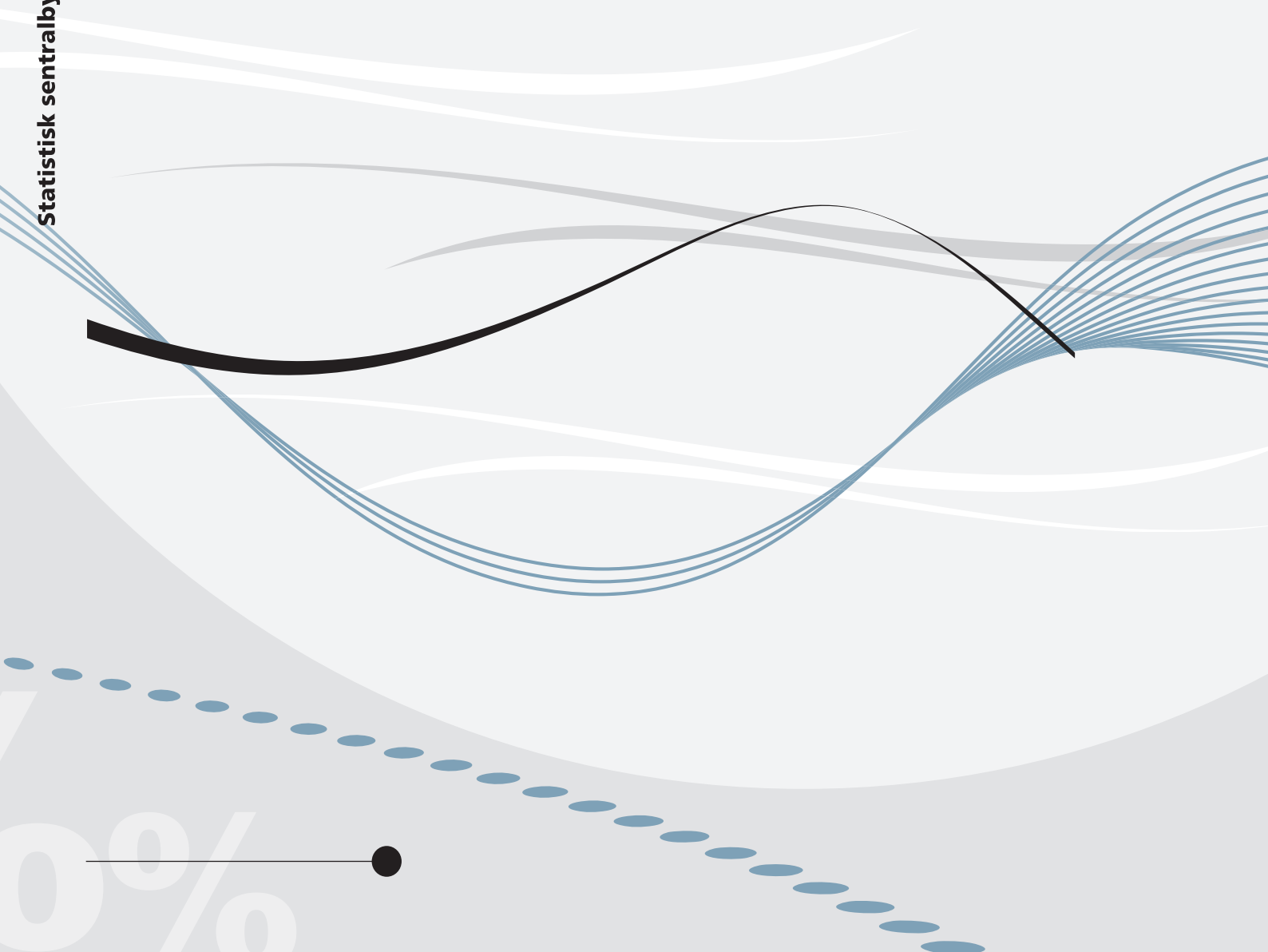




Lars Dommermuth

Children as family commuters

The geographical distance between nonresident parents and children in Norway



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Abstract:

As union dissolution rates increase in most modern societies, a growing number of children are living in post-separation families. The geographical distance between parental households shapes the possibilities for contact between nonresident parents and children, but empirical studies are lacking. This study investigates the geographical distance between nonresident parents and children in Norway using a total population sample, including exact geographical coordinates for residency. Results show that most children are registered in the maternal household after parents' union dissolution. The majority of nonresident parents live within a 10 km radius of their child, but the average distance is greater for nonresident fathers than for nonresident mothers. If children move from one parental household to the other, this is associated with longer distances, especially to nonresident mothers. Low household income of nonresident parents is correlated with longer distances between the parental households.

Keywords: post-separation families, nonresident parents, union dissolution, geographical distances

JEL classification: N34, Z10, Z13

Acknowledgements: I am grateful to Torbjørn Skardhamar, Kjetil Telle, and Kenneth Aa. Wiik for their valuable comments. The study is part of the research project Spatial and Temporal Dynamics funded by the Research Council of Norway (Project no. 219129).

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ISSN 1892-753X (electronic)

Sammendrag

Bruddrater for ekteskap og samboerskap øker i de fleste moderne samfunn og en stigende andel barn lever i oppløste familier. Den geografiske avstanden mellom foreldrenes husholdninger skaper en mulighetsstruktur for kontakten mellom barnet og den fraværende forelderen, men så langt mangler vi empirisk kunnskap om dette. I denne studien undersøkes den geografiske avstanden mellom foreldre som ikke lenger bor samme basert på registerdata som dekker hele befolkningen i Norge og som inkluderer eksakte geografiske koordinater for hver adresse. Resultatene viser at de fleste barn er registrert hos mor etter foreldrenes samlivsbrudd. De fleste av disse foreldrene bor ikke lenger enn 10 km fra sine barn. Medianavstanden er større blant fedre som ikke bor sammen med sine barn enn blant mødre i samme situasjon. Flytter barnet mellom foreldrenes husholdninger etter samlivsbruddet, er det relatert til lengre distanse til den andre forelderen, spesielt blant mødre. Begge grupper av foreldrene som ikke bor fast med barna har mindre sannsynlighet å bo nær dem hvis deres husholdningsinntekt er lav.

1. Introduction

In research as well as in the public discourse, the relationship between parents and children is perceived as almost indestructible and stronger or deeper than other family and social relations. As a result of the increase in union dissolutions in recent decades, more and more parents and children are experiencing a severe disturbance in their relationship. Children in particular may experience parents' union dissolution as a dramatic event, since they often have no or only minor influence on this development and the decisions taken by their parents (Zartler, Heintz-Martin, & Becker, 2015). Studies from different countries have concluded that union dissolutions can have a major impact on the life course of children, including their psychological, physical, and socioeconomic well-being (for an overview, see Amato, 2000, 2010).

While almost 90 percent of all children in the U.S. lived with both parents in 1960, this is only true for less than 70 percent since the beginning of the 1990s (U.S. Census Bureau, 2015). Also in Norway, the context of the present study, about a quarter of all children do not live with both parents nowadays (SSB, 2015). The majority of them have experienced the dissolution of their parents' union. After a parental break-up, contact between the child and the nonresident parent is restricted by time and space. While short distances between nonresident parents and children seem to facilitate regular and frequent contact, longer distances seem to lead to a decline in nonresident parents' involvement and contact with children (Arránz-Becker, Lois, & Salzburger, 2015; Cheadle, Amato, & King, 2010; Skevik, 2006; Steward, 1999). This means that geographical distance represents a kind of opportunity structure for support and contact between children and nonresident parents. Analyzing this geographical distance between nonresident parents and children thereby reveals an important aspect of how post-separation families are organized.

In this study, I explore the variation in geographical distance between nonresident parents and children in Norway. The study is based on administrative register data that include all post-separation families as of the end of 2012. The parents previously lived together with their common child, either as cohabitants or spouses, while, at the end of the observed period, the child is registered in one parental household and the other parent is defined as the nonresident parent. In contrast to previous studies that have used rough measures of distances, this study calculates the exact Euclidian distance between the two parental households, and I investigate to what extent this distance is associated with different characteristics of post-separation families.

