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Abstract:

This paper analyzes how the distance between children and nonresident parents has changed during the last 40 years in Sweden, and how this is related to changes in child custody policies. We use population register data including exact geographical coordinates for children and their nonresident parents in the year after separation, for 1974-2011. This allows us to track developments for a longer period than that examined in any previous study. Results show a gradual decrease in distances between children and nonresident parents from the 1970s until the early 1990s, after which the trend has stalled at a low level. In 2011, 50 percent of all children lived within 2 kilometers of their nonresident parent, and less than 10 percent lived more than 50 kilometers apart. We find no evidence of direct policy effects, although policies may still have had an indirect effect via their impact on norms. High-income parents have changed their post-divorce residential patterns at a faster pace than low-income parents.

Keywords: divorce, parent-child distance, register data, child custody



Introduction

During the last half-century, most western countries have experienced growing family instability. Sweden is no exception. Although parental separation rates in Sweden have stabilized during the last decade, around one-third of all children have experienced a parental union dissolution by their 15th birthday (Thomson & Eriksson, 2013). Even though most parents in Sweden share the legal custody of their common children after a divorce (Statistics Sweden, 2009), divorce is associated with decreased contact between the child and the nonresident parent, usually the father. This loss of contact is likely to be even further exacerbated if this parent lives at a substantial distance from the child. For instance, research demonstrates that geographical proximity between the child and the nonresident parent is positively related to the level of fathers' support (Mulder & van der Meer, 2009), involvement (Cooksey & Craig, 1998), payment of child support (Manning & Smock, 2000), and the overall quality of the parent-child relationship (Smyth, Sheehan, & Fehlberg, 2001). Distances between children and nonresident parents are thus an area that warrants attention.

Despite research showing that the distance between children and nonresident parents has decreased since the 1990s (Stjernström & Strömberg, 2012) it remains unclear what this trend has been driven by. Has it been driven by reforms in family policies promoting the shared custody of children following union dissolution, or is it a reflection of a gradual egalitarianization of parenthood, which is also reflected in post-separation parenting arrangements?

In this paper we analyze how the distance between children and nonresident parents has developed in Sweden during the last 40 years, with a particular focus on how this is related to changes in five potentially important child custody policies. We consider the introduction of each of these five reforms as distinct critical junctures, at which a discrete change in the

distance between children and their nonresident parents might be expected. An alternative hypothesis is the possibility of a gradual change that has occurred in tandem with the diffusion of attitudes of gender equality, which have influenced family behaviors. By using a unique data set that includes geographical coordinates for all children and their nonresident parents in the year after separation for almost 40 years, all the way back to 1974, we are able to follow the relevant developments for a substantially longer period than any previous study.

Background

Why is parent-child distance important?

A large body of research has shown that divorce or separation is associated with adverse outcomes for children (see for example: Amato, 2000, 2010). Loss of contact with the nonresident parent (usually the father) has been shown to negatively impact the wellbeing of the child (Amato & Anthony, 2014; McLanahan, Tach, & Schneider, 2013). Maintaining a relationship that is characterized by active parenting and high involvement despite not co-residing has been shown to benefit the child greatly (Adamsons, 2018; Adamsons & Johnson, 2013; Amato & Gilbreth, 1999; Viry, 2014).

Shared physical custody arrangements are also important for children's wellbeing. Alternating residence between both parental households may be viewed as the most intense form on a continuum of engagement between children and nonresident parents. Parents who share physical custody of their children are more likely than nonresident parents to have an active parenting style (Bastaitis & Mortelmans, 2017; Bastaitis, Ponnet, & Mortelmans, 2012) and are likely to have more opportunities to participate in the child's everyday life than parents whose children's time in the household is limited to shorter visits. A parent with shared physical custody is likely to have a greater insight into the child's social life via

knowledge about his/her friends and their parents, and also greater insight into the child's education as a result of meeting teachers when dropping off or picking up the child from pre-school or school or when participating at parent-teaching meetings, performance reviews, etc. This type of post-separation living arrangement is also related to higher child wellbeing than living full-time with one parent (Nielsen, 2011, 2014, 2018).

Geographical proximity between the nonresident parent and the child is crucial in order to maintain this kind of active parenting relationship. Importantly, shared physical custody with alternating residence on a weekly, or bi-weekly basis, requires a relatively small geographical distance between parents. When time is spent in both households, the child's possibilities for attending the same school and maintaining stable contact with peers etc. requires a geographical proximity between the households, whereas a custody arrangement involving shorter visits on weekends and holidays does not affect these possibilities to the same extent, thus allowing a greater distance. Accordingly, research demonstrates that the geographical proximity between the child and the nonresident parent is positively related to the level of fathers' support (Mulder & van der Meer, 2009), involvement (Cooksey & Craig, 1998), and payment of child support (Manning & Smock, 2000). Proximity also affects the quality of the parent-child relationship, since distance restricts the opportunities for and frequency of meetings between the child and the nonresident parent (Smyth et al., 2001). Research from Sweden has shown that the intergenerational transmission of education between nonresident parents and children is stronger the closer they live to one another, suggesting that distance restricts the transmission of non-material resources from parent to child (Gähler, Jonsson, & Brolin Loftman, 2009). Children whose parents have shared physical custody demonstrate lower levels of risk behavior than children of single parents (Carlsund, Eriksson, Lofstedt, & Sellstrom, 2013). Interestingly, some contradictory results from Norway show that proximity between highly educated fathers and nonresident children is associated with worse

educational and labor market outcomes for Norwegian children (Kalil, Mogstad, Rege, & Votruba, 2011).

Few studies have analyzed factors that may affect the geographical proximity between children and parents following a union dissolution. A handful of studies do however exist. Findings from both the Netherlands (Feijten & Van Ham, 2007) and the United States (Cooke, Mulder, & Thomas, 2016) show that parents on average move shorter distances following a divorce than persons without children. Studies from Sweden (Stjernström & Strömgren, 2012) and Norway (Dommermuth, 2018) have found that parental income was negatively associated with the distance between children and nonresident parents, suggesting that being able to live close to one's child is restricted by the ability to find affordable housing. Increasing family complexity may also affect a parent's will or ability to remain close to a child from a previous union. This is suggested by findings from both Sweden and Norway (Dommermuth, 2018; Stjernström & Strömgren, 2012), and from the UK (Thomas, Mulder, & Cooke, 2017), indicating that having a new partner or new children after a separation is positively associated with distance to the child from the previous relationship.

Previous research from Sweden has shown that the distance between children and nonresident parents has decreased in Sweden since the 1990s, which has been interpreted as a result of the increased prevalence of shared physical custody (Stjernström & Strömgren, 2012). Both during, and in the years leading up to this period, a number of policy reforms have been implemented in this field, whose purpose has often been to encourage paternal involvement with children following a union dissolution. To date, however, no studies have examined the impact of such policy changes on the distance between children and nonresident parents either in Sweden or internationally.

The Swedish case

Sweden is often considered a forerunner in family demographic behaviors such as cohabitation, divorce, childbearing across different partnerships and family reconstitution (Ohlsson-Wijk, Turunen, & Andersson, 2017). The level of fathers' involvement with their children is comparatively high and has increased over recent decades, for instance as a result of the introduction of shared parental leave in 1974 (Duvander & Ferrarini, 2013). Sweden was among the first countries in the world to introduce no-fault divorce legislation in 1915, and then unilateral no-fault divorce in 1974, meaning that divorce is possible without the agreement of both spouses (Sandström, 2012). At the same time, the proportion of 15-year-olds who have experienced a parental union disruption has increased over this period, from 22 percent in 1974 to 30-35 percent from 1999 onwards (Thomson & Eriksson, 2013).

