Chapter 10
Postdivorce Parent-Child Contact and Child Outcomes: The Role of Spatial Mobility

Anne-Rigt Poortman

Abstract Shared physical custody, or more generally, frequent contact with both parents is often assumed to benefit children, but having to move back and forth between parents' homes may also be harmful, particularly when parents live far apart. This study examined the role of spatial mobility in the association between frequent parent-child contact and multiple child outcomes. Using the New Families in the Netherlands survey, analyses firstly showed that frequent parent-child contact, on average, was found to be not or modestly associated with better child outcomes. Second, spatial mobility mattered, but in varying ways. Long travel times were negatively associated with children's contact with friends and their psychological well-being, but positively related to educational performance. Furthermore, frequent commutes were negatively associated with how often children saw their friends, but positively associated with child psychological well-being. Third, and most importantly, the impact of parent-child contact and frequent commutes on child outcomes were found to be dependent on traveling time. For child psychological well-being and contact with friends, frequent parent-child contact and/or frequent commutes were found to have positive effects when travel distances were short, but these positive effects disappeared when traveling times increased.

Keywords Divorce · Joint physical custody · Spatial mobility · Child well-being

Shared parenting after divorce has become increasingly popular. Parents more often opt for shared physical custody (i.e., alternating/shared residence) nowadays and nonresident father-child contact has increased over time (Cancian et al. 2014; Poortman and Van Gaalen 2017; Westphal et al. 2014). The rise in shared residence in particular sparked a lively debate about whether such an arrangement is in children's best interests. Three opposing theoretical ideas exist (Westphal 2015). First, continuing contact with both parents is generally assumed to increase

A.-R. Poortman (✉)
University of Utrecht, Utrecht, The Netherlands
e-mail: a.poortman@uu.nl

children's access to parental resources (e.g., income, support), and thus, child well-being. Second, shared residence requires children to frequently travel between houses, which may negatively (instead of positively) affect child well-being. Third, children in shared residence may be more exposed to parental conflict or inconsistent parenting, which also decreases their well-being. Similar arguments can be made for nonresident father-child contact – though this literature often relies on the parental resources perspective (Amato 1993).

Most studies examined whether or not shared residence and nonresident father-child contact have positive effects on child well-being (see reviews: Adamsons and Johnson 2013; Nielsen 2018; Steinbach 2018). Only few studies went beyond assessing such overall associations and examined the validity of the different theoretical arguments. This work focused on the role of the parental relationship or, be it less so, on the role of parental resources. Studies examined whether frequent contact with both parents (i.e., shared residence or nonresident father-child contact) is less beneficial for children in case parents have high conflict (Mahrer et al. 2018) or little communication (Sodermans et al. 2013; Vanassche et al. 2013). A handful of studies tap in on the parental resource argument by examining whether frequent parent-child contact is particularly beneficial in case of a good (pre-divorce) parent-child relationship (Poortman 2018; Vanassche et al. 2013; Videon 2002).

Research on the role of having to move frequently between houses is scarce. This argument emphasizes the role of *spatial mobility* that results from having two homes in the association between parent-child contact and child well-being. Although there is some work on how divorce and child residence arrangements are related to moving and the geographical distance between parents (Cooksey and Craig 1998; Feijten and Van Ham 2013; Thomas et al. 2018), few studies relate spatial mobility aspects to child outcomes. Some studies assessed the effect of geographical distance on child outcomes (Jensen 2009; Kalil et al. 2011; Rasmussen and Stratton 2016), but typically use distance as a proxy for parent-child contact because they lack measures for such contact. Other studies focus on the role of both geographical distance and parent-child contact with a particular interest in the potentially stressful effects of traveling over long distances (Schier 2015; Viry 2014). These studies often do not take into account the frequency of commuting. Yet, it is the frequency of commuting that has been argued to negatively affect child well-being and frequent contact is not necessarily the same as this home-switching frequency; e.g., a week to week arrangement involves fewer commutes than an arrangement where a child stays at each parent's house every 3–4 days. It is thus important to consider the associations between parent-child contact, geographical distance and frequency of changing houses and assess their impact on child well-being simultaneously.

This study examines the impact of geographical distance and frequent commutes on child outcomes and their role in the association between parent-child contact and child outcomes. To my knowledge only two larger-scale studies examined the role of frequent commutes on child psychological well-being (Sodermans et al. 2014; Westphal 2015) and only one of these studies took child main residence, distance and frequency of changing houses simultaneously into account (Westphal 2015). The current study extends previous work, and Westphal's study in particular, in three

ways. First, I examine multiple child outcomes; not only children's psychological well-being, but also their educational performance and social integration. The latter outcome has rarely been studied (but see Fransson et al. 2018; Prazen et al. 2011), yet the extent to which children are socially integrated, as indicated by their friend-ships, may in particular be negatively affected by high spatial mobility. Second, the analyses extend measures of parent-child contact beyond child main residence and include nonresident father-child contact, as differences between shared residence and frequent father visitation may only be gradual.

Third, and most importantly, this study examines *the interplay* between parent-child contact, geographical distance and frequent changes between parental homes in their effects on child outcomes. Westphal (2015) and other studies (e.g., Kalil et al. 2011; Sodermans et al. 2014; Viry 2014) explored main effects of parent-child contact and/or distance and/or frequent changes. Yet, arguments about the stress of traveling over long distances is only relevant when children actually travel, that is visit the other parent – implying an interaction between parent-child contact and distance: long distances are particularly problematic when children have frequent parent-child contact with both parents. Or, interpreted the other way around, any positive effects of frequent parent- child contact may weaken or even become negative when children have to commute over long distances. Similarly, and likely even more so given that changing houses is what causes stress rather than contact itself: having to frequently change between parents' homes may be particularly harmful in case parents live far apart. I thus contend that to better understand the role of spatial mobility for the association between parent-child contact and child outcomes, it is more informative to look at interactions. My main argument is that the effects of frequent parent-child contact and frequent changes between homes on child outcomes become less positive or even negative in case of long distances between parental homes.

Using the large-scale survey New Families in the Netherlands – the same data as Westphal (2015) – I first describe the associations between parent-child contact, geographical distance and the frequency of changing between homes. Parent-child contact refers to children's main residence (shared/father/mother) and nonresident father-child contact (if mother residence). Geographical distance is indicated by the time it takes to travel from one parent's house to the other parent's house. Second, I examine the impact of parent-child contact, distance and frequent commutes on three child outcomes: psychological well-being, educational performance and social inte-gration i.e. children's friendships. Third, I study whether the effects of frequent parent-child contact and frequent changes between parental homes on child out-comes depend on how far parents live apart.