2. Background and hypotheses

The geographical distance between a nonresident parent and a child arises when at least one parent moves out of the former shared family home. Relevant theoretical approaches and empirical studies related to moving behavior after union dissolutions are therefore discussed in this section. Based on a review of existing research, I formulate five hypotheses that will be tested in the empirical analyses. I begin by providing a definition of post-separation families and point out the relevance of geographical distance in research on post-separation families.

Married parents with common children represent the core of the normative definition of the nuclear family (Beck & Beck Gernsheim, 2003). This normative definition cannot disguise the fact that a plurality of family forms has always existed, for example stepfamilies or one-parent families. Previously, the plurality of families was marginalized to the advantage of the normative nuclear family, but today a wider range of different family forms is institutionally normalized and recognized in society and the law (Beck & Beck Gernsheim, 2003). This includes post-separation families, which can be defined as parents who originally lived together with their child as a married or cohabiting couple, but dissolved their union and moved apart from each other. From the child's perspective, this means that he or she has experienced the dissolution of the parents' union and is only registered with one parent in the same household, while the other, nonresident parent lives in a different household. The main characteristic of the nonresident parent is that he or she is not registered in the same household as his or her child. The child may have no contact with the nonresident parent or may live alternately in both parental households. Both the resident and nonresident parental household may include a step-parent.

In any case, a post-separation family has to find a new living arrangement after the parents' union dissolution. In this context, the question of child custody is an important issue. In most modern societies, both parents usually have judicial custody after a union dissolution, as this is seen to be in the child's best interest (Dethloff, 2015). In addition to judicial custody, which covers general responsibility for the child, there is what is referred to as physical custody, which is usually related to the actual living arrangements of the child. The concrete custody regulations vary by country. In the case of Norway, the parent who has physical custody can decide where in Norway she or he wants to live with the child. It is only if the separated parents agree on joint physical custody that they have to reach consensus before they can move with the child (Section 37 in the Norwegian Children Act). In cases of joint physical custody, the child often lives equally in both parental households, but this is not required and other agreements between the parents are also possible (Kitterød & Lyngstad, 2014).

Based on survey data, it is estimated that the proportion of parents practicing shared residence in Norway increased from 10 percent in 2004 to 25 percent in 2012 (Kitterød & Lyngstad, 2014).

2.1. Geographical distance and contact between nonresident parents and children

Regardless of the specific judicial and physical custody agreement, a child can only be registered in one parental household, and there is a geographical distance between the two parental households after a union dissolution. Earlier research mostly focused on the contact between nonresident parents – and in many cases only nonresident fathers – and children, while evidence concerning the geographical opportunity structure of post-separation families is scarce. If information about distances or travelling times between the parental households was included, results indicated a strong positive correlation between short distances and contact frequency between children and nonresident parents (Arránz-Becker et al., 2015; Cheadle et al., 2010; Skevik, 2006; Steward, 1999). A descriptive study from Norway found that shared physical custody is more common if separated parents live close to each other (Kitterød, Lyngstad, Nymoen, & Wiik, 2014). Based on cross-sectional survey data from Canada, Swiss and Le Bourdais (2009) also found a positive correlation between short distances and contact, but they underline the difficulty of disentangling cause and consequence in this correlation. The question is: is contact between nonresident parents and children stronger due to short distances or are distances kept short to enable close contact?

Several results suggest that geographical distances shape the concrete living arrangement of post-separation families and the contact pattern between nonresident parents and children. Firstly, a study on parents with joint physical custody in Norway pointed out that the relocation of one of the parents is an important reason for terminating an agreement on shared residence (Skjørten, Barlindhaug, & Lidén, 2007). Secondly, based on data from the U.S., Cheadle et al. (2010) found that moving closer to the nonresident child allowed nonresident fathers to increase their level of contact with their child. Thirdly, results from a German study showed that controlling for residential agreements and other factors does not reduce the positive effect of short geographical distances on contact between nonresident fathers and children (Schier & Hubert, 2015). Fourthly, Viry (2014) concluded that the distance to nonresident fathers is itself an important factor for children's wellbeing in post-separation families. Together, these results indicate that geographical distance is a precondition for both the contact between nonresident parents and children and for the residential agreements in post-separation families.

Analyses of the spatial opportunity structure could therefore provide new and additional insight into background factors that shape parent-child relations in post-separation families. Studies that focus mostly on contact between nonresident parents and children may underestimate the relevance of geographical distance and possible background factors shaping these distances. For example, studies on contact between nonresident fathers and children have concluded that poverty is related to loss of contact between nonresident fathers and children (Skevik, 2006) or that divorce has a smaller negative effect on father-child contact if the father is highly educated (Kalmijn, 2015). But it might be that nonresidential fathers with smaller financial resources are less often able to afford a new home near their child and therefore live further away, which, in turn, results in lower contact frequencies.

2.2. The geographical opportunity structure of post-separation families

2.2.1. Characteristics of moves triggered by union dissolution

Even though spatial proximity seems to play an important role in relation to contact in post-separation families, research on geographical distances between dissolved parental households is scarce. This distance arises when at least one parent moves out of the former shared family home. In many cases, both parents and common children move out of the family home, either simultaneously or successively. In research on moving behavior, moves after union dissolutions are defined as “induced moves” with specific preconditions, consequences, and patterns (Mulder & Malmberg, 2011). Feijten and van Ham (2007, 2013) described three characteristics of moves triggered by union dissolutions: they are urgent, financially restricted, and spatially restricted.

The resulting distance between the nonresident parents and children is closely related to these three characteristics. Firstly, because couples – or at least one party – want to put the decision to break up into effect as soon as possible, moves triggered by union dissolution are often urgent. One result of this time pressure seems to be that such moves often only involve short distances. Feijten and van Ham (2007, 2013) compared moves by single people and stable couples with moves made after union dissolutions and found that the latter are often short distance moves, especially in the case of parents. Similarly, a Danish study (Gram-Hanssen & Bech-Danielsen, 2008), a Swedish study (Mulder & Malmberg, 2011), and a French study (Bonnet, Garbinti, & Solaz, 2015) conclude that parents who separate often move within the same parish or municipality, and not far away from the former family home. Because of the urgency aspect, however, the first move directly after the union dissolution is often to temporary housing and is often followed by several subsequent moves (Gram-Hanssen & Bech-Danielsen, 2008). Only taking into account the first move and the distance generated by this first move, as for example Mulder and Wagner do (2010), may therefore give an imprecise picture of the

geographical situation of post-separation families. Results in a research report from Statistics Sweden (SCB) indicated that nonresident parents were less likely to live close to their child as time increased after the union dissolution (SCB, 2015). To take into account the urgency of the first move after a union dissolution, the first hypothesis assumes that there is *a positive correlation between the time since union dissolution and the geographical distance between the nonresident parent and the child (time hypothesis)*.

Secondly, moves after union dissolutions are usually financially restricted. The reason for this is that the individual resources of each partner are in most cases smaller than the shared resources of both former partners. Moves after a union dissolution therefore often involve a step down the housing ladder (Feijten & van Ham, 2013; Mulder, 2013; South, Crowder, & Trent, 1998). Financial resources also play an important role when former partners decide over the earlier shared family home.

According to Mulder and Wagner (2010), a person will move after union dissolution if the monetary and nonmonetary cost of moving is lower than cost of staying. Parents will also move if they do not have enough resources to bear the costs of the family home on their own. This means that the parent with greater financial resources is less likely to move out. If both parents have equal and sufficient resources, it might be necessary to negotiate about who moves and who stays (Mulder & Wagner, 2010). For those moving out, their financial resources shape their possibilities on the housing market. Analyzing the distance between the former family home and a new first address after union dissolution, Mulder and Malmberg (2011) found no significant association between this distance and parents' income. Measuring the distance between nonresident parents and children, two Swedish studies found, however, that distances were shorter among parents with higher income (SCB, 2015; Stjernström & Strömberg, 2012). These earlier studies controlled for the individual income of the individual parents and did not capture the possible contribution of new household members, for example a new spouse. It can be expected that *nonresident parents with greater financial resources will have better opportunities to choose their place of residence and therefore live closer to their child than nonresident parents with small financial resources (income hypothesis)*.