Sweden is characterized by a widespread acceptance of different family forms (Troost, 1996) and also has a relatively high proportion of children who live with their fathers following a separation (30 percent of all lone parents are fathers, which may be compared with 12 percent in the UK or 3 percent in Estonia) (Chzhen & Bradshaw, 2012) or in a stepfamily setting, but a low proportion of children who are born to single mothers (Andersson, Thomson, & Duntava, 2017).

Swedish divorce legislation distinguishes between legal custody (i.e. whether the parents share the legal responsibility for their children, or whether only one of the parents has the right to make decisions relating to the child) and physical custody (i.e. where the children live). Parents can decide freely whether the child should live 50-50 at each parent's, spend the majority of the time at the home of one of the parents and every other weekend with the other, or any other solution they see fit. However, a child can only have one registered place of residence, even if s/he shares her/his time equally between both parents. This makes it

impossible to trace residential custody arrangements in Swedish population registers.

Analyses from the 2010 Health Behaviour in School-aged Children study (HBSC) show that Sweden is the country with the highest proportion of children of divorcees who live in shared physical custody arrangements. 21 percent of all Swedish children aged 11, 13 or 15 with divorced parents shared their time equally between both parents, as compared with e.g. 5 percent of the corresponding children in the US (Steinbach, Augustijn, & Corkadi, 2019). 30 percent of all children with separated parents live only with their mother and 5 percent live only with their father (Statistics Sweden, 2014). Children have frequent contacts with the other parent even when they do not share equal residence, with about 85 percent of all children who do not have shared residence visiting the nonresident parent at least once per month (Statistics Sweden, 2011).

Five custody reforms

The vast majority of Swedish post-separation custody arrangements are agreed upon by parents without any involvement from the social services or the legal system. Voluntary agreements are also very common in cases in which custody is initially contested. In 2015 there were 4,166 custody disputes between parents registered in the Swedish courts and in approximately 65% of these cases the parents reached a voluntary agreement without the court having to make a judgement (The Swedish Ministry of Health and Social Affairs, 2017). The Swedish child custody laws are a result of an ambition among policy makers to make family life more gender equal, and they have developed in this direction since the 1970s, along with other family policies such as the individual taxation of married couples and gender-neutral parental leave legislation (Schiratzki, 2007). The laws and policies have had the aim of enforcing the caring obligations of fathers both within unions, regardless of marital

status, and following union dissolution (Bergman & Hobson, 2002). The legislators' intention has also been to promote voluntary parental agreements on custody and contact issues (Heimer & Palme, 2016). None of the reforms described below explicitly regulate the geographical distance between parents and children. Rather they were designed to increase the involvement of fathers. However, it is likely that increased post-separation engagement would lead to a decrease in geographical distances, and particularly in long distances.

In this paper we analyze whether five changes in the custody legislation since the 1970s have affected the distance between parents and their nonresident children.

1. The first policy change was introduced in 1977, when joint legal custody after union dissolution, both for previously cohabiting and married parents, could be granted by a court if it was in the best interest of the child and if both parents agreed to it. Prior to this, shared legal custody had only been available to parents who had previously been married. This reform may be assumed to decrease distances, since a group of parents were given increased rights to participate in the life of their children following separation.
2. In the second policy change, in 1982, the need for a court decision was removed and parents who agreed to share the legal custody of their children could arrange this themselves. This reform removed a formal obstacle to shared custody and is thus likely to have further decreased the distance between parents and children.
3. In 1992, a legal presumption for joint legal custody was introduced, making it the default option following parental divorce or separation, unless the parents decided otherwise or, in cases involving a custody dispute, a court granted sole custody to one of the parents.

4. In 1998, the courts were allowed to grant joint legal, as well as physical, custody even in cases in which one of the parents had demanded sole custody. Unlike the first two changes, reforms 3 and 4 did not remove legal obstacles. Instead they made it more difficult to obtain sole custody, which had previously been the default option. Given that these reforms directly affected all separated or divorced families, and given the normalizing effect of a legal presumption, these reforms are likely to be those with potentially the strongest effects on decreased distances.
5. The fifth policy change, in 2006, modified this somewhat by making the parents' ability to co-operate a pre-requisite for shared custody, as well as taking into account the risk of the child being abused. Since this reform set up a new pre-requisite for shared custody, it is likely on average to have produced a decrease in paternal involvement, thus increasing the distance to the child.

Expected policy effects on parent-child distances

The paths between the introduction of a policy and subsequent changes in behavior can be understood on the basis of the behavioral assumptions underlying the policy. Schneider and Ingram (1990) suggest five underlying behavioral assumptions linked to public policies. First, policies may impact behavior directly via authoritative measures, such as prohibiting a previously allowed behavior, or by allowing behavior that has not previously been permitted by law. Second, policies may affect behavior by providing new incentives for a certain behavior. This effect is also likely to be rather direct, although possibly not as direct as the policy effect of adding or removing legal obstacles. Third, policies may provide capacity, such as information, resources or training, which enables individuals to make decisions. Fourth, the effectiveness of policies relies on people's beliefs and values. Individuals are

likely to act in line with policy goals if these are promoted as important, high priority issues, and if they are consistent with individuals' values and associated with positive symbols and labels. Fifth, policy makers sometimes use policies based on learning as a way of acting when a problem is recognized but where there is no consensus about the best course of action. These kinds of policies are often rather open-ended with regard to their purposes and objectives and allow lower-level agents to specify the choice of exact policy tools (Schneider & Ingram, 1990).

On the basis of this framework, the introduction of a policy is likely to influence people's behavior if it changes what is legally permitted, if it provides people with new incentives for a certain behavior, if it provides people with new information or resources, or if it is in accordance with, or changes, people's norms. Policies can also influence a behavior indirectly by normalizing it over time. Furthermore, a policy can be introduced as a way of influencing behaviors or as a response to an already ongoing development whereby behaviors have begun to change or even become a norm, thus legally legitimizing them. In the latter case, we interpret the policy itself as a form of cultural change rather than as a precursor of change.

The literature concerning policy effects on family behaviors such as divorce or childbearing is considerable. Research from Sweden, for example, has shown policy effects from the introduction of unilateral no-fault divorce in 1974 (Sandström, 2012) and from policies promoting fathers' use of parental leave (Duvander and Johansson, 2012). In the 1960s, working families with children received extensive financial and in-kind support to promote female labor force participation, which both increased the proportion of women in the labor force and increased fertility (Björklund, 2006). Family policies promoting female labor force participation have also been shown to affect norms and attitudes regarding gender equality in general (Sjöberg, 2004).

Studies focusing on policy effects on post-separation parental engagement are rather scarce. Fransson and colleagues (2018) attribute the high prevalence of shared physical custody arrangements in Sweden to gender-equal family policies, but do not test this empirically. In 1995, Belgium implemented a policy reform that gave mothers and fathers equal responsibility for children after a divorce. However, given that the policy did not provide guidelines on children's residential arrangements, it did not affect the predominant pattern of sole maternal custody (Vanassche, Sodermans, Declerck, & Matthijs, 2017). This prompted a second reform in 2006, which required that in all divorce cases in which parents could not agree on the children's living arrangements, the judge had to first consider equally divided alternating residence (Sodermans, Matthijs, & Swicegood, 2013). The likelihood of opting for a shared physical custody arrangement increased following this policy reform (Sodermans et al., 2013). In Sweden, an Official Report of the Swedish Government (The Swedish Ministry of Health and Social Affairs, 2017) concluded that the Swedish custody reform of 2006 (described above) had probably contributed to an increase in custody disputes by explicitly highlighting the possibility of not having shared custody, which parents had viewed as a legal presumption prior to the legislative reform. A recent evaluation of revisions made to the child custody statutes of Arizona in 2013, which directed courts to maximize children's parenting time with both parents (when consistent with children's best interests), found that the reform had produced an increase in equal parenting time and shared parenting (Fabricius, Aaron, Akins, Assini, & McElroy, 2018).

We specify the following hypotheses on the trend in distances between children and their nonresident parent:

H1a: The policies implemented in 1977, 1982, 1992 and 1998 were followed by a decrease in distances between children and their nonresident parent.