10.1   Theoretical Background

After a divorce, parents move to different homes and this often means that children have to commute between two homes – only in rare cases children stay in one home and parents commute. It is this 'circular spatial mobility' (Schier 2015: 206) of children that is argued to negatively affect child outcomes. Children in shared residence or who frequently see the nonresident parent are argued to be worse off because they lack continuity in location and because of the practical difficulties of traveling (Viry 2014; Westphal 2015). This line of reasoning suggests two aspects of spatial mobility to be important: the frequency of commuting and the traveling distance. First, long travels may be stressful for children and imply that children are exposed to different surroundings (Jensen 2009; Viry 2014). When parents live close children likely do not have to travel to another neighborhood or town when visiting the other parent. Short distances thus allow children to continue their social activities (Jensen 2009), which may benefit children. The few findings are mixed: some studies suggest negative effects of long travel distances on child psychological well-being (Jensen 2009; Viry 2014; Westphal 2015) whilst other studies show positive effects on educational outcomes (Kalil et al. 2011; Rasmussen and Stratton 2016).

Second, the frequency of commuting between parental homes is important. When children frequently commute between homes, they lack a stable home and face the organizational difficulties of frequent commutes, such as moving their belongings and informing friends about their whereabouts (Schier 2015; Westphal 2015). Frequent changes may also interrupt daily routines of e.g. doing homework or meeting friends, which may also negatively affect child outcomes. The sparse findings are mixed. Sodermans et al. (2014) find a negative effect of the number of monthly shifts between homes on child psychological well-being, but their analyses include virtually no additional variables. Westphal (2015) includes many controls, including distance and child main residence. She finds a positive effect of frequent commutes on child well-being, which she explains by the more continuous engagement of both parents in children's day-to-day lives in case of frequent changes (Westphal 2015).

In relation to shared residence or more generally, frequent parent-child contact, the second aspect of spatial mobility has typically been emphasized: frequent parent-child contact may be harmful to children because children frequently move between houses and this may outweigh any positive effects of having greater access to both parents' resources (Schier 2015). This line of reasoning does not take into account the distance between parents' homes. The distance argument would lead to an opposing hypothesis. Frequent parent-child contact and frequent changes between houses are often only possible when parents live close to one another, and this shorter distance predicts a positive effect on child well-being. Moreover, as the positive effect of frequent changes on child well-being in Westphal's study (2015) suggests, frequent changes may not necessarily be harmful. I therefore suggest a more nuanced hypothesis. When travel distances are long, frequent commutes may

be harmful to child outcomes, especially in terms of social integration. The stress and organizational difficulties of frequent commutes are likely greater in case of longer travels and feelings of lacking a stable home may be much more hard felt when surroundings are spatially far apart. Moreover, daily routines are more likely to be disrupted when children frequently commute over long distances, especially in terms of their social life; it is for example hard to meet with one's friends when a child is often at the other part of town, let alone a different town. A counter argument for social integration may be that, especially in case of long distances, frequent changes between homes allow for maintaining the social contacts and social life attached to the separate homes (e.g., potential step family members, friends at each parent's house). Nonetheless, as most arguments suggest negative effects, I assume that, overall, frequent changes have disruptive effects in case of long distances. These disruptive effects are less likely when parents live close to each other. In that case, frequent changes may even have positive effects. When parents live close, frequent changes may indicate that parents are both equally involved in children's day-to-day activities and routines which may benefit children (Westphal 2015). Furthermore, frequent changes between homes may signal flexibility in that children are free to go to the other parent when they need to. I thus expect that any positive effects of frequent commuting between homes become weaker or turn into negative effects on child outcomes when distances become larger. Because frequent parent-child contact implies frequent changes, a corollary of this reasoning is that frequent parent-child contact is less positively (or even negatively) related to child well-being when travel distances get larger; in that case, the disruptive effects of frequent changes may overshadow any beneficial effects of greater access to parental resources. I furthermore expect that larger travel distances will generally be associated with worse child outcomes. In light of the opposing arguments for the main effects of frequent parent-child contact and commutes and their dependence on travel distance, I refrain from hypotheses about the overall association between child outcomes on the one hand and parent-child contact (i.e., main residence, father visitation) and frequency of changing homes on the other hand.

10.2 Method

I use data from Wave 1 (2012/13) of the New Families in the Netherlands Survey (NFN; Poortman et al. 2014). NFN is an internet survey among nearly 4500 parents who divorced or separated from a cohabiting union in 2010. Statistics Netherlands sampled households with minor children who divorced/separated in that year, and we approached both parents from a former household. In about 30% of households, both parents participated. The response rate was quite similar to earlier Dutch family surveys, amounting to 39% among persons and 58% among former households. Former cohabiters, men (particularly those with young children), younger persons, people of non-Western descent, people on low incomes and those on welfare were underrepresented, whereas men with children officially registered at their address

were overrepresented. In the group of former cohabiters, parents from the most urbanized areas and men with one child were also underrepresented.

Questions about children's residence arrangements and child outcomes, were asked about a specific focal child. The focal child was the youngest child in case parents had any children who were ten years or older at the time of the survey, and it was the oldest child in case all children were younger than ten. Given the outcomes studied (see below), I only selected cases in which this child was 4–17 years old. I also excluded cases in which the child's main residence was something other than mother, father or shared residence and cases with missing values on the independent and control variables. These exclusions result in a base sample of $N = 3567$. For the analyses of nonresident father-child contact, only respondents reporting mother residence were selected, resulting in a base sample of $N = 2342$. Note that the number of cases with father residence was low and I therefore do not analyze the role of nonresident mother-child contact. These base samples are used to describe the associations between parent-child contact on the one hand, and travel distance and frequency of changes between houses on the other hand. Also the descriptive statistics of the central independent (i.e., parent-child contact, distance, frequent commutes) and control variables are based on these base samples (see Table 10.1). In the multivariate analyses, the eventual N varies depending on the child outcome studied and the number of missing cases for each outcome (see Tables 10.2 and 10.3).

10.2.1   Measures Dependent Variables

Child psychological well-being. Measured by the Strengths and Difficulties Questionnaire (SDQ; Goodman 1997), developed for children aged 4–17 and consisting of items about child behavior. Example items are "Restless, overactive, cannot stay still for long" or "Gets on better with adults than with other children". Parents indicated how closely items described the focal child's behavior in the past six months or during the current school year (0 = *Not true*, 1 = *Somewhat true*, 2 = *Certainly true*). Following the instructions on the site (www.sdqinfo.org), I summed the scores on the subscales referring to child's hyperactivity, peer problems, conduct problems and emotional symptoms to get the total difficulties score (Cronbach's $\alpha = .84$, based on all the items). The variable was logged as it was skewed to the right.

Child educational performance. If the child was in secondary school, grades were asked for the following courses: mathematics, Dutch and English language. I computed the mean score (range 1–10).