The third characteristic of moves triggered by union dissolutions is their spatial restriction (Feijten & van Ham, 2007, 2013). As pointed out above, the distance moved after a union dissolution is shorter than other moves, especially if the ex-couple have minor children (Feijten & van Ham, 2013; Mulder & Malmberg, 2011). Furthermore, many moves are locally restricted, for example if people want to keep their local social network or are tied to a specific area due to their jobs. Such local ties seem to play a role in moves after union dissolutions (Mulder & Malmberg, 2011), but, for nonresident

parents, it is primarily contact with their children that restricts their moving behavior. For example, nonresident parents in Denmark stated that finding new permanent housing near their children was an important milestone (Gram-Hanssen & Bech-Danielsen, 2008). If only one parent moves out, the former shared family home may serve as the reference point in the search for a new house. In this case, the parent who moves out is familiar with the neighborhood and the local housing market, which could make the house-hunting easier. If both parents move out, it might be more difficult to find two new parental homes situated relatively close to each other. Interestingly, no previous study has investigated the relevance of the former shared family home to the distance between nonresident parents and their children. The third hypothesis states that *the distance between dissolved parental households is shorter if one of the parents still lives in the former shared family home compared to post-separation families where both parents have moved out (family home hypothesis)*. In addition, the distance can be expected to be shorter if only the nonresident parent moves out, since the nonresident parent is especially interested in living near the child. A resident parent may take less account of the geographical location of the nonresident parent. Their moving behavior may be affected by other factors, for example the geographical location of other family members (Westphal, Poortman, & Van der Lippe, 2015), and less by the spatial position of the nonresident parent living in the former shared family home.

2.2.2. Measuring geographical distance

To gain better insight into the geographical structure of post-separation families, it is necessary to go beyond the three defined characteristics of moves triggered by union dissolutions. It is not the moving behavior itself, but the distance between the two parental households that is decisive in this context. This geographical distance should be measured as exactly as possible. Distinguishing between whether a person moved to or lives in a different parish, municipality, or region – as for example Gram-Hanssen & Bech-Danielsen (2008) or Kalil, Mogstad, Rege, & Votruba (2011) do – paints an imprecise and perhaps even misleading picture, as it fails to differentiate between whether or not these administrative units are relatively close to each other. Furthermore, moves within the same neighborhood can be counted as moves to another municipality or region if the border line runs between the two addresses.

A study (Stjernström & Strömgren, 2012) and a research report (SCB, 2015) from Sweden applied exact measures of geographical distance between absent parents and children. They concluded that most absent parents live relatively close to their child: 75 percent live within a 50 km radius of their child (Stjernström & Strömgren, 2012), and descriptive findings indicated that the median distance between the absent parent and the child decreased from 14.7 km in 1975 to 5.5 km in 2013 (SCB,

2015). Based on a small Swiss sample of separated mothers living in Geneva, Viry (2014) also found that about 80 percent of nonresident fathers live within a 50 km radius of their child.

2.2.3. Gendered household pattern after union dissolution

Most children live or are registered in the maternal household if the parents do not live together (Arránz Becker et al., 2015; Bonnet et al., 2015; Feijten & van Ham, 2013; Kitterød & Lyngstad, 2014; Mulder & Wagner, 2010; Stjernström & Strömgren, 2012; SCB, 2015). This so-called gendered household pattern is also dominant in countries with a strong focus on gender equality, even though the proportion of children registered in the paternal household has increased from 8 percent in 1975 to 21 percent in 2013 in Sweden (SCB, 2015). Studies including nonresident mothers as well as nonresident fathers found that, on average, absent fathers live further away from their children than absent mothers (Stjernström & Strömgren, 2012; SCB, 2015). However, this gender difference in distance may be driven by the fact that both Swedish studies included about 12 percent of parents who had never lived together, which seems to be one reason why Stjernström and Strömgren (2012) used the term absent parent instead of nonresident parent. Some of these mothers and fathers probably never planned to have a child with the other parent and may have very different reasons for not living together. From a theoretical point of view, they should be distinguished from post-separation families. A Norwegian study found that fathers who had never lived together with their child had significantly less contact with their offspring than nonresident fathers in post-separation families (Skevik, 2006). So far, there is no clear evidence indicating whether there is still a gender difference in the distance between nonresident parents and children when only post-separation families are analyzed.

2.2.4. Family characteristics and geographical distance after union dissolution

The age of the child seems to be another important factor that can alter the distance between a child and the nonresident parent. If a post-separation family includes more than one common child, previous research has usually taken the youngest child as its point of departure. Cheadle et al. (2010) used child's age at union dissolution as an indicator and expected that, the longer a father and a child lived together before the parental break-up (i.e., the older the child was at the parents' union dissolution), the stronger would their emotional bonds be. In line with this, their results suggested that nonresident fathers were more likely to have minimal contact with their child, if the child was relatively young at the time of the parents' union dissolution. Conversely, other authors have argued that nonresident parents try to keep the distance especially short for the youngest children, because infants have a greater need for care and support than grade school children or teenagers, and because young children need face-to-face contact and other forms of contact (by phone, video calls, e-mail, etc.) are perceived as less practicable (Viry, 2014). A Swedish study found a positive correlation between child's current

age and distance to the nonresident parent (Stjernström & Strömgren, 2012). However, the impact of child's age on the distance to the nonresident parent may vary with the time since the parents' union dissolution. The authors of the report from Statistics Sweden tried to disentangle the two factors from each other. They created a subsample that only included dissolved unions where the child was not older than seven years when the parents broke up (SCB, 2015). According to these results, the likelihood of living near the absent parent decreased significantly with each additional year since the parents' break-up, which is in line with the time hypothesis. However, the likelihood of living near the absent parent decreased if the child was older when the parents' union was dissolved, which contradicts the findings of Stjernström and Strömgren (2012). More research seems to be necessary to investigate how child's age is related to the distance between nonresident parents and children. Based on the existing, rather mixed evidence, it is hypothesized *that the distance to the nonresident parent increases with child's age at the parents' union dissolution (child's age hypothesis)*.

The distance between the child and the nonresident parent may also be affected by the union and family status of both parents. Some ex-couples broke up because one of them found a new partner (Mulder & Wagner, 2010), and a new relationship can also be a motive for a subsequent move at a later stage. Results from Sweden show that the distance between children and absent parents increased if one or both parents were remarried (Stjernström & Strömgren, 2012) or had a child with another parent (SCB, 2015; Stjernström & Strömgren, 2012). Both events are indicators of a new family formation by one or both parents in post-separation families, and it can be assumed that *a new family formation is associated with an increase in the distance between the nonresident parent and the child (new family hypothesis)*. Interestingly, previous studies in this field have so far only included remarriages and not subsequent cohabitations, even though cohabitations are widespread in many countries and especially in Nordic societies (Noack, Bernhardt, & Wiik, 2014).

Other characteristics of post-separation family members might also be associated with their spatial position. Firstly, it is not just new partners or additional children who may play a role, but also the type of relationship before the break-up. Research comparing cohabitation and marriage found a higher level of commitment among married couples (Wiik, Bernhardt, & Noack, 2009). Whether former union type is related to the geographical distance between parents in post-separation families has, to my knowledge, not been investigated so far. Secondly, research on parent-child contact in post-separation families has found that nonresident fathers have more contact with sons than with daughters (Manning & Smock, 1999). So far, however, we do not know whether the sex of the child is correlated with the geographical distance to the nonresident parent. Thirdly, the number of common children may

play a role. Finally, it should be taken into account that an agreement on a child's residence can change and that a child may move from one parental household to the other (Skjørten et al., 2007). The reasons for such a move can vary greatly. An older child may express a wish to live with the other parent or changes in the life situation of one parent may lead to such a change in the living arrangement. We lack evidence, however, about whether a child's move to the other parental household is correlated with the distance to the nonresident parent.