H1b: The effect is particularly strong in reducing very long distances

H2: The policy implemented in 2006 was followed by unchanged or increased distances between children and their nonresident parent.

Developments in attitudes and family behaviors

An alternative explanation for changes in distances between children and nonresident parents following a union dissolution is related to changes in norms governing parenting. It could very well be the case that these changes are rather a sign of a gradual egalitarianization of parenthood, which is also reflected in post-separation parenting arrangements. Being actively involved in childrearing and in children's everyday lives has traditionally been part of the division of labor between men and women, with the main responsibility having fallen on the mothers. Traditional norms regarding gender roles, including the care of children, have been increasingly contested during the latter half of the 20th century however. Goldscheider, Bernhardt, and Lappegård (2015) have even referred to Swedish fathers' increasing involvement in childrearing as the second step in an ongoing gender revolution, in which the first step involved women's entry into the labor market and the second men entering as full actors into matters related to family life. When fathers become parents in full, this is likely also to have consequences for post-separation arrangements.

Gender role attitudes have been shown to change over time largely by means of cohort replacement (Brewster & Padavic, 2000; Brooks & Bolzendahl, 2004), as generations with more traditional gender role attitudes die and are replaced by younger generations with more liberal attitudes. Another explanation for changing gender role attitudes is found in changes in the social structural relationships in which individuals are situated (Brooks & Bolzendahl, 2004). One such relationship is found in women's increased labor force participation, which

has changed women's economic opportunities, reduced gender inequality and influenced norms regarding the roles of women and men in society.

Developments in behaviors, such as increased paternal engagement, may not be shared equally by all sectors of society however. Certain groups may be more likely to adopt new ideas and attitudes, or to respond to policy changes, than others. Some groups may respond quickly to a new policy whereas the behaviors of others may be changed by a longer process of norm diffusion, or not at all. When it comes to fathers' use of parental leave in Sweden, for example, recent research by Ma and colleagues (2019) has shown that taking extended periods of parental leave has become increasingly common among all groups of fathers since the 1990s, but that the increase has been significantly slower among fathers with low educational attainment and among those with an immigrant background. In the case of union dissolution, the correlation with educational attainment has become increasingly negative over time as divorce has become more common (Härkönen & Dronkers, 2006). This suggests that union dissolution requires more resources when it means breaking social norms but that these resources become less important as divorce becomes a common practice.

No studies have to date examined differentials in policy effects on parent-child distance, post-divorce engagement or shared physical custody in Sweden. Stjernström and Strömgren (2012) have however shown a shift from a positive to a negative correlation between the educational attainment of fathers and distance to a nonresident child between the years 1990 and 2005. Dommermuth (2018) has shown a negative correlation between education and distance for Norway. Cross-sectional studies from both Sweden (Fransson, Bergström, & Hjern, 2015; Turunen, 2017) and Norway (Kitterød & Lyngstad, 2012) have shown a positive correlation between economic resources and the likelihood of having a shared physical custody arrangement for children following a union dissolution. These studies do not

however assesses changes over time. In the case of Belgium, shared physical custody was more common among divorced parents of higher socioeconomic status prior to the custody reform of 2006. Following the reform, the phenomenon has gradually become more common in the overall population (Sodermans et al., 2013). The same study also showed that low-conflict couples had been overrepresented among families with shared physical custody prior to the policy reform but that this pattern disappeared following the introduction of the legal presumption, further indicating that the phenomenon had become less selective (Sodermans et al., 2013).

Building on the way in which norms favoring shared parenting have developed in Sweden over recent decades, and how this may impact parents from different socioeconomic strata (SES) differently, we pose an alternate hypothesis stating that:

H3a: The distances between children and their non-resident parents have gradually decreased during the last 40 years.

H3b: This development has been particularly pronounced among high-SES parents.

Data and analysis

Data

Our analyses build on Swedish population register data. The data are based on civic registration and most importantly they enable us to assess when two parents are no longer living at the same address, and also the Euclidian distance in meters between the child and the nonresident parent. To our knowledge, this data set is the only one that includes such exact measures of residence and at the same time covers the whole period between 1974 and

2011, that is, the period during which all the relevant custody policy changes were introduced.

The study population comprises all children under 18 whose parents separated in the year $t-1$. Union dissolution is defined as involving cases in which previously coresident parents are now registered as residents at two different locations. The method has previously been validated and shown to be a high quality measure of parental union dissolution (Thomson & Eriksson, 2013). We link children to their parents using the Multigenerational register (Flergen) which also allows for the identification of siblings. In total, our data contain 1.2 million children, of whom 1 million are registered as living with their mother during the year following the separation, and 200,000 are registered as living with their father.

Our main dependent variable is the distance between a child and his or her nonresident parent in the year after union dissolution. It is important to note that even though a child can only be registered with one parent, s/he may still live with both parents. Thus the nonresident parent may in fact be a part-time resident parent. We have linked geographical coordinates to the home addresses of the child and the nonresident parents, which allows us to calculate the Euclidean distance between the mid-point of the property in which the child lives, and the mid-point of property in which the nonresident parent lives. In a first step, we examine continuous distance, and also the natural logarithm of distance, in order to account for skewness in our dependent variable. In a second step, we then examine the likelihood of living within walking distance of one's nonresident parent. Walking distance is defined as living within two kilometers of a nonresident parent. This distance threshold is the one used by the City of Stockholm to determine whether a child is eligible to receive free public school transport between home and school (City of Stockholm, 2018), i.e. when a school is considered to be too far away to walk to. It is likely that the introduction of policies had the

strongest impact on the likelihood of living at very long distances from one's children, given that such distances make it difficult to maintain contact. In order to examine whether this is the case, we examine the likelihood of living more than 50 kilometers from one's nonresident parent. This threshold was chosen because 50 kilometers is the distance at which migration propensities start to level off in a number of countries, which indicates that this is what individuals consider to constitute a long distance (Vidal, Perales, Lersch, & Branden, 2015).

Our main independent variables are the calendar year and the parents' socioeconomic status. In the present study, socioeconomic status is operationalized as the CPI-adjusted income quintile of the nonresident parent. The quintiles were constructed for the full population of 20-64-year-old individuals over the studied period. Income is used as a proxy for socioeconomic status since the quality of this data is high even during the earlier parts of the period examined, whereas the quality of educational data is rather poor for the early parts of the period.

In all models we control for a number of potential confounders. These are the age of the child at the time of separation, the number of siblings the child has, whether parents were cohabiting or married, and the size of the municipality in which the family lived prior to separation.

Analytical strategy

We examine how the distance between children and nonresident parents has changed over the last 40 years, addressing potential policy effects, as well as socioeconomic differences, on this trend. All analyses have been performed separately by the sex of the nonresident parent. It should be noted that all analyses have been conducted for the year after the separation in order to avoid the possibility that potential policy effects could be distorted by residential

decisions that had been taken long before the implementation of the policy changes in question.

First, we investigate whether changes in child custody policies during this period have affected the distance between children and nonresident parents. We examine this by considering each of the five years in which such policies were implemented as distinct critical junctures, at which we would expect a discrete jump or fall in the average distance between children and their nonresident parents. The empirical model is simple and can be formulated as follows:

$$Distance_i = \beta_0 + \beta_1 Year_{1975} + \dots + \beta_{37} Year_{2011} + \beta_{38} Controls_i + \varepsilon_i$$

where *Distance* is either a continuous variable measuring the Euclidian distance between the child and the nonresident parent the year after separation, the natural logarithm of this distance, a dichotomous variable measuring whether the distance between the child and the nonresident parent is less than two kilometers, or a dichotomous variable measuring whether the distance is 50 kilometers or more. *Year* is a set of dummy variables ranging from 1975 to 2011 (with 1974 specified as reference category), measuring the year of separation, and *Controls* is a vector of control variables, as specified above, generally measured in the year that the parents separated. We hypothesize that distances will decrease by year due to gradual changes in gender- and childcare norms, as well as due to cohort replacement effects, as more child-oriented fathers have replaced less child-oriented or more traditional ones. In addition, we expect particularly large decreases following the years in which the policies were implemented in 1977, 1982, 1992 and 1998, and possibly an increase in distances in 2006.

