.016

Robust standard errors in parentheses
$^+ p < 0.10$, $^* p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$

4.3 SENSITIVITY ANALYSES

Furthermore, sensitivity analyses have been conducted to test the robustness of the described results. Firstly, the results concerning the first research question are analysed by using a Logit model instead of the LPM. Table 7 in the *appendix* provides an overview over the results. It becomes evident that effect directions and their significances of all independent variables have not drastically changed. Also here, children of immigrants are more likely to live in parental proximity compared to their native counterparts. This suggests the results to be robust across different methodological approaches.

Regarding the robustness of intergenerational distances when considering the proximity from adult children to their fathers, Table 8 in the *appendix* informs about the regression output. Thereby, the study population of the first research question consists of 30,966 observations of 4,772 individuals, whereas it is 7,901 observations of 1,541 individuals when focusing on those living in far fatherly proximity according to the second research question. When analysing the associations between the independent variables and the likelihood of living in close fatherly proximity or distance, not only the effect directions, but also sizes and significance levels are very similar to the respective ones of motherly proximity. The distances from adult children to either their father or mother does not seem to differ by various factors, which supports the results to be robust.

Furthermore, Table 9 in the *appendix,* provides an overview of the central associations when using the logarithmic calculus of distance as the dependent variable of the second research question. Overall, the effect directions and significance levels in the model using the logarithmic distance as dependent variable have not majorly changed. This suggests the results

to be robust and indeed, as argued beforehand, factors influencing a distance to be similar among those living in far intergenerational distance.

Concluding on these robustness checks, the results are shown to be approximately robust and not dependent on their operationalisation nor statistical method. Also, when capturing the association of factors determining intergenerational distance, it does not seem to greatly matter whether mother-child or father-child distances are used.

5 DISCUSSION AND CONCLUSION

5.1 DISCUSSION

The aim of this study was to investigate whether there are differences in parental proximity and distance between children of immigrants and natives. Previous research has mostly included the immigrant status as a control variable while their decedents have yet not been recognised in proximity research. To counteract this research gap, this study followed a two-fold approach to answer the overarching research question, *whether there are differences in parental proximity between children of immigrants and natives in Germany*, wholesomely. To account for the fact that most people are living in parental proximity, this thesis firstly analysed potential differences between children of immigrants and natives in the probability of living close to parents. In a second step, it was analysed whether there are differences in intergenerational distance between children of immigrants and natives, among those living farther away (≥ 40 km). The results suggest children of immigrants, immigrants, older people, people with a resident partner or spouse or dependent child and those in less urbanised areas to have a significantly higher probability to live in proximity to their parents. In contrast, unemployed and higher educated people have a significantly lower probability to live close. However, these factors do not seem to be significantly associated with farther parental distance. Whereas higher household income is associated with farther intergenerational distance, having a dependent child and widowhood predicts living closer, among those living in far parental distance. Hence, migration status seems to predict parental proximity, whereas there are no significant differences in parental distance among children of immigrants or respectively immigrants and natives living farther away.

5.1.1 Intergenerational proximity

Regardless of ethnicity, all children of immigrants were hypothesised to be more likely to live in parental proximity than children of natives, as immigrant families are assumed to inherit higher values of family solidarity (Merz et al., 2009; Mulder & Kalmijn, 2006; Rosenthal, 1986) as well as family attachment (Steinbach, 2013). The descriptive results already gave an indication: it was shown that children of immigrants and immigrants averagely live closer to their parents throughout all ages compared to natives. These differences were particularly pronounced from the age of 24 onwards, whereby they seem to get blurry from the age of 34. Confirming the descriptive results, children of immigrants were indeed found to have a higher probability to live in parental proximity than children of natives using the LPM. The same accounts for immigrants. Even when adjusting for individual as well as household characteristics, the associations remain highly significant. These findings are in line with Michielin et al.