3. Data and methods

The analyses presented here were based on administrative register data from Norway covering all residents in the country. The individual-level registers include a unique identification number for each person, making it possible to merge information from different registers and to identify family relations. In a first step, all women with at least one child younger than 18 years old at the end of 2012 were selected from the population register ($N=654\ 186$). From the "Ground parcel, address and building register" (GAB), the exact dwelling number for each mother, child and father was added. For about six percent of the children, the father could not be definitely identified in the register and an additional three percent were excluded due to other missing or improper values (e.g., one of the parents or the child had emigrated or died, exact addresses or geographical coordinates were missing). In the next step, this dataset was reduced to post-separation families, defined as follows: The parents were registered under the same address when the (youngest) common child was born, but they were not living together at the end of 2012, while the child had to be registered at the same address as one of the parents at the end of 2012. In some cases, intact families have moved to another address but the parents did not report this move at the same time, and intact families may thereby be counted as having been dissolved. Parents who were again registered as living at a common address at the end of 2013 ($n=1\ 612$) were therefore excluded from the sample, as it can be assumed that most of them never broke up their relationship.

The final sample used in the study presented here consists of 111 031 post-separation families in Norway at the end of 2012. The administrative registers include no information on the concrete living arrangements of post-separation families. The study focuses on the geographical distance between the separated parental households. The parent who is not registered in the same household as the child is defined as the nonresident parent and, based on exact geographical coordinates for each address derived from the GAB-register, the exact Euclidian distance between the nonresident parent and the (youngest) child at the end of 2012 was calculated. Depending on which parental household the child

is registered in, the variable reflects the distance between a nonresident father and a child ($n=91\ 517$) or a nonresident mother and a child ($n=19\ 514$).

As pointed out in earlier studies, the distances moved after a union dissolution and the distances between nonresident parents and children are often rather short. However, some people still move relatively far after a union dissolution and, in Norway, the longest straight line distance from south to north is more than 1700 km on the mainland. This implies that the dependent variable measuring the distance between nonresident parents and their child is not normally distributed, but right-skewed (see Figure 1). Therefore, the natural logarithm of the distance (in km) was used as the dependent variable in ordinary least squares (OLS) regression models.

The independent variables listed in Table 1 were developed to test the formulated hypotheses, to fill existing knowledge gaps, and to control for other possibly relevant family characteristics. If a post-separation family had several common children, the characteristics of the youngest common child were used to construct the dependent and several independent variables.

Firstly, the year of the parents' union dissolution was identified and the age of the (youngest) common child at the end of this year was included to test the child's age hypothesis. By definition, the family had to live together in the year when the child was born. Furthermore, the child had to be younger than 18 at the end of 2012. Therefore child's age at parents' union dissolution varies from 1 to 17 years, and a variable with seven age categories was constructed for the regression models (see Table 1). The time from the parents' break-up until the end of 2012 varies from 0 years (if they moved apart in 2012) to 16 years (if they dissolved the union in 1996). The median time since parents' union dissolution is six years in the case of nonresident fathers and four years in the case of nonresident mothers (see Table 1). As pointed out above, the impact of child's age may vary with the time since the parental break-up. But the variation in child's age at separation decreases systematically with shorter time since parents' union dissolution. If, for example, parents moved apart in 2008, the child's age at separation ranges from 1 to 13 years. Therefore, including the time since the parental break-up and child's age at this point in the same model may lead to biased results. The main model focuses on the impact of child's age at parents' union dissolution, whereas time since the parental break-up is excluded. In additional descriptive analyses and regression models, where time since the break-up was either included or held constant, the relationship between these two aspects was investigated further.

Table 1. Nonresident mothers and nonresident fathers: Descriptive statistics (N=111 031)

Variables	Nonresident mothers	Nonresident fathers
Median distance to child (km)	3.5	5.4
Child's age at parents' union dissolution		
1–2 years	19.3%	32.1%
3–4 years	24.3%	26.7%
5–6 years	18.7%	16.6%
7–8 years	12.8%	10.1%
9–10 years	10.3%	6.5%
11–12 years	7.0%	4.1%
13–17 years	7.7%	4.0%
Connection to former family home		
Resident parent stayed	46.6%	20.4%
Nonresident parent stayed	5.9%	20.2%
Both parents and child moved out	47.6%	59.3%
Family status after parents' union dissolution		
Mother lives with new partner (ref. = no)	23.2%	24.6%
Mother, child with other parent (ref. = no)	15.3%	17.1%
Father lives with new partner (ref. = no)	20.6%	26.8%
Father, child with other parent (ref. = no)	14.9%	20.7%
Household income nonresident parent (NOK)		
25 th percentile	382 000	446 000
Median	559 000	676 000
75 th percentile	882 000	976 000
Child moved to other parent (ref. = no)	33.8%	8.2%
(Youngest) child is a girl (ref. = boy)	44.2%	50.3%
Number of common children		
One child	39.1%	43.0%
Two children	43.3%	40.5%
Three or more children	17.6%	16.4%
Parents were married before union dissolution (ref. = <i>cohabiters</i>)	57.5%	48.9%
Median time since parents' union dissolution	4 years	6 years
% of all post-separation families	17.6%	82.4%
N	19 514	91 517

To test the *family home hypothesis*, parents who still live at the same address as before the union dissolution were identified in the dataset. If a mother or father still lived in the former family home, the address of the (youngest) common child was also taken into account. This made it possible to establish whether the resident parent stayed together with the child in the former family home or whether only the nonresident parent still lived there at the end of 2012.

The *new family hypothesis* states that repartnering and the birth of children with another parent are associated with a longer distance between nonresident parents and children. Two variables were constructed to test this hypothesis. Parents who were living together with a new partner (cohabitation

or marriage) at the end of 2012 were coded as repartnered (versus no new partner). All (new) marriages and spouses are listed in the population register, whereas cohabitations were identified based on the following criteria: the mother or the father had to be registered in the same household as another non-relative adult person of the opposite sex at the end of 2012, and the age difference between the two persons had to be less than 16 years. The identification of childbirths with a new parent is straightforward, as all births are recorded in the population register, including the identification number of both the mother and the father.

To test the *income hypothesis*, the household income of the nonresident parents was derived from the tax and income register. It includes the sum of wages and salaries, property income and transfers for all registered adult household members in 2012. In the regression models, household income quartiles were constructed for the nonresident parent (see Table 1).

In addition, four other background variables were constructed and included in the analyses. Firstly, a dummy variable measures whether the child has moved from one to the other parental household after the parents' union dissolution. Secondly, I controlled for whether the parents were cohabitants or spouses before they moved apart from each other. Finally, the sex of the (youngest) common child and the number of common children were included as additional controls at the family level.

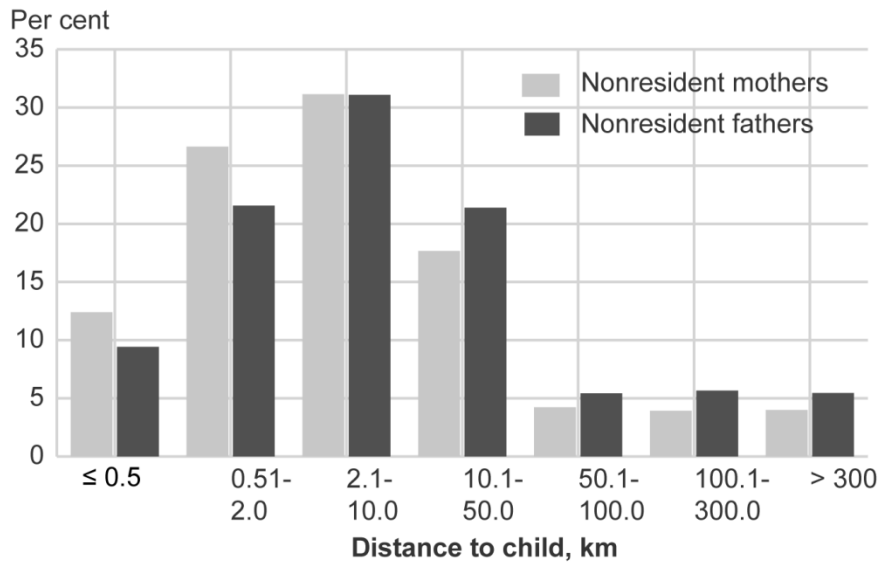
The approach presented here focuses on the variation in the geographical distance between nonresident parents and children, and how the distance is related to characteristics of the family members. Structural characteristics of the municipality or the region may also play a role. For example, urban areas offer more employment and service opportunities and have a larger housing market than most rural areas, whereas residents in the countryside might be more used to travelling longer distances. Dummy variables indicating the municipality each family lived in before union dissolution were included in the regression models. Through such fixed effects on the municipality level, the influence of the structural characteristics of the municipalities was taken into account in the models. At the same time, this approach made it possible to focus on the main variables of interest here. As a robustness check, a variable measuring the level of centrality of the municipalities was tested in additional models (results not shown). This had no significant impact on the results and the coefficients of the other independent variables. As regards centrality, the results indicate that distances between children and nonresident parents are shorter in cities and suburbs compared with less central towns and rural municipalities.