Second, we examine how the potential decrease in distance differs by the socioeconomic status of the parents in order to gauge both who is driving any observed change and to allow

for the possibility that different groups are differentially affected by policy reforms. We do this by means of separate analyses, based on CPI-adjusted income quintiles, of the nonresident parents. Given the large size of our data set, we conduct analyses on sub-sets of data rather than including interaction terms. This is advantageous since it allows for the control variables also to have heterogeneous effects on distance.

Results

We present four sets of analyses. (1) OLS regressions on the distance between the child and the nonresident parent, (2) OLS regressions on the natural logarithm of the distance between the child and the nonresidential parent, in order to adjust for skewness in the distance variable (3) logistic regressions with the child and nonresident parent living within two kilometers of each other as the dependent variable, and (4) similar analyses to (3) but with living more than 50 kilometers from one another as the dependent variable. In a first step we examine average effects, while in a second step we examine differential effects depending on the income quintile of the nonresident parent. All analyses have been performed separately depending on whether the mother or the father is the nonresident parent.

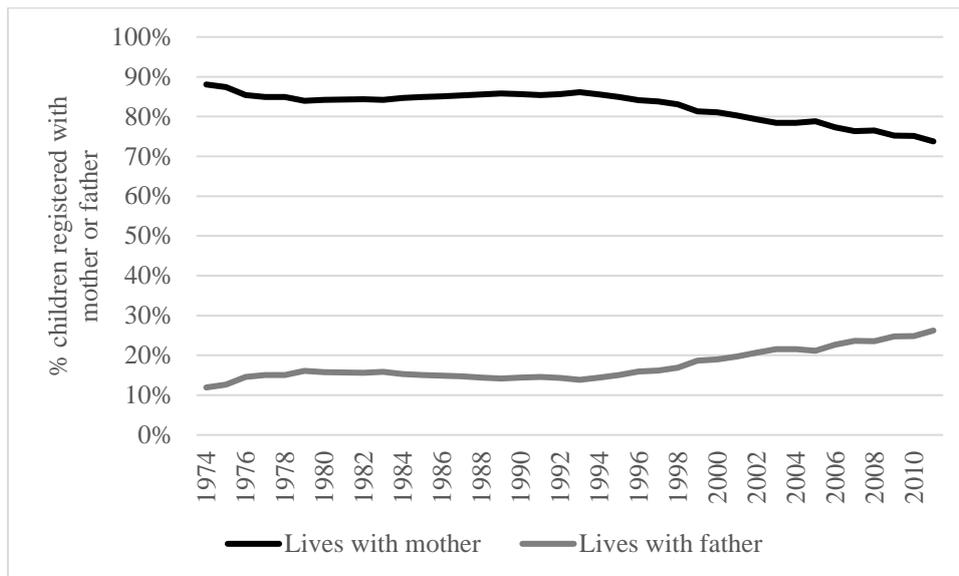
Figure 1 shows that the proportion of children who are registered at their mother's place of residence has decreased over the studied period. In 1974, 88 percent of the children lived with their mothers, and in 2011 this proportion had decreased to 74 percent. It should again be noted that all analyses have been conducted for the year after the separation in order to avoid the possibility that potential policy effects could be distorted by residential decisions that had been taken long before the implementation of the policy changes in question.¹ We

¹ *Distance between children and their nonresident parents tend to increase as the time since the separation of their parents increases.*

On average, among children aged 0-5 whose parents divorced in the year 2000, the distance between the child and the nonresident

would also like to emphasize once again that children can only be registered with one parent, but that it is very likely that they also spend time with the parent with whom they are not registered.

Figure 1. Percentage of children registered as living with their mother and father respectively in the year after separation. 1974-2011.



Figures 2 through 5 present developments in the distance between nonresident parents and their children in the year after separation, by year of separation. Estimates are also available in the Appendix, Table A1. Figure A1 in the Appendix includes more a detailed categorization of distances over time. We expected to find decreasing distances following the reforms of 1977, 1982, 1992 and 1998, whose aim was to increase nonresident fathers' involvement with their children, and possibly an increase in distances after 2006 when the ability of the courts to award shared physical custody was restricted under certain circumstances. The vertical grey bars represent the years in which a policy change was implemented.

parent increased from 2.5 to 6/9 kilometers during the first 5/10 years following a separation (figures based on the authors' analyses of Swedish population registers).

Figure 2. OLS regressions on distance in km between child and nonresident parent, with year as the only independent variable. Predicted distance. 1974 to 2011.

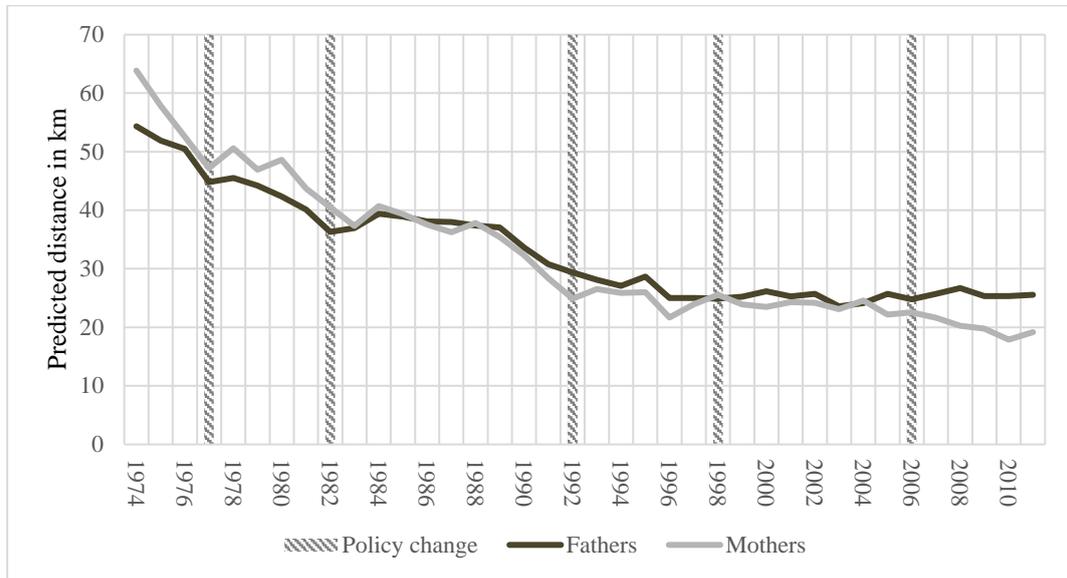


Figure 3. OLS regressions on $\ln(\text{distance between child and nonresident parent})$, with year as the only independent variable. Coefficients. 1974 to 2011.