Child friendships. Measured, first, by the number of friends (not on social media) that a child has. This information was originally reported in a discrete way, ranging from 0 = *none* to 7 = *more than 20*, but was recoded to a continuous variable. This variable was logged, because it was skewed to the right. Second, parents were asked to report on how often the child saw their friends (outside school) per month. Also

Table 10.1 Descriptive statistics of the variables used in the analyses

	Total sample		Mother residence	
	Mean	SD	Mean	SD
SDQ (logged)[a]	1.969	.742	2.026	.732
Grade[b]	6.769	.960	6.803	.916
Nr. of friends (logged)[c]	1.676	.596	1.657	.601
Contact friends[d]	11.415	8.211	11.372	8.479
Shared residence	.290			
Mother residence	.657			
Father residence	.053			
Nonresident father visitation (logged)			3.723	1.189
Travel distance (logged)	2.445	.920	2.606	.961
Frequency commutes (logged)	1.901	.755	1.850	.781
Female respondent	.574		.616	
Previous cohabitation	.224		.229	
Age child	10.417	3.535	10.208	3.582
Child is girl	.482		.484	
Mother education	6.309	2.008	6.161	2.015
Father education	6.287	2.183	5.985	2.220
Mother working hours	20.557	12.105	19.286	12.406
Father working hours	37.364	11.798	37.484	12.283
Predivorce conflict	2.357	.807	2.434	.811
Predivorce problems parents	.536	.815	.588	.853
Predivorce household income/10000	2.353	1.281	2.249	1.288
Postdivorce tensions	1.877	.959	1.971	.991
Postdivorce severe conflict	2.963	2.652	3.270	2.697
Postdivorce household income/10000	2.302	1.536	2.182	1.260
Either parent repartnered	.465		.491	
N	3567		2342	

Note. SD not presented for dichotomous variables
[a]N = 3552 (total sample)/N = 2329 (mother residence)
[b]N = 942 (total sample)/N = 571 (mother residence)
[c]N = 3444 (total sample)/N = 2238 (mother residence)
[d]N = 3275 (total sample)/N = 2094 (mother residence)

this information was originally asked for in a discrete way (from 0 = *never* to 7 = *every day*), but recoded to a continuous variable indicating the number of times that a child saw his/her friends per month.

10.2.2   Measures Central Independent Variables

Child main residence. Parents were asked with whom the child lived most of the time: mother, father or about equal. The latter option is coded as shared residence and three dummies were constructed for mother, father and shared residence.

Table 10.2 Multilevel regression analyses of child outcomes on child main residence, geographical distance and frequency of commutes

	Model 1	Model 2	Model 3	Model 4
SDQ[a]				
Shared residence (mother = ref)	−.096**	−.074*	−.232*	
Father residence	.085[b]	.074[b]	−.110	
Distance		.029*	.019	−.029
Freq. commutes		−.053**		−.159**
Shared residence* distance			.071~	
Father residence * distance			.071	
Freq. commutes*distance				.040**
Grades[c]				
Shared residence (mother = ref)	−.024	−.004	.199	
Father residence	−.336*[d]	−.343*[b]	−.045	
Distance		.066~	.094*	.045
Freq. commutes		.018		−.002
Shared residence* distance			−.090	
Father residence * distance			−.112	
Freq. Commutes*distance				.009
Nr. of friends[e]				
Shared residence (mother = ref)	.020	.016	.088	
Father residence	−.026	−.023	−.237	
Distance		−.003	−.005	.017
Freq. commutes		.015		.050
Shared residence* distance			−.035	
Father residence * distance			.077[f]	
Freq. commutes*distance				−.014
Contact friends[g]				
Shared residence (mother = ref)	−.047	−.169	2.412*	
Father residence	.659	.663	.084	
Distance		−.407*	−.159	.388
Freq. commutes		−.490*		.644
Shared residence* distance			−1.240**	
Father residence * distance			.208[f]	
Freq. commutes*distance				−.458*

Note. Models include the control variables and distance is measured by travel time; ~p < .10; *p < .05; **p < .01 (two-sided)
[a]N = 3552 from 2795 households
[b]Difference between father and shared residence significant at p < .05 (two-sided)
[c]N = 942 from 761 households
[d]Difference between father and shared residence significant at p < .10 (two-sided)
[e]N = 3444 from 2724 households
[f]Difference between father*distance and shared residence*distance significant at p < .10 (two-sided)
[g]N = 3275 from 2617 households

Table 10.3 Multilevel regression analyses of child outcomes on nonresident father-child contact, geographical distance and frequency of commutes

	Model 1	Model 2a	Model 2b	Model 3	Model 4
SDQ[a]					
Father-child contact	−.025~	−.023~		−.087**	
Distance		.015	.012	−.070~	−.061~
Freq. commutes			−.044*		−.164**
Father-child contact * distance				.025*	
Freq. commutes * distance					.045**
Grades[b]					
Father-child contact	−.057~	−.050		−.038	
Distance		.084*	.089*	.099	.117~
Freq. commutes			−.021		.029
Father-child contact * distance				−.005	
Freq. commutes*distance					−.019
Nr. of friends[c]					
Father-child contact	.006	.005		.016	
Distance		−.007	−.007	.006	.008
Freq. commutes			.010		.034
Father-child contact * distance				−.004	
Freq. commutes*distance					−.009
Contact friends[d]					
Father-child contact	−.306	−.333~		.267	
Distance		−.237	−.267	.564	.291
Freq. commutes			−.584*		.302
Father-child contact * distance				−.232	
Freq. commutes*distance					−.339

Note. Models include the control variables and distance is measured by travel time; ~$p < .10$; *$p < .05$; **$p < .01$ (two-sided)
[a]N = 2329 from 1915 households
[b]N = 571 from 484 households
[c]N = 2238 from 1856 households
[d]N = 2094 from 1762 households

Nonresident father-child contact. A measure of how many days a year a child had contact with the nonresident father (if the child lived with the mother). This variable was constructed using a crude measure of contact with the father in combination with the information provided in a residential calendar (Sodermans et al. 2014) if they saw each other more than monthly. The crude measure asked how often the nonresident father saw the child: *Never, once or twice a year, several times a year (not monthly)* or *at least once a month*. The first three responses were recoded to yearly contact frequency (1 = 0; 2 = 2; 3 = 7). In case of monthly contact, the residential calendar was filled in indicating with whom the child resided during the day and at night for each day of the 4 weeks in an average month ("*Me*" or "*Ex-partner*"). This information was used to create a more precise measure of yearly contact. The

resulting variable was skewed to the right and thus logged to avoid too much leverage by the extremes.

Distance between parental homes. A measure indicating how much time (in minutes) a usual one-way trip takes to the other parent's house. I cut off extreme values at 240 min as 4 h is about the maximum time it takes traveling from North to South in the Netherlands. I also logged the variable, to avoid too much leverage by extreme values. Note that traveling time is a crude measure of geographical distance, especially because the mode of transport was not asked for: a 30-min walk may indicate a smaller distance than a 30-min train ride, though they both take 30 min.