The natural logarithm of the distance (in km) was applied as the dependent variable in ordinary least squares (OLS) regression models, and the results table for the regression models includes the estimated coefficients (B), their standard errors (SE B), and the exponentiated coefficients ($\exp(B)$). If the natural logarithm of a variable is the dependent variable in OLS models, the exponentiated coefficient of an independent variable displays the percentage change in the dependent variable when controlled for the other variables (Gelman & Hill, 2007). The assumptions used for the OLS model were checked, among other things, on the basis of the variance inflation and tolerance statistics. Nonresident mothers might represent a distinctive group of mothers in post-separation families. Furthermore, some of the independent variables may have a different influence on the distance measured among nonresident fathers and nonresident mothers, which may be undetected in a common model. Separated regression models were therefore performed for nonresident mothers and nonresident fathers.

4. Results

Most children are registered in the maternal household after the parents' union dissolution. Among post-separation families in Norway, over 82 percent of the (youngest) children were registered in the maternal household at the end of 2012, whereas 17.6 percent were registered in the paternal household (see Table 1). This is in line with earlier findings, underlining a gendered household pattern among post-separation families (Arránz Becker et al., 2015, Kitterød & Lyngstad, 2014). Furthermore, the descriptive findings in Table 1 show that the median distance between children and nonresident fathers is greater (5.4 km) than in the case of nonresident mothers (3.5 km). This difference between nonresident fathers and mothers is also visible in Figure 1, where the distance between children and their nonresident parents is divided into seven categories. More than 12 percent of the nonresident mothers live within a radius of 500 meters of their child, whereas the same is true for 9.4 percent of the nonresident fathers. A linear geographical distance of 500 meters is equivalent to approximately a 10-minute walk between two addresses. Many other nonresident parents also live relatively near their child. Taken together, 70 percent of the nonresident mothers and 62 percent of the nonresident fathers live within a 10-km radius of their child. If the radius is expanded to 50 km, about 88 percent of all nonresident mothers and more than 83 percent of all nonresident fathers are included. A Euclidian distance of 50 km is equivalent to approximately a one-hour drive between two addresses in Norway. These descriptive results are in line with the two Swedish studies, which found very similar distributions for the distance between children and absent parents in Sweden (SCB, 2015; Stjernström & Strömberg, 2012).

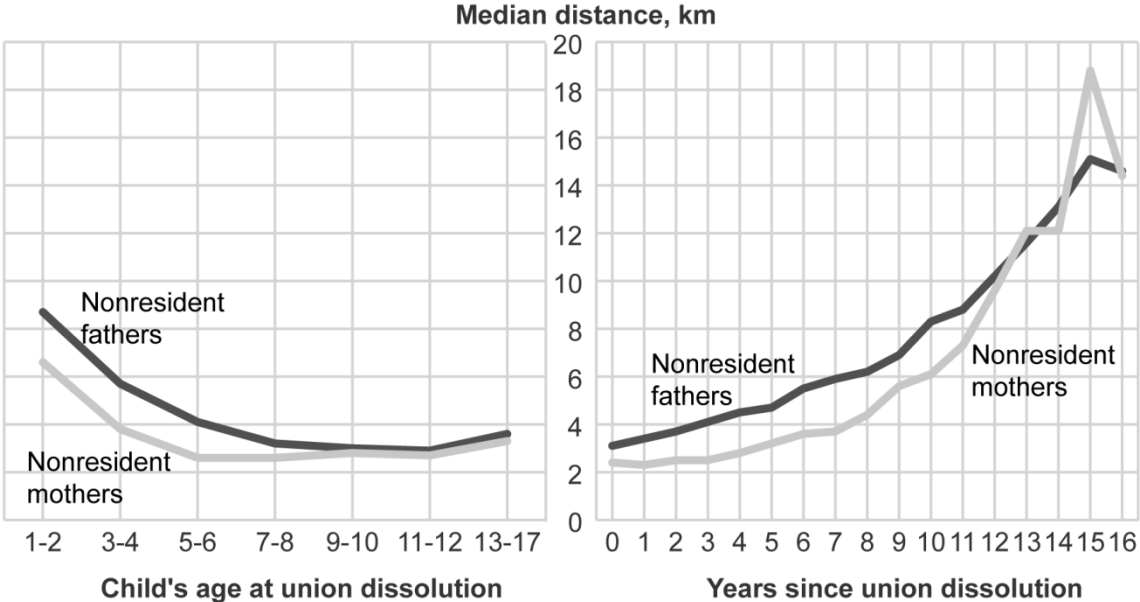
Figure 1. Distance between nonresident parents and children



The observed gender difference in the distance between nonresident parents and children is highly significant in OLS regression models (results not shown). Including only a variable that distinguishes whether the child is registered in the maternal versus the paternal household leads to an unstandardized B for nonresident fathers of 0.39. In other words, a 48 percent ($\exp(0.39) = 1.48$) increase in the mean of distance can be expected if the father is the nonresident parent and not the mother. If the other independent variables are included in the model (similar to the model in Table 2), the difference between nonresident fathers and nonresident mothers remains highly significant with $\exp(B) = 1.32$.

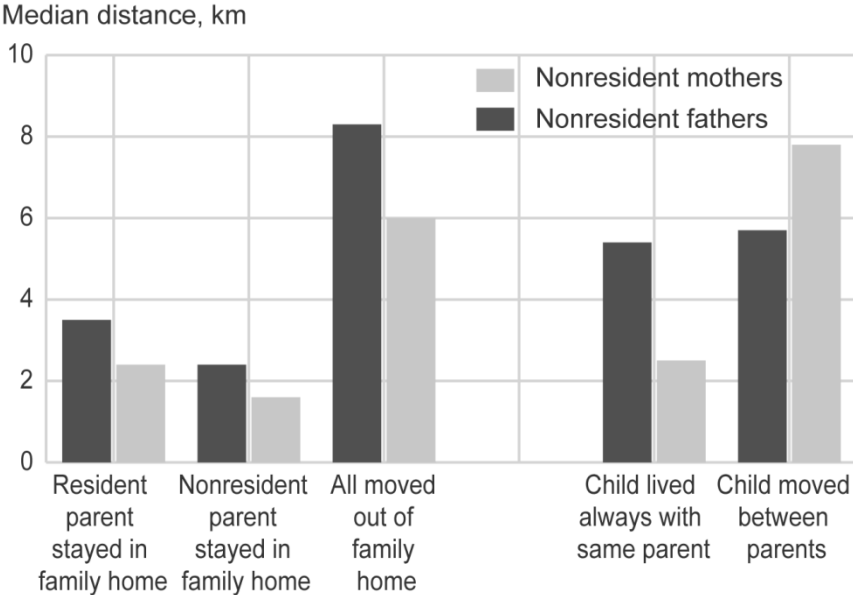
In line with the *time hypothesis*, the median distance between nonresident parents and children increases with years since parents' union dissolution (see Figure 2). Including years since parents' break-up in the OLS-models (as a continuous or categorical variable and instead of or controlled for child's age at parents' union dissolution) leads to similar results and validates the time hypothesis (results not shown). In contrast, the association between distance and child's age at parents' union dissolution seems not to be linear. In descriptive analyses, the median distance is longest among the youngest children and decreases thereafter, but increases again among older children (see Figure 2). The turning point is more distinct and earlier among nonresident mothers (5-6 years) than among nonresident fathers, where children aged 7-12 years at separation have similar and relatively short distances.

Figure 2. Median distance between nonresident parents and children, by time since and by child’s age at the union dissolution



In line with the *family home hypothesis*, the median distance between children and nonresident parents is longest when both parents move out of the former shared family home (see Figure 3). Interestingly, the median distance is shortest if only the nonresident parent stays in the former shared family home, and not if the resident parent and the child still live there. In the descriptive analyses, child’s age, time since parents’ union dissolution, and relation to the family home have a similar association with the median distance among both groups of nonresident parents. However, a child’s move between parental households seems to have a distinct impact among nonresident mothers (see Figure 3). The median distance to nonresident mothers is clearly longer if the child has moved from the maternal to the paternal household, compared with children who were always registered with the father. Among nonresident fathers, such moves between the parental households only lead to a slight increase in the median distance.