(2008) who found foreign-born people to be more likely to move towards their parents, suggesting closer intergenerational distances among foreign-born and their parents compared to natives. However, previous research has not found consensus. In contrast to these findings, scholars found the opposite, with foreign-born people being more likely to live farther away from their parents than native-born (Chan & Ermisch, 2015; Ermisch & Mulder, 2019). These differences in findings might be attributable to differences in operationalisation, since Chan & Ermisch (2015) distinguish living farther away as exceeding a travel time of 15 minutes, which describes intergenerational proximity rather on a small scale. Additionally, Chan & Ermisch (2015) examine adult children, aged 31-54 years, which differs from the underlying younger study population (20-40 years). Different factors driving mobility and intergenerational proximity across varying ages may additionally be responsible for these contrary findings.

Besides, the effect size halves among immigrants when including the further, particularly individual, characteristics, whereas the one of the children of immigrants remain quite stable. This suggests that the found association of being an immigrant and having a higher probability of living in parental proximity to be partly explained by individual characteristics, such as education and employment. In contrast, this does not seem to account for children of immigrants, which suggests them to stay closer to their parents, indeed, on grounds of higher feelings of family solidarity and attachment.

Furthermore, according to the hypothesis (H2), older adult children were found to have a higher probability of living in parental proximity than younger ones. This finding indeed suggests moves of younger people to span bigger distances due to occupational and educational opportunities (Thomas, 2019). Subsequently, older adult children are more likely to live in parental proximity due to return migration and possibly higher needs for support in cases of own family formation.

Prior literature has not found consensus on gender differences in migration. Whereas Chan & Ermisch (2015) have found daughters to live closer to their parents, further scholars found daughters to live farther away than sons (Malmberg & Pettersson, 2007; Michielin et al., 2008; Mulder & Kalmijn, 2006). Still other scholars have found no evidence for gender differences intergenerational proximities (Fokkema et al., 2008; Leopold et al., 2012). Supporting this ambiguity, also in this thesis, the gender effect was found to be not significantly associated with the probability of living in parental proximity. Daughters are not more or less likely to live close to their parents than sons, which is in line with the hypothesis (H3).

Additionally, education has been determined as key mobility factor (Hank, 2007). In line with the human capital model and previous research (Börsch-Supan, 1990; Chan & Ermisch, 2015; Choi et al., 2020; Leopold et al., 2012; Malmberg & Pettersson, 2007; Mulder & Kalmijn, 2006), higher educated people were found to have lower probabilities of living in parental proximity than lower educated people (H4). The effect size did also increase alongside educational levels, whereby those with tertiary education were found to have the lowest probability of living close. It must be mentioned that education had the strongest effect on the probability of living in parental proximity, which supports Hank's (2007) assumption of education being a key mobility factor.

Furthermore, employment is assumed to be an additional key mobility factor (Hank, 2007), since the importance of employment-led migration factors was found to increase with distance (Thomas, 2019). Contrary, needs for support and thus, parental proximity is assumed

to be higher among unemployed people. Supporting this argumentation, Thomas & Dommermuth (2020) found adult children who received social security (i.e., because of unemployment), to be more likely to move towards the parents, than those being employed, suggesting higher probabilities of living close. Contrary to the theoretical assumptions (H5), unemployed people were found to have a lower probability of living in parental proximity compared to employed people. This seems to support the Neoclassical Economy Theory (Greenwood, 1985), which suggests unemployed people to have a higher probability to migrate to regions with more favourable labour markets to find a job. Accordingly, unemployed people would be more likely to migrate with higher consideration towards economic rather than social factors. This would suggest unemployed people to be more likely to live farther away from their parents.