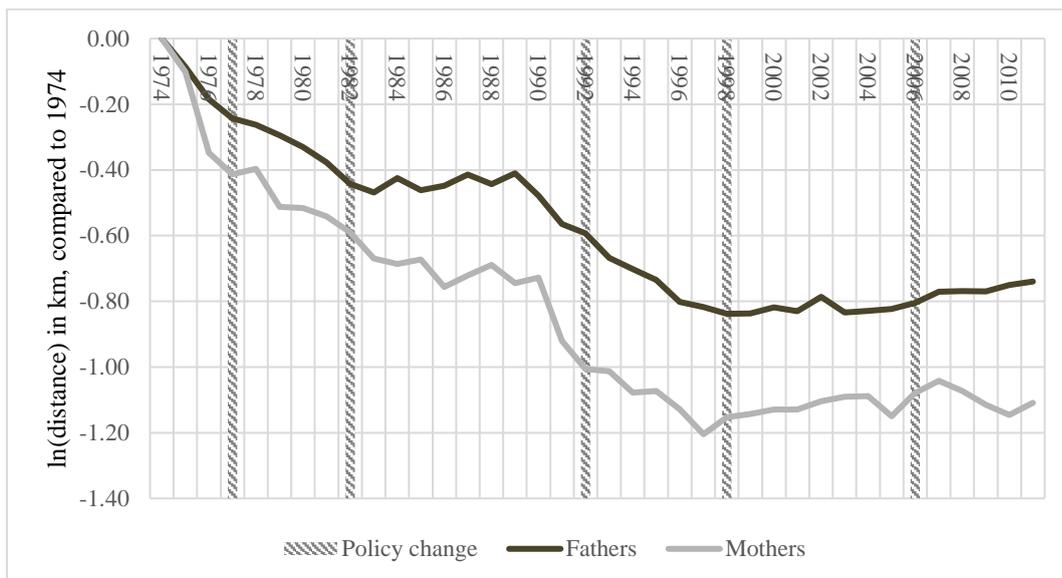


Figure 4. Logistic regressions on likelihood of child and nonresident parent living within 2 km of each other, with year as the only independent variable. Predicted probabilities. 1974 to 2011.

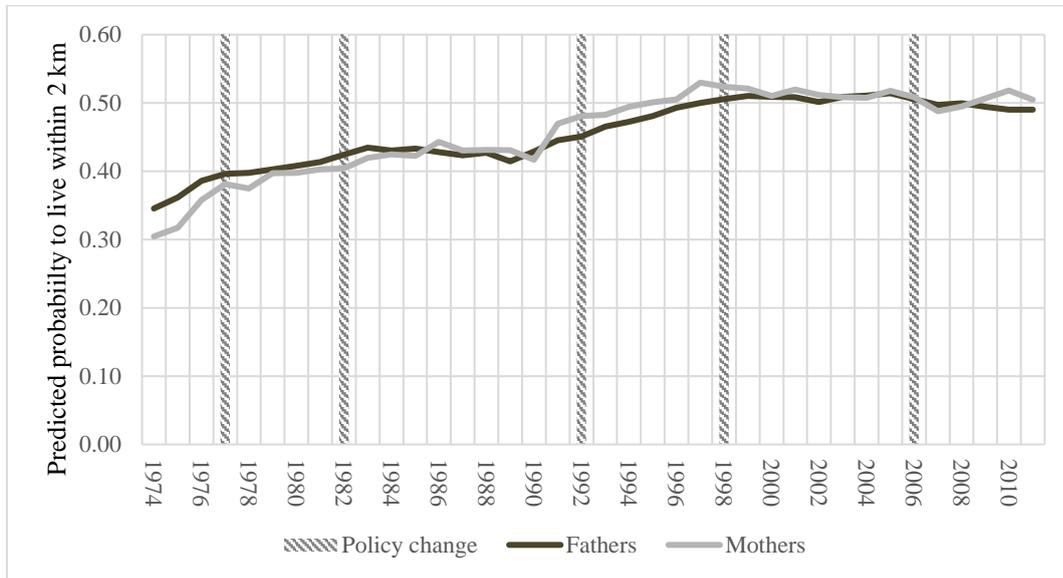


Figure 5. Logistic regressions on likelihood of child and nonresident parent living more than 50 km from each other, with year as the only independent variable. Predicted probabilities. 1974 to 2011.

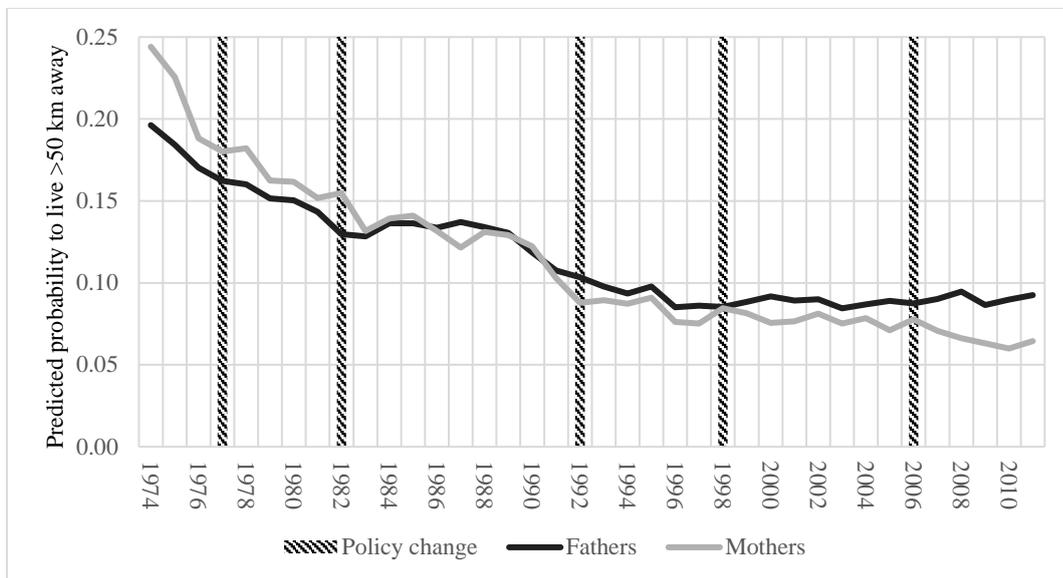


Figure 2 shows that the average distance between children and their nonresident parents has decreased substantially over the period examined. In 1974, the average distance was 64 kilometers for nonresident mothers and 54 kilometers for nonresident fathers. In 2011 this

had decreased to 19 kilometers for mothers and 25 kilometers for fathers. Most of the decrease took place during the period prior to the mid-1990s, after which the patterns have stabilized. The estimates from Figure 3 support this pattern, showing that the results are not driven by skewness in the distance variable. The estimates presented in Figure 3 can be interpreted as the percentage decrease in distance, as compared to 1974. For mothers, the distance in 2011 is around 33 percent of the distance in 1974 ($100 \cdot \exp(-1.109)$) whereas for fathers the distance is 48 percent of the initial distance ($100 \cdot \exp(-0.739)$). In Figure 4, we focus on the likelihood of living within a walking distance of two kilometers. In 1974, only around one-third of all children lived this close to their nonresident parents, whereas in 2012, this was the case for 50 percent of all children. Further, we can see from Figure 5 that in 1974, 20-25 percent of all nonresident parents lived more than 50 kilometers from their children, whereas in 2011 this proportion has been cut by more than half (from 24 to 6 percent for mothers; from 18 to 9 percent for fathers). In a similar way to the patterns described in Figures 2 and 3, the observed trend stagnated in the mid-1990s.

One of our main research questions concerned whether the implemented policies have had any impact on the distances between children and their nonresident parents. By studying whether a slope changes following the implementation of a policy (vertical bars) we can estimate whether there are any direct policy effects. We do not find any such indications. The decreasing distance is rather gradual and is not clearly linked to the implementation of any of the policies. For the logarithmic distance, we see a rather steep decline in distance in 1989 for fathers and in 1990 for mothers. However, this cannot be linked to any policy changes. At the same time, it is important to highlight the fact that policies may have both direct and indirect effects. By examining critical junctures, as we do here, we only capture direct effects, and we thus do not capture the long-term impact that policies can have on norms and behaviors. Thus, even though we find no evidence of policy effects, our estimates are most likely

towards the lower bound of the true policy effects.