Frequency of commutes. A measure of how often the child moves back and forth between parents' homes on a monthly basis. This variable was constructed using the residential calendar by counting the number of times that there was a change in the place where the child resided (*Me* or *Ex-partner*). This variable was skewed to the right, and hence, logged.

Measures controls. The analyses control for whether the respondent was female (1 = *yes*), and whether the previous union was a cohabitation (1 = *yes*) or marriage (=0). I also control for the following predivorce characteristics (to tackle selection problems) and postdivorce determinants of child outcomes:

Education of parents. Respondents reported their own highest educational level and their ex-partner's (1 = *Less than primary education* to 10 = *Post graduate*). This information was used to construct the mother's and father's educational level.

Predivorce work hours of parents. Respondents reported the number of contractual hours that they and their ex-partner worked per week in the year before divorce. Gender specific measures were constructed to measure the mother's and the father's predivorce work hours. Unemployed parents were assigned zero hours and values higher than 80 h per week were assigned a score of 80.

Predivorce conflict. A scale measuring how often the following things happened in the final year before divorce: "There were tensions or disagreements between you and your ex-partner", "There were heated discussions between you and your ex-partner", "You made serious accusations against each other", "You sometimes stopped talking to each other", and "Arguments got out of hand". Answers ranged from 1 (= *Not at all)* to 4 (= *Often)*. The mean score was taken to create the scale (Cronbach's α = .87).

Predivorce household income. Indicates yearly standardized household income referring to a year earlier than the year in which parents separated or divorced officially (if married). These data were obtained from register data from Statistics Netherlands by linking NFN to the registers in a secured environment.

Predivorce parental problems. A count of problems that respondents or their ex-partner experienced during their relationship, i.e.: "Serious physical illness or handicap", "Serious psychological problems", "Violence, drugs or alcohol addiction", and "Contact with the police (excluding traffic offences)".

Child gender. Coded 1 if the focal child is a girl (otherwise 0).

Child age. The focal child's age in years.

Severe postdivorce conflict. A count of the number of the following things that the ex-partner had done since they split up: "Made serious accusations against you",

"Said bad things about you to others", "Called or visited you uninvited", "Turned your children against you", "Wrongly accused you of something", "Spoke ill of your common past", "Scolded, quarreled with you", and "Threatened violence".

Postdivorce tensions. Measures how often the former partners had conflicts or tensions at the time of the survey: 1 "*Never*" to 4 "*Very often*".

Repartnering. Indicates whether either parent cohabited or married with a new partner.

Postdivorce household income. Using register data, a measure of respondents' household income in 2011 (the year before the survey) or in the most recent year before 2011 for which income data were available was constructed.

10.2.3   Analytical Strategy

The analyses consist of three steps. First, I describe the associations between parent-child contact, travel time and the frequency of commutes to get a feel of how spatial mobility aspects are related to parent-child contact. Second, I test for main effects of the central independent variables. In a first model only parent-child contact is included (besides the control variables). This model shows the associations between parent-child contact with multiple outcomes without controlling for spatial mobility. This model is informative from a more general point of view as this study includes child outcomes that have been rarely studied in the literature on postdivorce child residence arrangement i.e. social integration. In a second model, travel time and the frequency of commuting is added to the model, to examine their main effects and how the effect of parent-child contact changes after accounting for spatial mobility. Because the correlation between nonresident father visitation (logged) and the frequency of changes between parents' homes (logged) was too high ($r = 0.73$), only travel time is added to the model, but I also estimate a model in which frequency of commutes and travel time are included. In the third step, interaction models are estimated. In model four, I include an interaction between the measures for parent-child contact and travel time. In Model 4 I replace parent-child contact variables with the measure for frequency of commutes and I estimate interactions between the frequency of commutes and travel time. Because for 30% of households, both parents participated, I conducted multilevel regression analyses. The baseline models that include only the control variables are shown in the Appendix. To save space, the main tables do not include estimates for the controls. In some sensitivity analyses, I checked whether results differed when the number of children was controlled for, but the results did not change. Because peers become more important when children grow older, I also tested whether the effects of parent-child contact and spatial mobility on social integration varied with the age of the child by including interactions between the main independent variables and the child's age for all models. None of these interactions, except for father visitation * child's age on the number of friends – suggesting a negative effect of father visitation at older ages -, were, however, statistically significant.

10.3 Results

Figures 10.1 and 10.2 illustrate how child main residence and father visitation are associated with spatial mobility aspects. Figure 10.1 shows that travel times are considerably shorter in case of shared residence as compared to sole residence. Whereas the average travel time for mother and father residence amount to 22 and 24 min, respectively, and are only marginally significantly different from each other ($p = 0.06$; analyses not shown), the travel time for children in shared residence is significantly less with an average time of about 8 min. These differences are even more pronounced when looking at the distributions of travelling time. Travel times for sole residence range from 0 to 240 min with 75% of children having to travel 25–30 min or less. In contrast, the range is 0 to maximum 75 min in case of shared residence and 75% of children have parents who live within a 10 min travel distance. The association between nonresident father-child contact and travel distance ($r = -.22$) is negative with large distances being associated with fewer visits. The scatterplot suggests a less pronounced association than for child main residence, given the large spread of observations around a fitted regression line.