Additionally, marital status was assumed to determine parental proximity. Thereby, previous literature has not found consensus concerning partnered individuals. While Mulder & Wagner (1993) as well as Wagner (1989) assumed married individuals to have a lower probability to migrate than singles, other scholars have found positive association between marriage or cohabitation and moving longer distances (Guzzo, 2006; Michielin et al., 2008). Hence, it has been assumed that married people are less likely to live in parental proximity than singles (H6). Contrary to the hypothesis, married people were found to have a higher probability of living in parental proximity than singles, supporting the "commitment hypothesis" (Mulder & Wagner, 1993). Besides, research has found consensus on the importance of the parental location for the children's moving behaviour in cases of higher needs for contact and support, such as divorce (Michielin et al., 2008; Mulder & Wagner, 2012) and widowhood (de Jong Gierveld & Dykstra, 2002). Thus, divorced and widowed people have been hypothesised to live closer to their parents. However, neither divorce nor widowhood was found to be significantly associated with parental proximity.

Additionally, household characteristics were included in the analyses as they were found to determine parental proximity and distance. Due to higher need for support and grandparental childcare (Hünteler & Mulder, 2020; Malmberg & Pettersson, 2007), people with dependent children were assumed to live closer to their parents than childless people or those with independent children. In line with the expectations (H7), having dependent children was indeed found to be associated with a higher probability of living in parental proximity.

Contrary to the assumptions (H8), household income was not significantly associated with a lower likelihood of living close to parents. Apparently household income does not significantly determine parental proximity.

Furthermore, the degree of urbanisation was assumed to be another explanatory factor of intergenerational proximity, whereby adult children in less urbanised areas were assumed to be more likely to live in parental proximity than those in urban areas. This grounds on the assumption that individuals living in metropolitan areas are more likely to have relocated to these areas, whereas people living in rural areas tend to grow up there (Mulder & Kalmijn, 2006). In line with these expectations (H9), people in less urbanised areas were indeed found to have higher probabilities of living in parental proximity, whereas the effect sizes increase alongside decreasing degrees of urbanisation.

5.1.2 Intergenerational distance

Furthermore, this thesis tried to answer whether there are differences in parental distance between children of immigrants and their native counterparts, among those living farther away. The descriptive results already gave an indication: among those living in far distance from their parents (≥ 40 km), no visible differences in average distance by migration status across all age groups could be found. Also, when adjusting for further individual as well as household characteristics, there existed no significant association between being a child of an immigrant and the distance to parents. Same accounts for immigrants. This indicates that migration status is particularly salient when determining parental proximity, while there are no corresponding differences in parental distance.

The latter seems to hold for most of the other factors, which are not significantly associated with parental distance, but were with parental proximity: age, education, employment, being divorced or having a (non)-resident partner and the degree of urbanisation. Only having a dependent child seems to be moderately significantly associated with a decreased parental distance compared to those without. Surprisingly, widowhood as well as household income are significantly associated with parental distance, whereby they had no significant effects on parental proximity. Whereas widowhood is significantly associated with decreasing parental distance, increasing income is associated with increasing intergenerational distance. These results suggest different factors to be important for determining parental proximity and parental distance.

In contrast, previous research has mainly focused on the likelihood to migrate from which intergenerational distances have mainly been assumed to be a result of. Previous scholars have examined distance in either a binary or categorical approach, such as living within a certain threshold (Chan & Ermisch, 2015; Choi et al., 2020; Malmberg & Pettersson, 2007), or used distance as a metric variable while accounting for its skewedness by logarithmising it. However, using the two-fold approach by firstly, examining the probability of living in parental proximity as well as secondly, examining factors determining parental distance, is crucial, as these results suggest different driving factors for parental proximity and distance. However, rather than spatial distance, socio-spatial characteristics of spatial regions may be more important in explaining family geography. Subsequently, the spatial distance itself might be less explained by the predictors but rather *where* people migrate to and live (Faggian et al., 2014; Faggian et al., 2009). For example, the German capital Berlin is a centre of politics, economy, and historical sites but also creativity, museums, festivities, and nightlife (Bader & Scharenberg, 2010), which might motivate people to live there, regardless of the distance to the parental home. However, this research did not account for regional differences.