Figure 3. Median distance between nonresident parents and children, by move from family home and by moves between parental homes



The results of the separated OLS models for nonresident fathers and nonresident mothers are shown in Table 2. The first variable in the models controls for child’s age at parents’ break-up, and children aged 5 to 6 years at this point serve as the reference category. Among nonresident mothers, both younger and older children at parents’ union dissolution have a significantly longer distance to their nonresident mother than children in the reference group. The pattern is different among nonresident fathers, as the groups including children aged 7-12 years at the parental break-up live significantly closer to their nonresident father than the reference group (5-6 years). There are no significant age differences from 7-12 years, and in total they live significantly closer to their nonresident father than children who were younger (six years or less) or older (13 years or more) at parents’ union dissolution.

The U-curved association between child’s age at parents’ union dissolution and distance to the nonresident parent was already visible in the descriptive findings (Figure 2). The pattern persists if time since the parental break-up – which is correlated with child’s age at the union dissolution – is taken into account. Firstly, time since the break-up is held constant in descriptive analyses, and the results show that the median distance follows the same U-curve (see Figure A1 in the appendix). Secondly, time since parents’ union dissolution was included in or held constant at less than five years in additional regression models as a robustness check (see Tables A1 and A2 in the appendix). Among non-resident mothers, the impact of child’s age in these additional models (see Table A1 in the

appendix) is similar to the results of the main model (see Table 2), except that the difference between children aged 7-8 years and the reference groups is not significant in the second additional model. The main pattern is also confirmed among nonresident fathers, as the two younger and the oldest age groups have a significantly longer distance than the reference group (see Table A2 in the appendix). Taken together, these results partly reject the *child's age hypothesis*, as distances to nonresident parents are longer if children were either comparatively young or old at parents' union dissolution.

Table 2. Summary of OLS-regression models for distance between children and nonresident mothers ($n = 19\,514$) or nonresident fathers ($n = 91\,517$)

Variable	Nonresident mothers			Nonresident fathers		
	<i>B</i>	<i>SE B</i>	<i>exp(B)</i>	<i>B</i>	<i>SE B</i>	<i>exp(B)</i>
Child's age at union dissolution (ref. 5-6 years)						
1-2 years	0.40	0.04	1.49**	0.44	0.02	1.55**
3-4 years	0.16	0.04	1.17**	0.15	0.02	1.17**
7-8 years	0.16	0.05	1.18*	-0.10	0.03	0.90**
9-10 years	0.21	0.05	1.24**	-0.08	0.03	0.92*
11-12 years	0.32	0.06	1.38**	-0.11	0.04	0.90*
13-17 years	0.55	0.06	1.73**	0.11	0.04	1.12*
Family home (ref. resident parent stayed)						
Nonresident parent lives in family home	-0.49	0.06	0.61**	-0.37	0.02	0.69**
All moved out	0.51	0.03	1.66**	0.60	0.02	1.82**
Family status after union dissolution						
Mother lives with new partner (ref. no)	0.34	0.04	1.41**	0.27	0.02	1.31**
Mother, child with other parent (ref. no)	0.09	0.04	1.09	0.12	0.02	1.12**
Father lives with new partner (ref. no)	0.23	0.04	1.26**	0.33	0.02	1.39**
Father, child with other parent (ref. no)	0.23	0.04	1.25**	0.24	0.02	1.27**
Household income of nonresident parent (ref. 1 st q.)						
2 nd quartile	-0.38	0.04	0.68**	-0.25	0.02	0.78**
3 rd quartile	-0.29	0.04	0.75**	-0.24	0.02	0.79**
4 th quartile	-0.33	0.04	0.72**	-0.26	0.02	0.77**
Child moved to other parent (ref. no)	0.74	0.03	2.10**	0.08	0.02	1.09*
Child is a girl (ref. boy)	0.03	0.03	1.03	0.03	0.01	1.03*
Common children (ref. two children)						
One child	0.35	0.03	1.41**	0.28	0.01	1.32**
Three or more children	0.15	0.04	1.16**	0.12	0.02	1.12**
Parents were married (ref. cohabiters)	0.12	0.03	1.13**	0.17	0.01	1.18**
Intercept	0.56	0.25		1.88	0.13	
R^2		0.19			0.14	

Note: Both models include dummy-variables measuring the residence municipality of each family before separation.

* $p < .01$. ** $p < .0001$

Next, the *family home hypothesis* is tested. The hypothesis assumes that the distance between a nonresident parent and a child is shortest if only the nonresident parent moves out. This case

resembles the reference category in the OLS-models in Table 2, compared with post-separation families where the resident parent or where both parents move out. In line with the hypothesis, the results show that the distance between nonresident parents and children is longest if all family members moved out of the former family home. The corresponding coefficients are highly significant and the $\exp(B)$ is 1.66 among nonresident mothers and 1.82 among nonresident fathers.

The descriptive results in Table 1 show that, in many cases, both parents moved out of the family home after the break-up. In contrast to the hypothesis, I find that the distance between the child and the nonresident parent is shortest if the nonresident father or the nonresident mother stayed alone in the former family home. In the case of nonresident fathers, the distance to a child is expected to be 31 percent shorter ($\exp(B) = 0.69$) if only he is registered in the family home compared to if the mother and the child are still registered there. Likewise, the distance is shortest among nonresidential mothers if she is registered without the children in the former family home ($\exp(B) = 0.61$), compared to when the father and the child are still registered there. This is in line with the descriptive findings presented in Figure 3, and the results remain stable if time since the parental break-up is taken into account (see Table A1 and A2 in the appendix).

Further, the results of the OLS regression models in Table 2 support the *new family hypothesis*. The findings indicate that entering a new relationship or having a child with a different parent is associated with an increase in the distance between the nonresident parent and the child. Only among nonresident mothers is there one exception from this pattern: the positive correlation between distance and whether she has another child is not significant. In both groups of nonresident parents, the beta-coefficients of the dummy variables measuring a new relationship are stronger than those measuring an additional childbirth with another parent. Living together with a new partner and having a child with another parent are correlated to some extent, but according to the variance inflation and the tolerance statistics, including all four dummy variables in the same model does not violate the assumptions for the OLS regression.

The coefficients measuring the household income of the nonresident parent in 2012 indicate that a low household income is correlated with longer distances to the child. This supports the *household income hypothesis*. The results fit the theoretical assumption that limited financial resources may hinder nonresident parents from living close to their child. It has to be pointed out that only nonresident parents in the lowest household income quartile (which is the reference group in the models) differ significantly from the other income quartiles. For example, nonresident fathers in the second income

quartile do not differ significantly from nonresident fathers in the highest income group. This means that only nonresident fathers and mothers with a comparatively low household income live significantly further away from their children than other nonresident parents. As a robustness check, the household income of the resident parent was also taken into account (results available on request). This did not change the impact of the household income of the nonresident parent and, furthermore, the income of the resident parent was not significantly associated with the distance to the nonresident parent. Only resident mothers in the second income quartile had a significantly shorter distance to nonresident fathers than resident mothers in the lowest income quartile.

Next, the results of the OLS regression models in Table 2 show that a child's move from the maternal to the paternal household is associated with a significantly longer distance to nonresident mothers compared to children who always were registered with the father ($\exp(B) = 2.10$). This is also the case when time since parents' union dissolution is taken into account (see Table A1 in the appendix). Among nonresident fathers, moving from the father to the mother seems to have less impact on the distance, as the coefficient ($\exp(B) = 1.09$) is only significant at the one-percent level and not significant if the time variable is also included in the model (see Model 1 in Table A2 in the appendix). This is in line with the descriptive findings in Figure 3.