Figure 10.2 shows that the mean frequency of commutes is lowest for father residence ($m = 6$) and highest for shared residence ($m = 8.5$), with mother residence in between. Though these differences are all significant, they are less pronounced
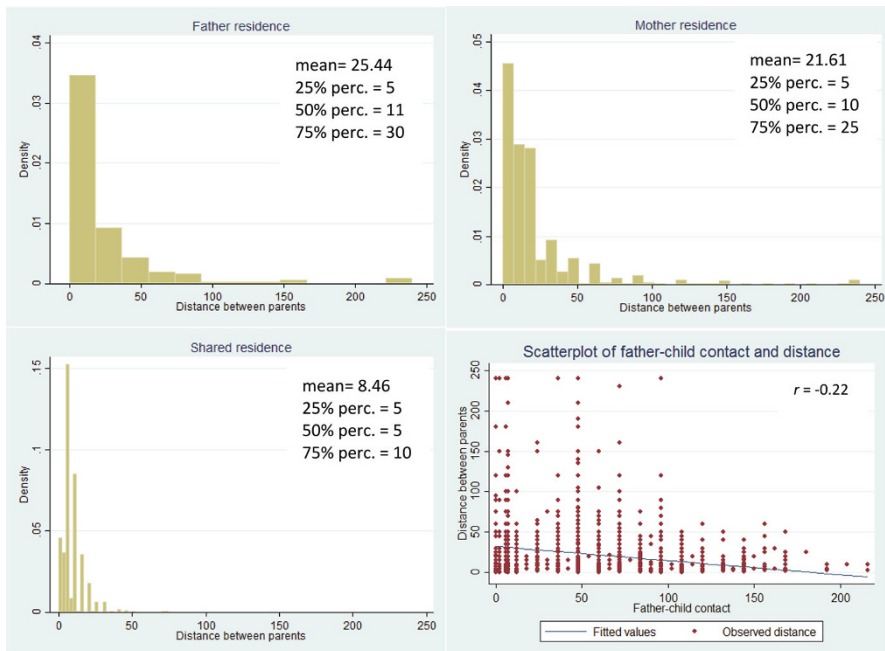
Fig. 10.1 Distance between parents (as measured by travel time) by child's main residence and nonresident father-child contact
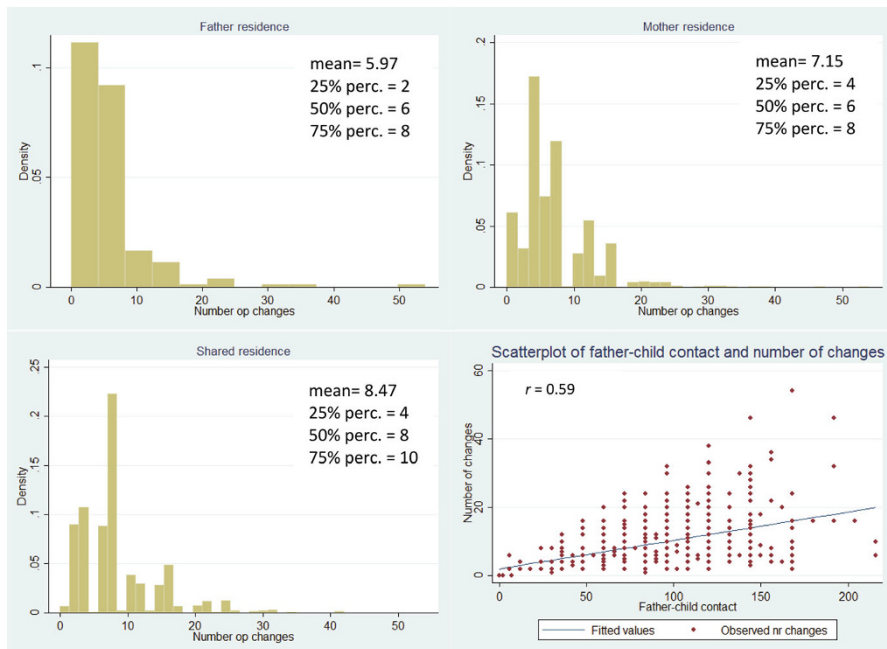
Fig. 10.2 Frequency of changing between parents' homes by child main residence and nonresident father-child contact

than for travel time. This is also apparent from the distributions shown in Fig. 10.2 which show quite some similarities and overlap between the different residence arrangements, especially when comparing the most common arrangements of mother residence and shared residence. Apparently, mother residence nowadays also involves quite some frequent commutes with 50% of children commuting back and forth 6 times a month or less (a 'weekend per fortnight plus'- arrangement, see Nikolina 2015). This is only two times less when compared with the median for shared residence. The scatterplot for nonresident father visitation and the frequency of commutes shows that there is a strong correlation (r = .59) with many visits, not surprisingly, being associated with a high frequency of commutes.

The results for the multivariate analyses are presented in Tables 10.2 and 10.3. Table 10.2 shows the results of four models for each child outcome with child main residence, distance and frequency of commutes being the central independent variables. The first model presents the overall associations between child main residence and child outcomes without controlling for spatial mobility aspects. Estimates show that children in shared residence have significantly fewer difficulties, thus higher well-being, than children in a mother or father residence arrangement, though the effect sizes are modest (.096/SD of .74 = .13 and (.096 + .085)/SD of .74 = .24).

Furthermore, although children in shared residence do not stand out, either positively or negatively, for the other outcomes, children in father residence have significantly lower grades than those in mother or shared residence. Effect sizes are somewhat bigger than for SDQ but still modest (.35 and .33). Child main residence bears no association with the measures for social integration.

In model 2 distance and the frequency of commutes are added to model 1. These spatial mobility aspects affect two out of the four child outcomes: child psychological well-being and the amount of monthly contact with friends. As expected, when travel times are longer children have more social and psychological difficulties (hence, lower child psychological well-being). In addition, the longer it takes to travel from one parent to the other, the less contact that children have with their friends. Note that traveling distance does not affect the number of friends. Further, frequent commutes are associated with less contact with friends but also higher (rather than lower) child psychological well-being – the latter finding being in line with Westphal's study using the same data (Westphal 2015). As shared residence is associated with less travel time and more frequent changes, the main effect of shared residence on SDQ becomes somewhat smaller in model 2, but is still significant.

A more nuanced picture emerges in models 3 and 4, where interaction terms between distance and main residence (model 3) and distance and frequency of commutes (model 4) are included. Although the interaction term is marginally significant (p = .076), shared residence leads to fewer child difficulties than mother residence in case travel times are minimal but this beneficial effect becomes weaker the longer it takes to travel to the other parent's house. When the frequency of commutes is considered in model 4, findings are more convincing. When traveling distance is minimal, frequent changes between parents' houses lead to fewer child difficulties, but this beneficial effect becomes smaller the longer children have to travel (interaction term = .040, p = .005). Panel A in Fig. 10.3 shows a graphical representation of the results in model 4 by plotting the predicted SDQ (logged) for different combinations of travel distance (logged) and number of commutes (logged; for three values: minimum of 0, medium of 2 and maximum of 4). The figure clearly shows that frequent commutes are particularly beneficial when travel times are minimal. At the maximum possible travel time of 5.5, the effect of frequently changing houses is reversed but not statistically significant (p = .154; analyses not shown).