Additionally, previous research has yet only included the migration status as a control variable and not differentiated between generations. However, the results suggest migration status to be a significant explanatory factor of parental proximity, even when adjusting for other factors. Besides, this effect does not only seem to be more pronounced among children of immigrants, but also less attributable to their individual characteristics than those of immigrants. This suggests children of immigrants to stay closer to their parents, indeed, on grounds of higher feelings of family solidarity and attachment.

5.2 STRENGTHS AND LIMITATIONS

The main contribution to the existing literature is focusing on the effect of generation-specific migration status on parental proximity and distance while accounting for further individual as well as household and family factors. Moreover, prior research has mainly focused on foreign-born people by solely controlling for it. Although their children constitute a large and growing proportion of the people with a migration background in Germany, so far, they have mostly been ignored when examining intergenerational proximity. Another strength of this research has been the two-fold approach to answer the overarching research question wholesomely. Prior research has primarily focused on the likelihood of migrating (Ermisch & Mulder, 2019; Hünteler & Mulder, 2020; Mulder & Malmberg, 2014), whereas the actual distance to the parents after the move has been simplified using binary or categorical logic, such as moving a certain distance or within a certain travel time (Chan & Ermisch, 2015; Choi et al., 2020; Malmberg & Pettersson, 2007; Van der Pers & Mulder, 2013; van der Pers et al., 2015). In contrast, in this thesis, the binary logic was used to determine parental proximity, whereas parental distance was examined as a continuous variable among those living in far intergenerational distance. Following this two-fold approach was important to gain a more comprehensive picture of the dispersion of children of immigrants and natives. Furthermore, potential biases in the results due to operationalisational or methodological choices could be excluded on grounds of the robustness analyses.

However, there are some limitations to this research which must be noted. Firstly, spatial distances between adult children and their parents have been calculated from each county-centroid to every other centroid of a county in Germany in which an adult child and its parents lived respectively. Consequently, the results might be biased by 'pseudo-distances'. That means that even though, the actual distance between an adult child and their parents might be very small, the calculated distance might be overestimated on grounds of county borders separating adult children and their parents. Contrarily, children and their parents could also live on opposite sides of the counties, which would leave the current distance to be greater than the calculated distance. However, on grounds of both possibilities, this phenomenon is not assumed to distort the results significantly. Furthermore, other socio-spatial related characteristics of the counties may bias the results. The predictors were found to not significantly determine intergenerational distance among those living far away. Rather than spatial distances from county to county, socio-spatial characteristics of the regional clusters might be more important in explaining family geography (Faggian et al., 2014; Faggian et al., 2009). Thus, distances from city to city or other spatial units might be a more informative approach of explaining family geography. Unfortunately, information on the level of cities or smaller regional levels were not possible to obtain from the remote access of the SOEP data. Future research should investigate whether socio-spatial characteristics of regional clusters are more important in explaining family geography.

Secondly, differences in parental proximity between children of immigrants and natives were assumed to be attributable to higher feelings of family solidarity (Merz et al., 2009; Mulder & Kalmijn, 2006; Rosenthal, 1986) and attachment (Steinbach, 2013) among immigrant families. However, to be able to attribute this to intergenerational distances with any certainty, future research should examine differences in family solidarity and support exchange

among children of immigrants compared to natives depending on intergenerational distances. Additionally, this research assumes feelings of family solidarity to be higher within *all* immigrant families compared to native ones, regardless of ethnicity. However, in the British context, Chan & Ermisch (2015) found large differences in intergenerational proximity between ethnic groups. Due to small sample sizes, it was not possible to distinguish between ethnic groups, which is why future research should focus on ethnic differences in intergenerational proximity in the German context to gain more detailed information about the intergenerational dispersion by ethnic groups.