Table 1 includes descriptive statistics showing how the group of children and their nonresident mothers and fathers have changed over the studied period. In the interests of readability, the table only includes the years 1974, 1984, 1994, 2004 and 2011. It demonstrates that among children with separated parents, it has become increasingly common for the parents to have been cohabiting rather than married prior to the union dissolution. It has also become increasingly common to have a nonresident parent in income quintile 4 or 5 (i.e. to have a wealthy nonresident parent), whereas it has become less common for the nonresident *father* to be in income quintile 2 or 3, and less common for the nonresident *mother* to be in income quintile 1-3. The estimates for nonresident mothers should be interpreted with caution, since there are relatively few cases during the early years of the study. A larger proportion of the children with divorced parents in 2011 lived in large municipalities (with at least 80,000 inhabitants) than was the case in the 1970s. Among children with nonresident mothers, it has become increasingly common to be an only child, whereas we see no such trend among those with nonresident fathers. Children with a nonresident mother are on average older than those with a nonresident father, but we find no trend in this regard over time.

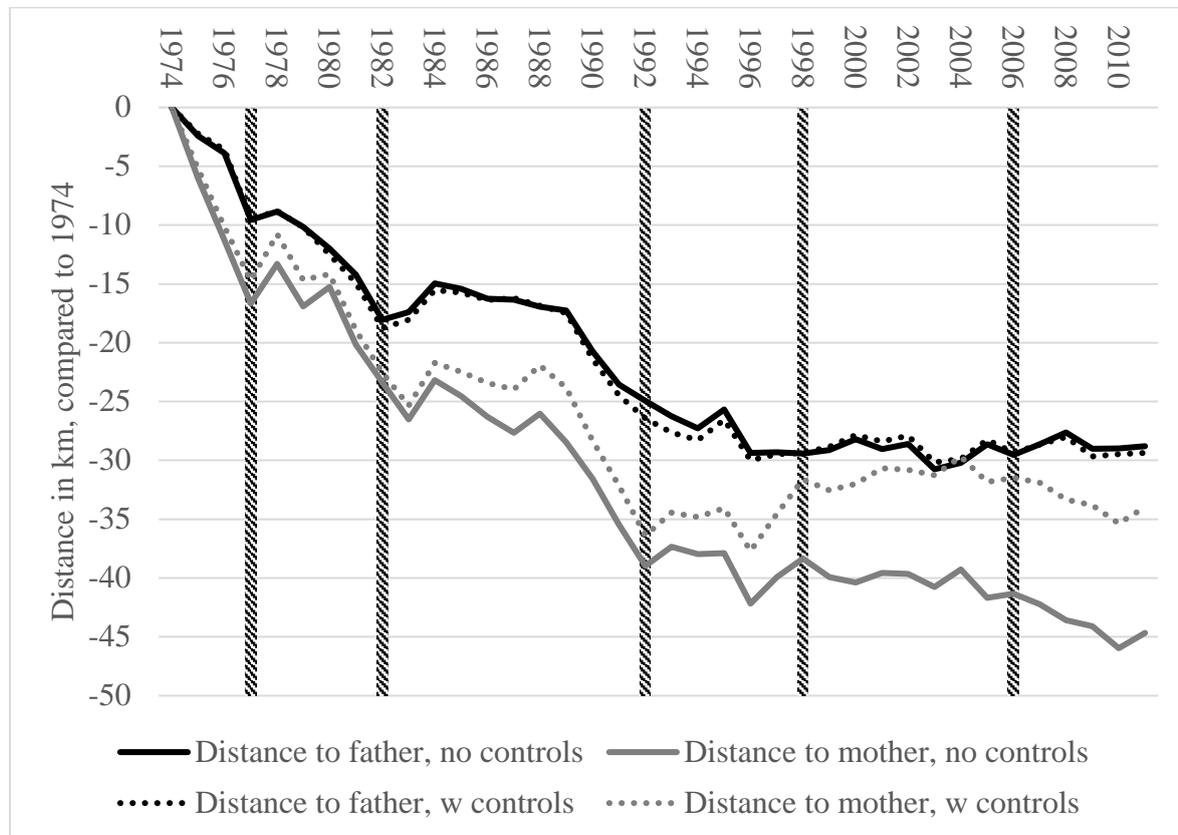
Table 1: Descriptive statistics

		Father is nonresident					Mother is nonresident				
		1974	1984	1994	2004	2011	1974	1984	1994	2004	2011
Marital status	Married	81%	67%	63%	57%	54%	94%	82%	76%	64%	59%
	Cohabiting	19%	33%	37%	43%	46%	6%	18%	24%	36%	41%
Income quintile of nonresident parent	Q1	18%	20%	23%	17%	20%	25%	17%	14%	10%	11%
	Q2	27%	35%	28%	13%	10%	27%	32%	24%	9%	6%
	Q3	26%	23%	22%	14%	9%	27%	29%	30%	11%	7%
	Q4	17%	12%	16%	26%	24%	15%	16%	21%	23%	15%
	Q5	12%	9%	11%	30%	38%	6%	5%	11%	47%	60%
Size of municipality	<20 000	18%	22%	22%	21%	19%	24%	28%	26%	22%	22%
	20 000-39 999	21%	21%	24%	23%	19%	22%	23%	25%	24%	20%
	40 000-79 999	25%	25%	22%	20%	20%	24%	24%	23%	22%	22%
	80 000+	16%	16%	17%	20%	25%	15%	15%	16%	18%	22%
	Stockholm, Gothenburg, Malmö	19%	16%	15%	17%	17%	15%	10%	10%	15%	13%
Number of siblings	0	22%	24%	19%	19%	22%	14%	16%	13%	15%	19%
	1	32%	36%	34%	35%	34%	33%	41%	37%	41%	44%
	2	23%	22%	24%	24%	22%	27%	26%	28%	25%	22%
	3	12%	10%	12%	12%	11%	14%	10%	13%	12%	9%
	4+	11%	8%	10%	11%	10%	12%	6%	9%	8%	6%
Mean age of child at parental separation	8	8	7	9	8	10	11	10	10	9	
N	20 145	23 101	31 891	27 814	25 011	2 730	4 185	5 381	7 657	8 897	

In order to understand whether the decreasing distances are due to changing behavior, for instance stemming from normative changes, or due to changes in the composition of the group of nonresident mothers and fathers, as described in Table 1, we introduce variables controlling for whether parents were cohabiting or married, the income quintile of the nonresident parent, the population size of the municipality in which the family lived prior to separation, the number of siblings the child had, and the age of the child at the time of separation. These results are presented in Figure 6 for the trend in the average distance between the child and the nonresident parent. For fathers, none of the decrease in distance is due to compositional changes in the pool of nonresident fathers. For mothers, however, a rather large proportion of the decrease since the 1990s stems from compositional differences over time in the pool of nonresident mothers. In 1974, this group of women was rather heterogeneous in terms of its income levels, whereas in 2011, 60 percent of the women were in the top income quintile. Among nonresident mothers, high earners tend to live very close to their children (as will be shown in Figures 10 and 11) which is most likely why the estimates change so much for this particular group.

Figure 6. Change in period estimates from OLS-regression following addition of control variables.

Vertical bars represent years of policy change. 1974 to 2011.



Differences by socioeconomic status of nonresident parent

Next we examine socioeconomic differences in terms of living in closer proximity to the nonresidential child, and whether differences are more pronounced for any particular socioeconomic groups. We do this by means of conducting separate regressions for CPI-adjusted income quintiles, as presented in Figures 7 to 12. All models include the controls introduced in Figure 5. By partitioning the data rather than including interaction terms, we also allow the effects of all control variables to vary by socio-economic status. In the interests of readability, we only present estimates for Q1 (the lowest earners), Q3 (the mid-earners) and Q5 (the highest earners). See Appendix, Table A2 for all estimates however.

We start by presenting the results for nonresident fathers, for predicted distances (Figure 7),

the predicted probability of living within two kilometers (Figure 8), and the predicted probability of living more than 50 kilometers apart (Figure 9). The predictions have been conducted for hypothetical father-child-sets in which we allow the year of separation to vary, while we set the child's age to three at the time of the separation, marital status to cohabiting, the child as having one sibling, and the family as having lived in Stockholm, Gothenburg or Malmö in the year prior to separation.