Also for contact with friends, models 3 and 4 show significant interactions. Children in shared residence more often see their friends than children in mother residence when travel distance is minimal, but this advantage becomes less the longer the travel time (interaction term = −1.24; p = .002 in model 3, Table 10.2). Panel B in Fig. 10.3 illustrates this finding showing that shared residence has opposing effects when comparing the minimum and maximum travel distance. When parents live zero minutes apart (e.g., a few houses apart), children in a shared residence arrangement see their friends more often, but when parents live
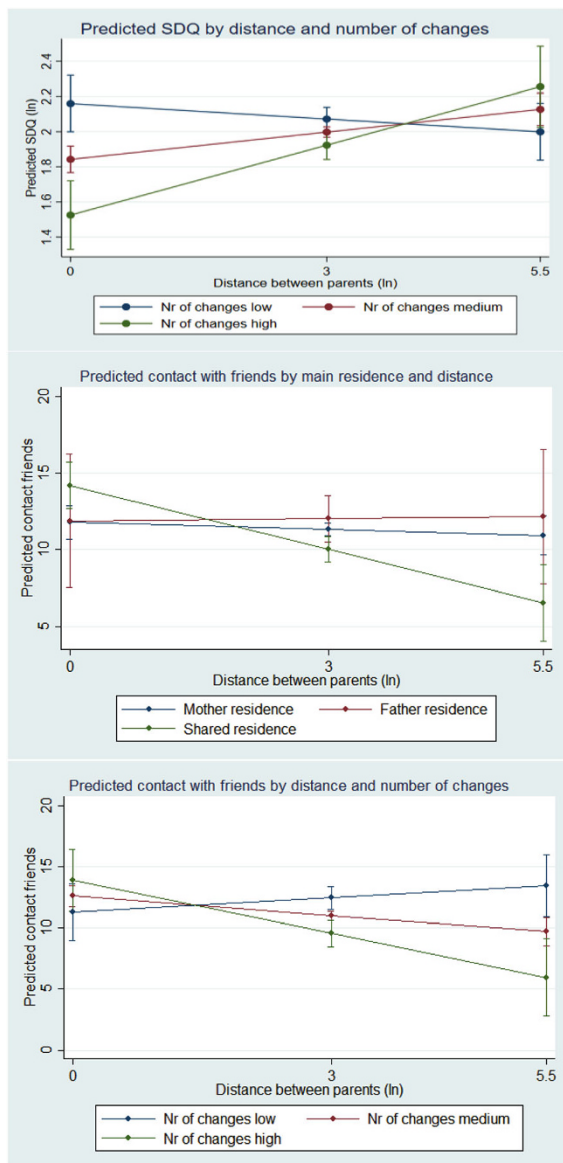
Panel A: Interaction between frequency of commutes and travel distance in their effect on SDQ.

Panel B: Interaction between child main residence and travel distance in their effect on the frequency of contact with friends.
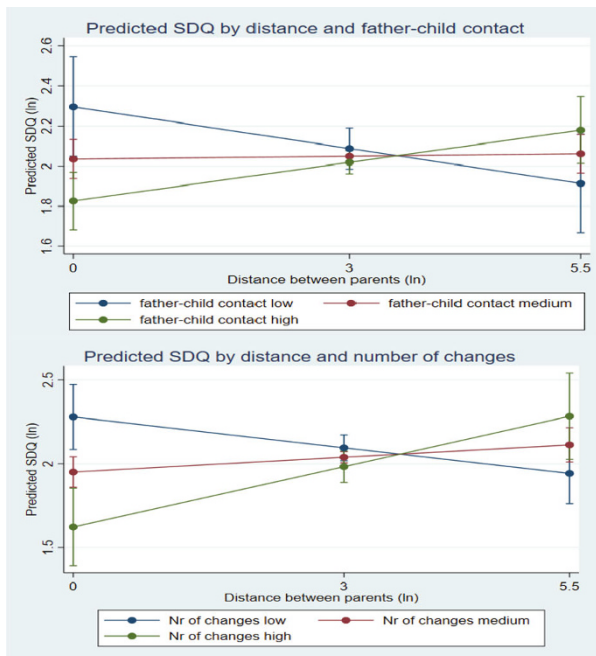
Panel C: Interaction between frequency of changing between parents' homes and travel distance in their effect on the frequency of contact with friends.

Fig. 10.3 Graphical illustrations of the statistically significant interactions in Table 10.2

far apart (maximum of 4 h i.e., ln(distance) = 5.5) children in shared residence see their friends less often than children in sole residence and this difference is statistically significant (results not shown). A more realistic maximum distance for children in shared residence is 60 minutes (see Fig. 10.1). At this travel distance children also see their friends (statistically) significantly less than their counterparts in sole residence (not shown). Also the interaction between frequency of commutes and travel distance is statistically significant (interaction term = −.458; p = .031). As the graphical representation in Panel C of Fig. 10.3 shows, the frequency of commutes has no effect on how often children see their friends when travel distances are minimal, but at the maximum possible travel distance frequent commutes imply statistically significant less contact with friends (b = −1.876; p = .005; results not shown). Note that no significant interactions are found for the other child outcomes.

Table 10.3 presents the results of similar models but now when parent-child contact is measured by nonresident father-child contact (in case children live with the mother). Model 1 shows the overall associations between father visitation and child outcomes suggesting that father visitation has little to no effect on child outcomes. None of the estimates is statistically significant at the conventional level of 5%. In models 2a and 2b spatial mobility aspects are added. Because the correlation between father-child contact (logged) and the frequency of commutes (logged) was too high (r = .73) to include both these variables in the models, model 2a includes father visitation and distance whereas model 2b includes distance and frequency of commutes. Results show that spatial aspects matter for all outcomes except the number of friends. Distance matters for children's grade, but in an unexpected way. The longer it takes to travel from one parent to the other parent, the higher the grade. Frequent commutes are important for child psychological well-being and the amount of contact with friends. Children who travel more frequently, have fewer difficulties (thus higher well-being) than those travelling less frequently. And frequent commutes negatively affect the amount of contact with friends.

In models 3 and 4, the interaction terms between distance and father visitation (model 3) and distance and frequent commutes (model 4) are added. Only for child SDQ there are significant interactions and these are illustrated in Fig. 10.4. The pattern is similar regardless of whether one looks at father-child contact or the frequency of changing between parents' homes, which is not surprising given the high correlation between these variables. Frequent father-child contact or frequent commutes lead to fewer social and psychological difficulties when parents live close to each other, but no longer so when travel distances are large. In case of a maximum travel time, frequent visitation or frequent changes have no statistically significant association with child difficulties at the 5% significance level (although the number of changes is marginally significant; b = .085; p = .091 – results not shown).

Fig. 10.4 Graphical illustrations of the statistically significant interactions in Table 10.3

10.4   Conclusion

The recent increase in shared residence fueled a debate about whether such an arrangement serves the interests of children. Although it is typically assumed that shared residence or, more generally, frequent contact with both parents benefits children, some scholars have argued that having to move back and forth between parents' homes may be harmful (Westphal 2015). This study examined the validity of this argument by looking at spatial mobility and its role in the association between frequent parent-child contact and child outcomes. The study's main contributions were its focus on multiple child outcomes and its examination of the interplay between distance, frequency of commutes and parent-child contact.

First, frequent parent-child contact, on average, was not or modestly associated with child outcomes. Although the role of spatial mobility was central, the main associations between parent-child contact and child outcomes are worth mentioning here as this study was one of the first to include multiple child outcomes. In line with previous studies, father visitation was associated with none of the studied child outcomes. Only child psychological well-being was significantly better for children

in shared residence as compared to those in sole residence, but effect sizes were modest. For other outcomes, no positive (or negative) effects were found of shared residence. Only children who resided with the father were found to perform worse at school, but this group is small and may be selective (e.g., mother ill).