In addition, the models control for the number of common children. Here, the results are almost the same among nonresident mothers and nonresident fathers. Compared to parents with two common children, the distance between nonresident parents and children is longest if they have only one common child. In the case of three or more common children, however, ex-partners also tend to live further apart than post-separation families with two common children. The gender of the (youngest) child is not significantly associated with the distance to nonresident mothers, but nonresident fathers seem to live further away from their daughters than their sons. However, this difference is not significant if the analyses are restricted to union dissolutions within the last four years (see Model 2 in Table A2 in the appendix), which suggests that this gender difference is relatively weak, but increases with time since parents' union dissolution. The dummy variable indicating the union status of the parents before the separation is significant in both groups of nonresident parents. According to the results, the distance from a child to a nonresident parent is expected to be 13 percent (nonresident mothers) or 18 percent (nonresident fathers) higher if the parents were married and not cohabitants before the break-up.

5. Discussion

Research on post-separation families, including recent studies, often focuses one-sidedly on nonresident fathers and mostly ignores nonresident mothers (Cheadle et al., 2010; Kalmijn, 2015; Schier & Hubert, 2015). If both groups of absent or nonresident parents are included, a common finding is that most children live in the maternal household (Arránz Becker et al., 2015; Bonnet et al., 2015; Feijten & van Ham, 2013; Kitterød & Lyngstad, 2014; Mulder & Wagner, 2010; Stjernström & Strömberg, 2012; SCB, 2015). This leads to a comparatively high proportion of children with a nonresident father. The results presented here show that this is also the case in Norway, as about eight out of ten children in post-separation families are registered in the maternal household. From this perspective, the one-sided research focus on nonresident fathers is a reflection of existing social norms and practices. However, the strong gendered household pattern of post-separation families is in itself remarkable and deserves more attention, since fathers nowadays have the same parental rights as mothers in most modern societies (Dethloff, 2015). Furthermore, stimulating fathers to take more responsibility as caregivers for their children is defined as a general aim of family policy in Norway (Kitterød & Lyngstad, 2014). In intact families, the vast majority of Norwegian fathers play an active part in the upbringing of their offspring (Dommermuth, Hohmann-Marriott, & Lappegård, 2015). Moreover, fathers' position after a union dissolution has been strengthened. Joint judicial custody is the norm, and mandatory mediation after a separation ensures that fathers are informed about their rights and duties, including the importance of physical custody agreements (Kitterød & Lyngstad, 2014). However, fewer than 18 percent of the children in post-separation families are registered in the paternal household and many of them were previously registered in the maternal household. About a third of the nonresident mothers previously had the role of resident parent, whereas this was only the case for about eight percent of the nonresident fathers (see Table 1). This means that the gendered household pattern is probably even stronger immediately after a union dissolution. Taken together, the results indicate a strong social norm favoring motherhood after union dissolutions, according to which the maternal household should be the base for the child when parents move apart from each other.

With regard to the geographical distance between a child and the nonresident parent, this gendered pattern is prolonged in the sense that nonresident mothers on average live closer to a child than nonresident fathers. In contrast to earlier research, the results presented here show that the difference in distance also exists if only post-separation families are included in the sample, since nonresident fathers who never lived together with their child were excluded from the analyses. Despite this difference, it has to be underlined that the majority of nonresident fathers also live near their children

in Norway. The median Euclidian distance between nonresident fathers and children is 5.4 km (which is approximately a 20-minute drive) and 3.5 km between nonresident mothers and children.

Based on the review of existing research, different characteristics of post-separation families that may affect the distance between nonresident parents and children were identified, and corresponding hypotheses were formulated. The results of the analyses suggest that the background factors mostly have a similar impact among nonresident mothers and nonresident fathers. This result is an important finding itself, as the situation of post-separation families with nonresident mothers is not well enough investigated. One interesting difference between the two groups is related to children moving between the parental households. If a child had moved from the father to the mother, this was only associated with a slight increase in the distance to the nonresident father compared to children who had always lived with the mother. However, if a child moved from the mother to the father, the distance to the nonresident mother was significantly longer compared to children who were always registered in the paternal household. This may be due to the circumstance that more fathers than mothers stayed in the former shared family home. Some children may want to move back home or to their old neighborhood, which in many cases means moving from the mother to the father. This may be especially the case when the mother makes a subsequent move further away. It is therefore related to longer distances.

The impact of child's age at parents' union dissolution also differs to some extent between nonresident mothers and nonresident fathers. For both nonresident parents, the results presented only partly confirm the *child's age hypothesis*, as the association between child's age and distance is not linear but U-shaped. In contrast to the hypothesis, distances to nonresident parents were comparatively long if the child was less than five years old when the parents broke up. The distance to a nonresident mother was shortest if the child was 5-6 years old at parents' union dissolution, and distances were longer if the child was older in the year of the break-up. Among nonresident fathers, distances were comparatively short if the child was between 7-12 years when the parents moved apart.

The first part of the U-curve, indicating that nonresident parents of young children live comparatively far away from each other, is in line with earlier findings from Sweden (SCB, 2015) and the U.S. (Cheadle et al., 2010). The latter argued that fathers may have less close emotional bonds to their child if the parental break-up occurred relatively early in the child's life (Cheadle et al., 2010). Strong local ties may be one possible explanation for the relative short distances if the child was 5 to 12 years at parents' union dissolution. Children in Norway start primary school at the age of six. Parents might be

more reluctant to move a long distance at this time, since it may mean the child having to change schools and losing another part of his or her social network in the middle of the parents' break-up. The turning point in this association is earlier and more pronounced among nonresident mothers than among nonresident fathers. This might be related to gender-specific parent-child bonds that vary with child's age. Future research including parenting norms in post-separation families may provide further insight here. The remaining part of the U-curved association between child's age at parents' union dissolution and increasing distance to the nonresident parent is not visible in earlier comparable studies, as they did not account for the possible non-linear impact of child's age on distance (Stjernström & Strömgen, 2012) or only focused on younger children (SCB, 2015). Taking into account the time since the parental break-up did not change the shape of the association between child's age at this point and distance to the nonresident parent.

The *time hypothesis* is supported by the results, as the longer it was since the parents moved apart, the greater was the geographical distance between them. This is most likely driven by subsequent moves over time, either in order to provide suitable housing as a resident or nonresident parent, or due to moves not directly linked to the post-separation family itself.

Forming a new family often entails moving to a new address, and the *new family hypothesis* therefore suggested that such events are associated with an increase in the distance between nonresident parents and children. On the one hand, such new union and family formations may increase the life quality of the mother or the father. On the other hand, they are associated with the hypothesized increase in the distance between nonresident parents and children. Interestingly, changes in the family situation of both parents play a significant role here. From the perspective of a nonresident parent, it may be perceived as unfavorable, but at the same time meaningful, that the distance to the child increases when he or she moves together with a new partner or family. But nonresident parents seem to have to pay the same price of longer distances without similar benefits in cases where the resident parent establishes a new family relation and moves further away with the child.

A union dissolution usually involves a reduction in household income (Amato, 2010) and increases the likelihood of moving to a poorer neighborhood (South et al., 1998). With regard to the geographical distance, the results presented here support the *income hypothesis* and indicate that nonresident fathers and mothers with a low income are less likely to find housing near their child than nonresident parents with higher household incomes. Earlier findings suggesting that there is a positive association between income and contact frequency between nonresident fathers and children (Skevik, 2006; Swiss & Le

Bourdais, 2009) might be driven by the impact of income on geographical distance. For children in financially disadvantaged families, the spatial proximity and contact with the nonresident parent may be especially important. From this perspective, it may be desirable to support nonresident parents with small financial resources to improve their housing situation and location. At present, housing support is usually more easily accessible for resident parents.

The here presented study does not include measures for the contact between nonresident parents and children or for custody and living agreements of post-separation families. It focuses on the geographical distance between nonresident mothers or fathers and their children and I investigate to what extent different attributes of post-separation families are associated with this spatial measure. It could be that structural factors related to the place of residence have a greater influence on the distance between nonresident parents and children than the analyses indicate. Such factors might include population density, the local housing and labor market, or the geography of the landscape itself. However, the inclusion of municipality fixed effects (dummies for each municipality) for the municipality in which the family lived before the break-up, largely cancels out such local variations. Still, future research may provide new knowledge about the relevance of such factors to the distance between nonresident parents and children.

The results presented underline the importance of including both nonresident mothers and nonresident fathers in analyses of post-separation families, and the relevance of family characteristics to the geographical distance between nonresident parents and children. This knowledge may help to improve the situation of post-separation families, for example the unfavorable situation of nonresident parents with low income.