Figure 7. OLS regressions on distance in km between child and nonresident fathers. Predicted distance. 1974 to 2011. Separate analyses by income quintile, including full set of control variables.



Figure 8. Logistic regressions on likelihood of child and nonresident father living within 2 km of each other. Predicted probabilities. 1974 to 2011. Separate analyses by income quintile, including full set of control variables.



Note: Y-axis is broken

Figure 9. Logistic regressions on likelihood of child and nonresident father living more than 50 km from each other. Predicted probabilities. 1974 to 2011. Separate analyses by income quintile, including full set of control variables.

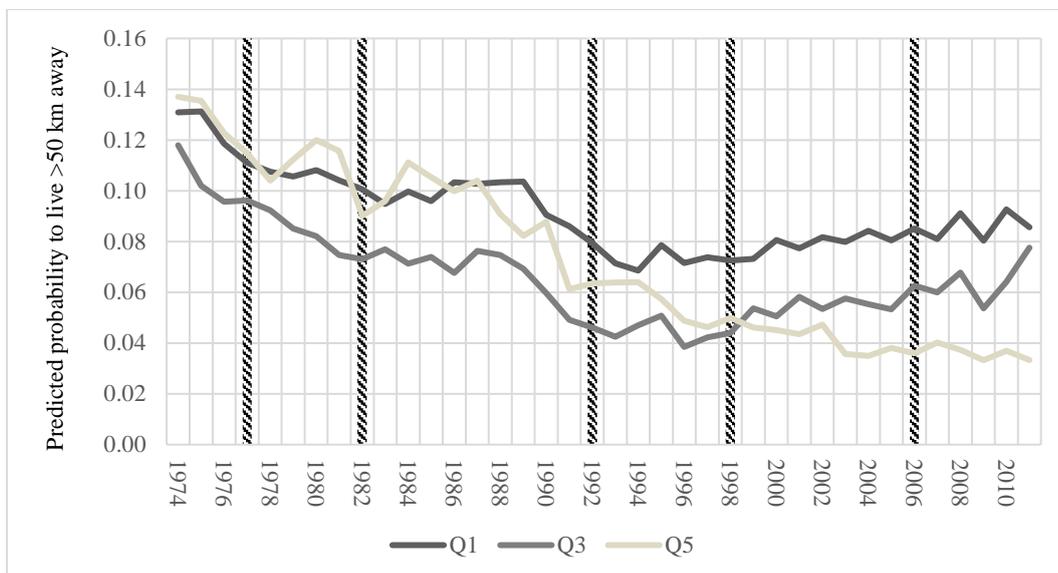


Figure 7 clearly demonstrates that the group showing the largest shift in proximity to their nonresident children comprises the high-income fathers. From having had the largest father-child distances in 1974, of almost 60 kilometers, in 2011 they have the shortest mean distance, of only seven kilometers. It is unclear whether this trend has come to a halt for the highest income quintile, as it still appears to be decreasing even at these short distances. The results are mirrored for the probability of a father-child distance of less than two kilometers (Figure 8), which has doubled for the highest income quintile, from a .27 probability to a .55 probability. We can see from Figure 9 that the probability for a father from the highest income quintile to be living more than 50 kilometers from his child has been reduced from 14 percent in 1974 to 3 percent in 2011. The father-child distances of the middle and lowest income quintiles have also decreased since the 1970s, although this trend plateaued in the early 1990s. There is even a slight tendency towards increased distances since the late 1990s. For this group, the probability of living within two kilometers of the child (Figure 8) remains rather stable at around .5, although there has been a tendency towards increased distances here too, which has also manifested itself in a slightly increased probability of living more than 50 kilometers apart since the mid-1990s.

Figure 10. OLS regressions on distance in km between child and nonresident mothers. Predicted distance. 1974 to 2011. Separate analyses by income quintile, including full set of control variables.

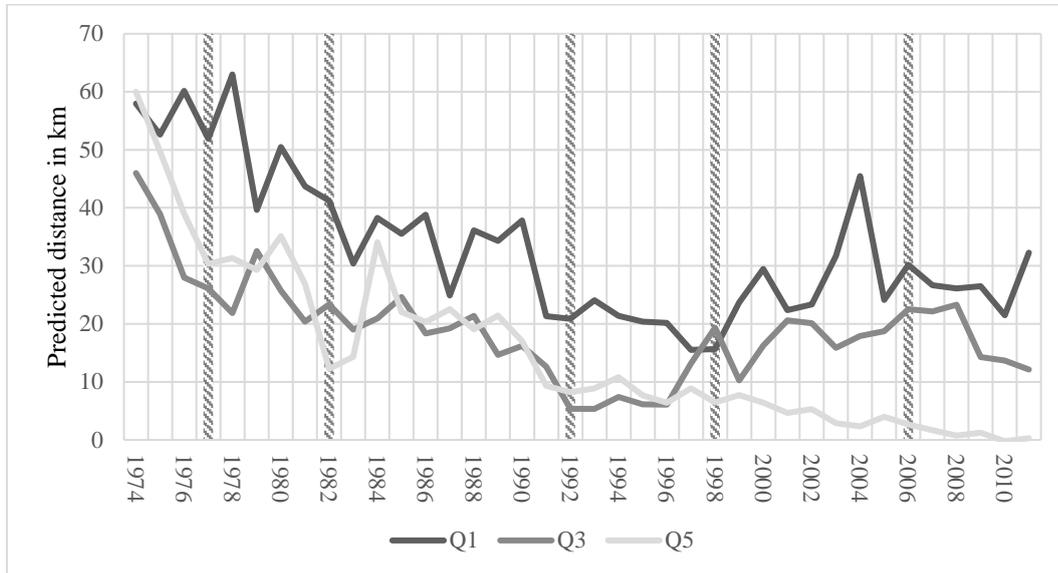
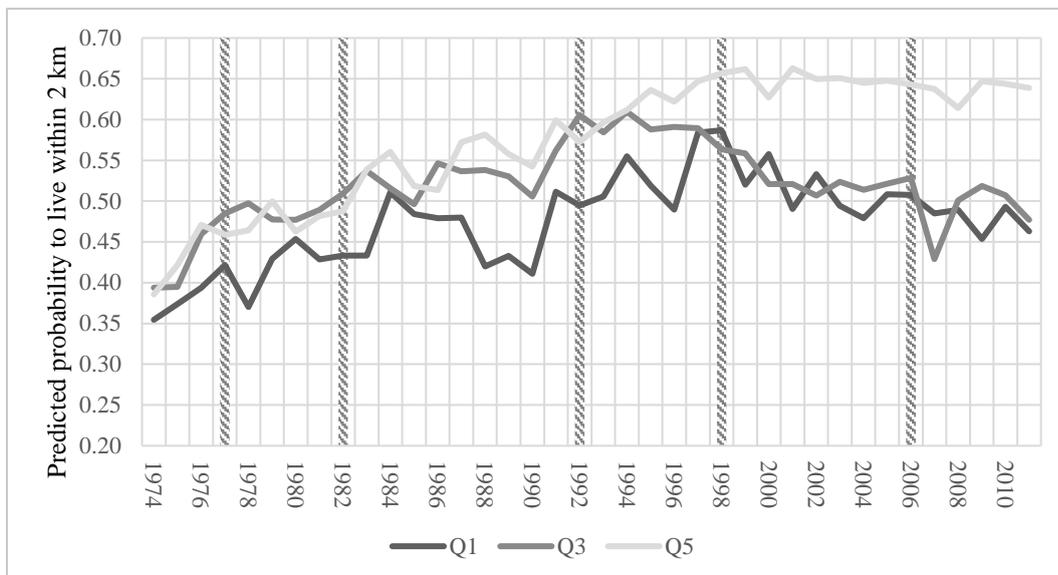
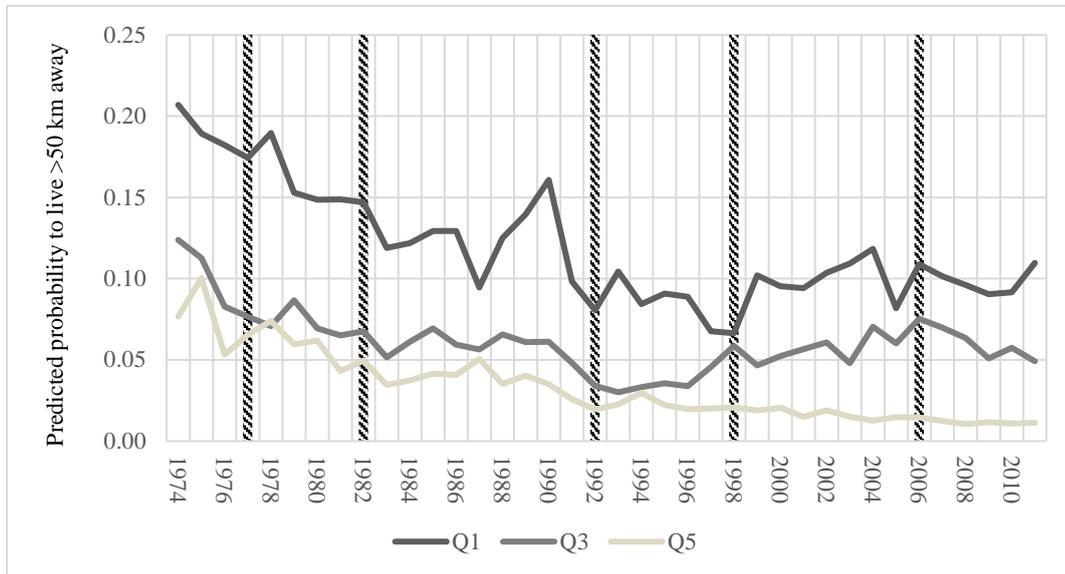