Furthermore, this thesis exclusively focused on the view of adult children. That perspective has mainly been adopted since life course-characteristics of adult children were found to be stronger predictors for intergenerational proximity than parental characteristics (Michielin & Mulder, 2007). Small sample sizes have not made it possible to examine intergenerational proximities and distances by migration status from the parents' view. In the future, once observation numbers are no longer a problem, it would be interesting to examine the association of migration status and intergenerational distance from a parents' view. Accordingly, it would also be interesting to focus on the intergenerational proximity of the descendants of the children of immigrants to establish whether the spatial dispersion of them is approximating those of the natives.

5.3 CONCLUSION

This research showed that the migration status does indeed determine intergenerational proximity, even when controlling for further migration-related factors. Particularly, children of immigrants are more likely to live close to their parents compared to their native counterparts. Furthermore, the results suggest children of immigrants to stay closer to their parents, indeed, on grounds of higher feelings of family solidarity and attachment, rather than immigrants themselves. Although migration status predicts parental proximity, it is not significantly associated with increasing parental distance, suggesting migration status to be particularly salient when determining parental proximity. On the one hand, migration away from parents has severe consequences not only for the own, but also for the parents' support network and contact (Ermisch & Mulder, 2019). Consequently, the higher probability of parental proximity suggests strong intergenerational bonds among children of immigrants and their parents (Bordone & de Valk, 2016), promoting more contact and support exchange. On the other hand, family ties might also inhibit long-distance migration and thus, intergenerational distance. Higher probabilities of children of immigrants to live in parental proximity might also reflect higher needs for support within immigrant families. Additionally, long-distance moves are generally associated with educational and economic reasons (Thomas, 2019), which is why higher probabilities of parental proximity among children of immigrants could also be seen critically. Sacrificing education and employment opportunities to stay close to parents might most probably determine future opportunities and socio-economic status of children of immigrants to their disadvantage. Examining how family ties might inhibit migration and hold back immigrants and their descendants specifically, could not only be an intriguing, policy relevant strand for future research, but is also crucial to identify mobility mechanisms determining social inequalities.

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APPENDIX

Table 5 Descriptive overview of distances (in km) by migration status

Migration status	Mean	SD	Min	Max	Skewness	N
Natives	60.14	120.11	0	711	2.44	27,800
Children of immigrants	41.31	101.67	0	645	3.18	4,065
Immigrants	30.48	90.38	0	691	4.50	3,661

Note: SOEP (v36), own calculations = no missing data, values are rounded

Table 6 Living close/ far by migration status

Intergenerational distance	Natives	Children of immigrants	Immigrants	Total
Living close (< 40 km)	20,010	3,320	3,109	26,439
	(71.98)	(81.67)	(84.92)	(74.42)
Living far (≥ 40 km)	7,790	745	552	9,087
	(28.02)	(18.33)	(15.08)	(25.58)
Total	27,800	4,065	3,661	35,536
	(100)	(100)	(100)	(100)

Note: SOEP (v36), own calculations = no missing data, values are rounded, percentages in parentheses

Table 7 Logistic model predicting the odds ratio to live close to parents

	Probability to live close
Migration status (ref. natives)	
Children of immigrants	0.539***
	(0.115)
Immigrants	0.377**
	(0.136)
Age	0.030***
	(0.006)
Female (ref. male)	-0.039
	(0.074)
Education (ref. primary)	
Secondary	-0.957***
	(0.106)
Tertiary	-1.619***
	(0.122)
In education	-1.156***
	(0.124)
Employment status (ref. employed)	
Unemployed	-0.279***
	(0.052)
In education	0.290**
	(0.094)
Other	0.154

Table 7 continued	Probability to live close
	(0.188)
Marital status (ref. single)	
Non-coresiding (married) partner	0.155
	(0.224)
Coresiding (married) partner	0.193***
	(0.053)
Divorced	0.151
	(0.217)
Widowed	-0.792
	(0.818)
Dependent child(ren) (ref. no dependent children)	0.219***
	(0.070)
Log. household income	-0.011
	(0.041)
Urbanisation (ref. nucleated towns)	
Urban hinterland	0.537***
	(0.073)
Rural hinterland	0.664***
	(0.117)
Rural area	0.675***
	(0.149)
Year	-0.025***
	(0.005)
Constant	51.568***
	(8.947)
N	35,526
n	5,432
Pseudo r2	0.095