Second, spatial mobility matters for child outcomes, but not always in ways as would be expected. When it comes to children's social integration, longer travel times and having to frequently move back and forth between houses led children to see their friends less often. These findings are as one would expect given that frequent commutes and longer distances make it more difficult to meet with friends. Note that these findings suggest opposing implications for how frequent parent-child contact impacts on a child's friendships: frequent contact (i.e., shared residence or father visitation) was associated with frequent changes suggesting a negative impact, but also with lower travel times which rather predicts positive effects on contact with friends. Also noteworthy is that spatial mobility affects children's (physical) contact with friends, but not the number of friends. Perhaps digital contact via social media is used to maintain friendships in case of long distances or frequent commutes (Viry 2014). Longer travel times were also found to affect child psychological well-being negatively, which is in line with previous findings (Viry 2014) and corroborates the argument that traveling and different surroundings may be stressful (Jensen 2009; Schier 2015).

In contrast, educational performance was positively associated with longer distances when traveling to visit a nonresident father. This finding is in line with previous findings (Kalil et al. 2011; Rasmussen and Stratton 2016). Previous work attributed this positive effect to the greater contact and thus possibly greater exposure to conflict in case of short distances or to the fewer moves between parents' households in case of long distances (ibid.), but this study controlled for parent-child contact, conflict and frequent commutes. Selectivity and reversed causation may play a role here: when a child performs well at school, parents may be more inclined to live further apart as they are not worried about any disruptive effects of long travels on performance vis-a-vis parents whose child performs less well. Another reason may be that long travel distances may interfere little with daily routines such as doing homework or attending extra classes because long commutes are planned at different times in the week than short ones: long travels are likely planned in weekends rather than during weekdays. Another unexpected finding is that frequent commutes overall have a positive influence on child psychological well-being (as was already shown by Westphal 2015, but see Sodermans et al. 2014). Frequent shifts between parents' houses may benefit children because parents are both equally involved in their child's daily life (Westphal 2015) and frequent moves may signal flexibility in that children are free to go to the other parent as often as they want or need. Spatial mobility thus suggests little harm for children in shared residence:

travel distances are shorter in case of shared residence which positively affects child psychological well-being and the greater frequency of changing houses does not seem to negatively affect child psychological well-being.

Third, and most importantly, the impact of parent-child contact and frequent commutes on child outcomes were found to be dependent on traveling time. Frequent parent-child contact (be it in the form of shared residence or father visitation) was found to be positively associated with child psychological well-being when travel distances were short, but this positive effect disappeared when travel distance increased. The pattern was more pronounced for the frequency of commutes: when parents lived close to each other frequent changes between parents' homes were associated with higher child psychological well-being, but this was no longer the case when parents lived far apart. Further, children in shared residence met their friends more often than children in sole residence when parents lived close, but when parents lived far apart they met their friends less often. Also frequent commutes were associated with less contact with friends in case of long travels. No such interactions were however found when looking at nonresident father visitation. Frequent father-child contact mattered little for children's contact with friends, regardless of travel distance. This inconsistency may be explained by temporal aspects of spatial mobility. Children in shared residence may be more likely to change houses during weekdays whereas visits to nonresident fathers may more often take place in weekends, which may interfere less with children's social activities and their contacts with friends.

These findings call for a more nuanced interpretation of the possibly disruptive role of moving back and forth between parent's homes in case children frequently see both their parents. The stress of being exposed to different locations and the practical difficulties of changing houses seem to only be important when parents live far apart. When parents live close, frequent parent-child contact has positive effects in terms of having access to both parents' resources, parents' continuous engagement in children's lives and the possibility to freely move between parents' houses. But when parents live far apart, these positive effects are counteracted by the stress of long travels and of having to adjust to new surroundings and by the disruptive effects on daily routines when it comes to children's social lives. The findings also call for a more optimistic view on the role of frequent parent-child contact for child outcomes. Although this study corroborates earlier findings suggesting no or modest *overall* positive effects of shared residence and father visitation (Adamsons and Johnson 2013; Nielsen 2018), frequent parent-child contact has stronger positive associations with child outcomes when parents live close - and for shared residence this is often the case as most parents live within 10 min travel distance.

This study also has some limitations, which call for further research. The cross-sectional design of the study does not allow for strong causal inferences. Selectivity and reversed causation may explain some of the observed associations, as was for instance suggested when discussing the positive association between travel distance

and educational performance. Ideally, future research should use panel data to address these issues, though large-scale panel data containing a sufficient number of divorced people are difficult to find. Another limitation concerns the used measure for distance. NFN only includes information about travel time, and lacks information about the geographical distance between parents in kilometers or more specific information about the mode of traveling. Whether children travel by foot, bike, car or public transportation may also be important as some traveling modes e.g. imply greater organizational and practical difficulties of traveling than others or may feel more stressful. Future research may want to use less crude measures to capture geographical distance or examine the mode of travel. A related suggestion for future research is to have a closer look at the temporal organization of multi-locality: at which days in the week do children go to the other parent, week or weekend days? As speculated above, it may be that moves during weekdays may be more disruptive to children's daily routines such as meeting with friends or doing homework, than moves during weekends. Finally, NFN surveyed parents quite shortly after divorce and separation. Given the sampling design parents were, on average, divorced/separated for only 2 years. It may well be that traveling may become increasingly tedious for children after a while. Future research may examine the effects of spatial mobility in the longer term.

All in all, this study suggests that the spatial mobility arising from traveling between two homes is not necessarily a bad thing. When parents live close, frequent parent-child contact and frequent moves between parental homes appear to be beneficial for children. It is only when children have to travel over long distances that these benefits disappear. Because parents with a shared residence arrangement typically live close to each, concerns about the greater spatial mobility of children in shared residence find little empirical support overall in this study.