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Appendix

Figure A.1 Median distance between nonresident parents and children, by years since and by child's age at the union dissolution

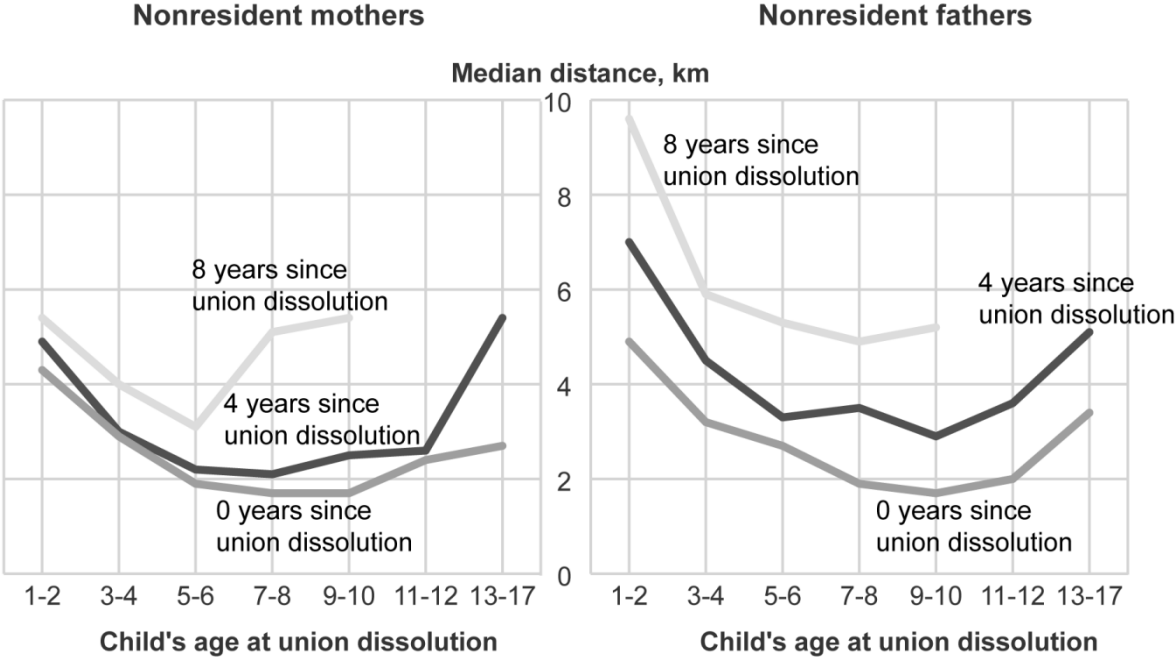


Table A1. OLS-regression models for distances between children and nonresident mothers

Variable	Model 1 ^a			Model 2 ^b		
	<i>B</i>	<i>SE B</i>	<i>exp(B)</i>	<i>B</i>	<i>SE B</i>	<i>exp(B)</i>
Child's age at union dissolution (ref. 5-6 years)						
1-2 years	0.36	0.04	1.44**	0.55	0.07	1.74**
3-4 years	0.14	0.04	1.15**	0.24	0.06	1.28**
7-8 years	0.19	0.05	1.21**	0.09	0.06	1.10
9-10 years	0.28	0.05	1.32**	0.19	0.06	1.21*
11-12 years	0.42	0.06	1.52**	0.32	0.07	1.38**
13-17 years	0.70	0.06	2.01**	0.67	0.06	1.96**
Family home (ref. father & child stayed)						
<i>Nonres. mother lives in family home</i>	-0.49	0.06	0.61**	-0.29	0.07	0.75**
<i>All moved out</i>	0.45	0.03	1.57**	0.42	0.04	1.53**
Family status after union dissolution						
<i>Mother lives with new partner (ref. no)</i>	0.29	0.04	1.34**	0.37	0.06	1.45**
<i>Mother, child with other parent (ref. no)</i>	0.02	0.04	1.02	0.15	0.08	1.16
<i>Father lives with new partner (ref. no)</i>	0.19	0.04	1.20**	0.17	0.06	1.19*
<i>Father, child with other parent (ref. no)</i>	0.15	0.04	1.16*	0.18	0.08	1.20
Household income of nonresident parent (ref. 1 st q.)						
2 nd quartile	-0.39	0.04	0.68**	-0.42	0.05	0.65**
3 rd quartile	-0.30	0.04	0.74**	-0.24	0.05	0.79**
4 th quartile	-0.36	0.04	0.70**	-0.13	0.08	0.88
Child moved to father (ref. no)	0.60	0.03	1.82**	0.52	0.05	1.68**
Child is a girl (ref. boy)	0.03	0.03	1.03	0.05	0.03	1.05
Common children (ref. two children)						
<i>One child</i>	0.35	0.03	1.43**	0.37	0.04	1.45**
<i>Three or more children</i>	0.14	0.04	1.15*	0.16	0.05	1.17**
Parents were married (ref. cohabiters)	0.09	0.03	1.09*	0.11	0.04	1.11*
Years since parents' union dissolution	0.05	0.00	1.05**			
Intercept	0.43	0.25		0.35	0.34	
<i>R</i> ²		0.20			0.14	
<i>n</i>		19 514			9 848	

Note: Both models include dummy-variables measuring the residence municipality of each family before separation.

^{a)} Model 1: Controlling for time since separation

^{b)} Model 2: Including only couples that moved from each other less than 5 years ago

p*<.01. *p*<.0001

Table A2. OLS-regression models for distances between children and nonresident fathers

Variable	Model 1 ^a			Model 2 ^b		
	<i>B</i>	<i>SE B</i>	<i>exp(B)</i>	<i>B</i>	<i>SE B</i>	<i>exp(B)</i>
Child's age at union dissolution (ref. 5-6 years)						
1-2 years	0.39	0.02	1.48**	0.50	0.03	1.64**
3-4 years	0.13	0.02	1.13**	0.16	0.03	1.18**
7-8 years	-0.07	0.03	0.93*	-0.09	0.04	0.91
9-10 years	-0.01	0.03	0.99	-0.02	0.04	0.98
11-12 years	0.00	0.04	1.00	0.02	0.04	1.02
13-17 years	0.27	0.04	1.31**	0.28	0.04	1.32**
Family home (ref. mother & child stayed)						
Nonresident father lives in family home	-0.37	0.02	0.69**	-0.36	0.03	0.70**
All moved out	0.54	0.02	1.71**	0.47	0.02	1.60**
Family status after union dissolution						
Mother lives with new partner (ref. no)	0.21	0.02	1.23**	0.26	0.03	1.29**
Mother, child with other parent (ref. no)	0.05	0.02	1.06*	0.17	0.04	1.19**
Father lives with new partner (ref. no)	0.29	0.02	1.34**	0.32	0.03	1.38**
Father, child with other parent (ref. no)	0.15	0.02	1.16**	0.23	0.04	1.26**
Household income of nonresident parent (ref. 1 st q.)						
2 nd quartile	-0.25	0.02	0.78**	-0.26	0.03	0.77**
3 rd quartile	-0.24	0.02	0.78**	-0.23	0.03	0.79**
4 th quartile	-0.28	0.02	0.76**	-0.12	0.03	0.89**
Child moved to mother (ref. no)	0.05	0.02	1.05	0.13	0.04	1.14*
Child is a girl (ref. boy)	0.03	0.01	1.03*	0.02	0.02	1.02
Common children (ref. two children)						
One child	0.29	0.01	1.34**	0.35	0.02	1.41**
Three or more children	0.10	0.02	1.11**	0.14	0.03	1.15**
Parents were married (ref. cohabiters)	0.14	0.01	1.15**	0.12	0.02	1.12**
Years since parents' union dissolution	0.05	0.00	1.05**			
Intercept	1.66	0.13		1.50	0.20	
<i>R</i> ²		0.14			0.14	
<i>n</i>		91 517			38 466	

Note: Both models include dummy-variables measuring the residence municipality of each family before separation.

^{a)} Model 1: Controlling for time since separation

^{b)} Model 2: Including only couples that moved from each other less than 5 years ago

p*<.01. *p*<.0001

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