Robust standard errors in parentheses
[+] $p < 0.10$, [*] $p < 0.05$, [**] $p < 0.01$, [***] $p < 0.001$

Table 8 Models predicting the probability to live close and distance to father

	Probability to live close	Distance to father
Migration status (ref. natives)		
Children of immigrants	0.075***	10.818
	(0.044)	(15.286)
Immigrants	0.044*	-17.369
	(0.018)	(18.432)
Age	0.005***	-0.286
	(0.001)	(0.759)
Female (ref. male)	-0.004	17.119+
	(0.014)	(9.472)
Education (ref. primary)		
Secondary	-0.111***	10.944
	(0.126)	(14.694)

Table 8 continued	Probability to live close	Distance to father
Tertiary	-0.251***	13.813
	(0.020)	(15.638)
In education	-0.161***	7.145
	(0.021)	(15.984)
Employment status (ref. employed)		
Unemployed	-0.047***	-2.260
	(0.10)	(6.505)
In education	0.051**	5.303
	(0.018)	(7.060)
Other	0.001	-9.798
	(0.021)	(18.243)
Marital status (ref. single)		
Non-coresiding (married) partner	0.023	59.954
	(0.030)	(38.042)
Coresiding (married) partner	0.022*	5.129
	(0.010)	(7.060)
Divorced	0.025	-5.490
	(0.033)	(26.433)
Widowed	-0.249	-111.121**
	(0.217)	(37.443)
Dependent child(ren) (ref. no dependent children)	0.042***	-12.946
	(0.011)	(9.378)
Log. household income	0.004	6.283
	(0.008)	(4.454)
Urbanisation (ref. nucleated towns)		
Urban hinterland	0.116***	-11.873
	(0.014)	(9.358)
Rural hinterland	0.137***	-23.450
	(0.020)	(15.728)
Rural area	0.143***	-17.513
	(0.026)	(20.564)
Year	-0.006***	-2.245***
	(0.001)	(0.596)
Constant	12.010***	4614.857***
	(1.722)	(1192.095)
N	30,966	7,901
n	4,772	1,541
r2		0.021

Robust standard errors in parentheses
$^+ p < 0.10$, $^* p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$

Table 9 *Multivariate linear regression of logarithmic distance to parents*

	Log. Distance to parents
Migration status (ref. natives)	
Children of immigrants	0.004
	(0.134)
Immigrants	-0.318[+]
	(-0.182)
Age	-0.004
	(0.007)
Female (ref. male)	-0.031
	(0.085)
Education (ref. primary)	
Secondary	0.173
	(0.150)
Tertiary	0.319*
	(0.156)
In education	0.147
	(0.163)
Employment status (ref. employed)	
Unemployed	-0.005
	(0.061)
In education	-0.049
	(0.115)
Other	-0.025
	(0.178)
Marital status (ref. single)	
Non-coresiding (married) partner	0.344
	(0.277)
Coresiding (married) partner	-0.058
	(0.065)
Divorced	0.085
	(0.228)
Widowed	-1.696*
	(0.668)
Dependent child(ren) (ref. no dependent children)	-0.169[+]
	(0.094)
Log. household income	0.030
	(0.042)
Urbanisation (ref. nucleated towns)	
Urban hinterland	-0.105
	(0.086)
Rural hinterland	-0.306*
	(0.153)
Rural area	-0.332
	(0.212)
Year	-0.013*

Table 9 continued	Log. Distance to parents
	(0.006)
Constant	30.269**
	(11.726)
N	9,087
n	1,750
Pseudo R^2	0.022

Robust standard errors in parentheses
$^+ p < 0.10$, $^* p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$