Appendix: Baseline Models

Table A Multilevel analyses of multiple child outcomes on control variables: total sample and mother residence only

	SDQ	Grade	Nr. of friends	Contact friends
Total sample	N = 3552	N = 942	N = 3444	N = 3275
Female respondent	−.069**	.041	.033	−.536~
Previous cohabitation	−.012	.113	.034	−.283
Age child	−.006	−.112**	.015**	.363**
Child is girl	−.173**	.290**	.081**	−.182
Mother education	−.030**	018	.006	−.269**
Father education	−.024**	.012	−.006	−.240**
Mother working hours	−.001	−.003	.003**	.015
Father working hours	−.002~	.001	.000	.000
Predivorce conflict	.022	.012	−.005	−.016
Predivorce problems parents	.072**	.033	−.009	.228
Predivorce household income/10000	−.009	−.024	.013~	−.126
Postdivorce tensions	.082**	−.069*	−.029*	−.391*
Postdivorce severe conflict	.034**	−.006	−.005	.113
Postdivorce household income/10000	−.027**	.002	.020**	.219*
Either parent repartnered	−.047~	.043	.029	.377
Mother residence only	N = 2329	N = 571	N = 2238	N = 2094
Female respondent	−.128**	.096	.054~	−1.252**
Previous cohabitation	−.012	.170	.033	−.687
Age child	−.008~	−.085**	.014**	.320**
Child is girl	−.173**	.217**	.081**	−.402
Mother education	−.030**	.004	.007	−.247*
Father education	−.020**	.033	−.012~	−.313**
Mother working hours	−.001	−.005	.003*	.009
Father working hours	−.002~	−.000	−.000	−.002
Predivorce conflict	.022	−.053	−.025	−.029
Predivorce problems parents	.072**	.045	−.018	.109
Predivorce household income/10000	−.013	.006	.012	−.131
Postdivorce tensions	.095**	−.092*	−.030~	−.487*
Postdivorce severe conflict	.027**	.018	.004	.180*
Postdivorce household income/10000	−.032*	−.024	.023*	.183
Either parent repartnered	−.065*	.147	.049~	.596

~p < .10; *p < .05; **p < .01 (two-sided)

References

Adamsons, K., & Johnson, S. K. (2013). An updated and expanded meta-analysis of nonresident fathering and child well-being. *Journal of Family Psychology, 27*, 589.

Amato, P. R. (1993). Children's adjustment to divorce: Theories, hypotheses, and empirical support. *Journal of Marriage and the Family, 55*, 23–38.

Cancian, M., Meyer, D. R., Brown, P. R., & Cook, S. T. (2014). Who gets custody now? Dramatic changes in children's living arrangements after divorce. *Demography, 51*, 1381–1396.

Cooksey, E. C., & Craig, P. H. (1998). Parenting from a distance: The effects of paternal characteristics on contact between nonresidential fathers and their children. *Demography, 35*, 187–200.

Feijten, P., & Van Ham, M. (2013). The consequences of divorce and splitting up for spatial mobility in the UK. *Comparative Population Studies, 3*, 405–432.

Fransson, E., Låftman, S. B., Östberg, V., Hjern, A., & Bergström, M. (2018). The living conditions of children with shared residence–the Swedish example. *Child Indicators Research, 11*, 861–883.

Goodman, R. (1997). The strengths and difficulties questionnaire: A research note. *Journal of Child Psychology and Psychiatry, 38*, 581–586.

Kalil, A., Mogstad, M., Rege, M., & Votruba, M. (2011). Divorced fathers' proximity and children's long-run outcomes: Evidence from Norwegian registry data. *Demography, 48*, 1005–1027.

Jensen, A. M. (2009). Mobile children: Small captives of large structures? *Children & Society, 23*, 123–135.

Mahrer, N. E., O'Hara, K. L., Sandler, I. N., & Wolchik, S. A. (2018). Does shared parenting help or hurt children in high-conflict divorced families? *Journal of Divorce & Remarriage, 59*, 324–347.

Nielsen, L. (2018). Joint versus sole physical custody: Outcomes for children independent of family income or parental conflict. *Journal of Child Custody, 15*, 35–54.

Nikolina, N. V. (2015). *Divided parents, shared children: Legal aspects of (residential) co-parenting in England, the Netherlands and Belgium* [Dissertation]. Utrecht: Utrecht University.

Poortman, A. (2018). Postdivorce parent–child contact and child well-being: The importance of predivorce parental involvement. *Journal of Marriage and Family, 80*, 671–683.

Poortman, A., & Van Gaalen, R. (2017). Shared residence after separation: A review and new findings from the Netherlands. *Family Court Review, 55*, 531–544.

Poortman, A., Van der Lippe, T., & Boele-Woelki, K. (2014). *Codebook of the survey New Families in the Netherlands (NFN). First wave*. Utrecht: Utrecht University.

Prazen, A., Wolfinger, N. H., Cahill, C., & Kowaleski-Jones, L. (2011). Joint physical custody and neighborhood friendships in middle childhood. *Sociological Inquiry, 81*, 247–259.

Rasmussen, A. W., & Stratton, L. S. (2016). How distance to a non-resident parent relates to child outcomes. *Review of Economics of the Household, 14*, 829–857.

Schier, M. (2015). Post-separation families: Spatial mobilities and the need to manage multi-local everyday life. In C. M. Aybek, J. Huinink, & R. Muttarak (Eds.), *Spatial mobility, migration, and living arrangements* (pp. 205–224). Cham: Springer.

Sodermans, A., Vanassche, S., & Matthijs, K. (2013). Verblijfsregelingen en welbevinden van kinderen: verschillen naar gezinskenmerken. *Relaties en Nieuwe Gezinnen, 3*, 1–29.

Sodermans, A. K., Vanassche, S., Matthijs, K., & Swicegood, G. (2014). Measuring postdivorce living arrangements: Theoretical and empirical validation of the residential calendar. *Journal of Family Issues, 35*, 125–145.

Steinbach, A. (2018). Children's and parents' well-being in joint physical custody: A literature review. *Online publication ahead of print in Family process*. https://doi.org/10.1111/famp.12372.

Thomas, M. J., Mulder, C. H., & Cooke, T. J. (2018). Geographical distances between separated parents: A longitudinal analysis. *European Journal of Population, 34*, 63–489.

Vanassche, S., Sodermans, A. K., Matthijs, K., & Swicegood, G. (2013). Commuting between two parental households: The association between joint physical custody and adolescent wellbeing following divorce. *Journal of Family Studies, 19*, 139–158.

Videon, T. M. (2002). The effects of parent-adolescent relationships and parental separation on adolescent well-being. *Journal of Marriage and Family, 64*, 489–503.

Viry, G. (2014). Coparenting and children's adjustment to divorce: The role of geographical distance from fathers. *Journal of Divorce & Remarriage, 55*, 503–526.

Westphal, S. (2015). Chapter three from *Are the kids alright. Essays on postdivorce residence arrangements and children's wellbeing* (Dissertation). Utrecht: Universiteit Utrecht.

Westphal, S. K., Poortman, A., & Van der Lippe, T. (2014). Non-resident father–child contact across divorce cohorts: The role of father involvement during marriage. *European Sociological Review, 30*, 444–456.

Anne-Rigt Poortman is Professor at the Department of Sociology, Utrecht University (Chair: 'Family Diversity and Life Course Outcomes'). She has specialized in family sociology and social demography. She is particularly interested in divorce and separation, new relationship types and legal aspects of partner relationships. Currently she is the program leader of a large data collection and related research program about how and why outcomes for parents and children vary across different postdivorce family types.