Figure 11. Logistic regressions on likelihood of child and nonresident mother living within 2 km of each other. Predicted probabilities. 1974 to 2011. Separate analyses by income quintile, including full set of control variables.



Note: Y-axis is broken

Figure 12. Logistic regressions on likelihood of child and nonresident mother living more than 50 km from each other. Predicted probabilities. 1974 to 2011. Separate analyses by income quintile, including full set of control variables.



For mothers, similar results are presented in Figures 10-12. The estimates fluctuate substantially. The decrease in mother-child distance is also greatest among those in the highest income quintile, and the predicted distance is as low as zero kilometers for those who separated in 2011 (Figure 10). As was the case with the patterns found for men, distances have started to increase again for the lower income quintiles, whereas they continue to decrease for the highest income quintile. For low- and mid-income mothers, the probability of living within two kilometers of the nonresident child is similar to that for fathers (Figure 11). For high-income mothers, however, the likelihood is substantially greater – around .65 for mothers as compared to .55 for fathers, and mothers are also less likely than fathers to live over 50 kilometers from their nonresident children (only 1 percent, see Figure 12).

As regards policy effects, the only shift that emerged at the time of a policy implementation

was a clear *increase* in 1998 in mother-child distances for the lowest income quintile (Figure 10), an increase in the likelihood of living more than 50 kilometers apart in that same year (Figure 12) and a corresponding *decrease* in this quintile's probability of living within two kilometers of their children (Figure 11). With this exception, and in contradiction to our hypotheses, we find no indications of parents adapting to new custody policies by changing how far they move in relation to their nonresident children after a separation.

Discussion and concluding remarks

The distance between children and their nonresident parents following a divorce is an important predictor for the children's contacts with their nonresident parent, and for the economic and emotional support they receive from this parent (Cooksey & Craig, 1998; Manning & Smock, 2000; Mulder & van der Meer, 2009; Smyth et al., 2001). In this study, we have analyzed how the distance between children and nonresident parents has developed in Sweden between 1974 and 2011, with a particular focus on how this is related to changes in the form of five important child custody policy reforms and on differences across socioeconomic groups.

Our results show clearly decreasing distances since the 1970s, which have then stabilized since the mid-1990s. The small changes noted since the mid-1990s contradict results presented by Stjernström and Strömgren (2012) who instead also found a rather pronounced decrease in migration distances after 1990. In attempting to replicate their results, in order to understand these contradictory findings (not presented), we found them to be due to Stjernström and Strömgren pooling all children with nonresident parents, whereas we only study the first year after the separation. Our results indicate that the decrease observed by Stjernström and Strömgren (2012) after the 1990s, or rather the underlying behavioral change

that has produced this decrease, took place long before the 1990s, with the decrease being due to parents having separated in earlier years, a behavior which had in fact already stabilized by the 1990s.

In order to ensure that the decreasing distances do not originate in a reduction in overall mobility in the population, we have examined the trends for the overall internal migration patterns for individuals of childbearing ages (ages 30 to 49). The proportion of individuals of childbearing age who make short- or long-distance moves (moves across municipality- or county borders, respectively) has remained stable over the period examined, with the exception of a slight decrease in mobility at the beginning of the period. This indicates that the overall pattern observed in this study reflects an increase in nonresident parents' levels of involvement rather than changing migration patterns in the overall population (see Appendix, Figure A2).

Our study does not show any evidence of immediate policy effects. The policies could however still have normative implications that are not captured by our current design. The only indication of changing distances following the introduction of a policy change was in the opposite direction to the one we had expected, and showed an increasing distance after 1998 when courts were given the ability to prescribe shared legal as well as physical custody against the will of one of the parents.

Rather than providing evidence of distinct behavioral changes following the introduction of custody policies, our results indicate a diffusion process involving a gradual decrease in distances between children and nonresident parents after a union-dissolution until the 1990s. This largely mirrors the development of female labor force participation in Sweden, which increased during the postwar period, peaked in 1990, decreased during the country's economic crisis and then stabilized in the early 2000s (Statistics Sweden, 2018). These joint

developments can be understood on the basis of the structural relationship explanation of changing gender norms (Brooks & Bolzendahl, 2004), which highlights the importance of the social structures, such as female labor force participation, within which people are situated as a basis for understanding changing gender attitudes.

Although there are both empirical and theoretical reasons for assuming that geographical proximity promotes more active and engaged parenting, it is not possible to exclude the possibility of reverse causality. More engaged and child-oriented parents are likely to move a shorter distance from the child (Cooksey & Craig, 1998) or opt for a shared physical custody arrangement after a union dissolution (Pelletier, 2017). Given that we find an increase in wealthy non-resident parents, it is also possible that the policies as such were introduced in response to increased co-parenting within this resourceful group, rather than having affected this group's parenting behavior.

The different distance trends noted for low earners and high earners respectively are important for two reasons. First, they raise the question of which group has been the primary driver of the increase in post-separation paternal engagement. Is it the low-income fathers who already lived closer to their nonresident children in the 1970s, or is it the high-income fathers who lived at a considerable distance from their children in the 1970s, but who have substantially changed their behavior since then? At the beginning of the period, children from the lower classes had geographical access to their nonresident parents to a greater extent than children from more affluent families, whereas today this has changed. Second, these results highlight the importance of affordable housing. In 2011, only 1 percent of the wealthiest mothers lived more than 50 kilometers from their nonresident children, as compared to 10 percent of mothers with the lowest incomes. This suggests that income serves to restrict the choice of where to live, for mothers and fathers alike. As such, the different distance trends

for high- and low-earning fathers respectively could also be interpreted as reflecting a process whereby although it is likely that both high- and low-earning fathers have a desire to live closer to their nonresident children, high earners have greater opportunities to adapt their residential situation to the changing norms regarding parenting roles, and to choose residential arrangements that can accommodate these changing norms.

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