

# **Children's post-divorce living arrangements and school engagement: Financial resources, parent-child relationship, selectivity and stress**

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## **Abstract**

Children's post-divorce living arrangements have become increasingly heterogeneous the past decades, because of the rise in shared residence and stepfamily formation. This study investigates how post-divorce living arrangements (i.e. the combination between residential arrangement and stepparent presence) are related to children's school engagement. The focus is put on different explanations of the relation between living arrangements and school engagement, namely financial resources, parent-child relationship, selectivity and stress. Structural equation models are performed on a sample of children with divorced parents from the Leuven Adolescent and Family Study data 2008-2011 (n=1,630). First, the results show that stepfamilies have higher financial resources than single-parent families, but these higher financial resources are not directly related to children's school engagement. Second, parent-child relationship is an important mediator between post-divorce living arrangements and school engagement. The results suggest that shared residence is related to a better father-child relationship and in this manner improves school engagement. The relation between stepparent presence and the parent-child relationship is less straightforward, and the findings suggest that the combination of residential arrangement, stepfather and stepmother presence should be taken into account. Third, children's socio-demographic characteristics, time since divorce and level of pre-divorce conflict function as selection mechanisms, as they are related to both post-divorce living arrangements and children's school engagement. Finally, the findings indicate that the complexity of multiple part-time residential figures is stressful to children. This may partially counterbalance the benefits of such systems, via the better parent-child relationship and the higher financial resources.

**Keywords:** Education, Families, Parenting, Structural Equation Modeling

## 1 Introduction

Children with divorced parents tend to have lower school performance and school engagement than children with continuously married parents (Bernardi & Radl, 2014; S. Brown, 2010; Cavanagh & Fomby, 2012). This difference is often explained by stress, selectivity and the lower availability of financial, human, cultural and social resources in non-intact families in comparison to intact families (Havermans, Botterman, & Matthijs, 2014; Kelly & Emery, 2003; Sigle-Rushton, Lyngstad, Andersen, & Kravdal, 2014).

Most studies focus on average differences between children with married and divorced parents. By doing this, they neglect that children with divorced parents are a very heterogeneous group. One source of heterogeneity is children's post-divorce living arrangement. These have evolved strongly in the course of the past two decades. First, shared residential arrangements, sometimes also referred to as joint physical custody arrangements, are becoming more prevalent in most Western countries, amongst which Belgium (Bjarnason & Arnarsson, 2011). In these arrangements, children are living "for substantial amounts of time with both parents (Kline, Tschann, Johnston, & Wallerstein, 1989, p. 54). This "considerable" amount of time is sometimes operationalized as minimum 66% of the time (Sodermans, Vanassche, Matthijs, & Swicegood, 2014).

The growing prevalence of shared residence has increased variability in the amount of contact between children and parents after divorce (Bauserman, 2002). Second, a considerable proportion of parents start a new cohabiting relationship or remarry after divorce and, as a consequence, introduce an additional parental figure in the household (Prskawetz, Vikat, Philipov, & Engelhardt, 2003; Sodermans, Vanassche & Matthijs 2013). These two evolutions are intertwined, as shared residential arrangements increase the likelihood of children to live together with a new partner of a parent. This is both a natural consequence of living in two households (Sodermans, Vanassche & Matthijs 2013) as well as the consequence of mothers with part-time residential children being more likely to repartner after divorce compared to mothers with children living full-time in the household (Vanassche, Corijn, Matthijs, & Swicegood, 2015).

The combination of the residential arrangement and parental repartnering can lead to a large variety in post-divorce living arrangements, going from children who live fulltime with a single mother to children in shared residence with two residential stepparents (Sodermans, Vanassche, & Matthijs, 2013). This study investigates how these post-divorce living arrangements are

related to children's school engagement. School engagement is usually defined as a multidimensional concept, consisting of emotional engagement (attitudes), behavioral engagement (behavior) and cognitive engagement (strategies). Emotional engagement refers to children's affective reactions to class and school in general. Behavioral school engagement relates to conduct in school, involvement in learning and academic tasks, and participation in school-related activities. Cognitive engagement is the final dimension of school engagement, and it refers to investments in learning and self-regulation (Fredricks, Blumenfeld, & Paris, 2004). These three dimensions are "dynamically interrelated within the individual; they are not isolated processes" (Fredricks et al., 2004, p. 61). School engagement is not only strongly linked to children's academic achievement (Fredricks et al., 2004), but it is also very predictive of non-academic wellbeing outcomes, such as self-esteem (Liem & Martin, 2011). The variety in post-divorce living arrangements is an interesting setting to study the impact of parental resources on children's school engagement after divorce. We focus on financial means and the parent-child relationship to explain the relation between children's post-divorce living arrangements and their school engagement. In order to investigate the relation between post-divorce living arrangements and school engagement, structural equation models are performed on a sample of 1,360 adolescents with divorced parents, drawn from the Leuven adolescent and family study (LAFS, 2008-2011).

This study aims at contributing to the research literature in two ways. First, very little studies have investigated the combination of children's residential arrangements and the presence of residential stepparents to explain children's outcomes (e.g. Thoroddur Bjarnason et al., 2012; Brevik & Olweus, 2008; Ulveseter, Brevik, & Thuen, 2010). Looking at this combination can give us a better insight in the relative importance of resources provided by residential and non-residential biological parents, and full-time and part-time stepparents. Second, structural equation models are used to investigate the ways in which living arrangements influence children's educational outcomes via financial means and the parent-child relationship. Structural equation models allow us to not only specify the direct and indirect relations between post-divorce living arrangements and school engagement, but also to control for the endogeneity of this relation by including selection variables in the analyses.

## **2 Literature review**

In the literature review, we focus on four mechanisms that can explain the relation between parental repartnering and children's school engagement. These four mechanisms are: financial resources, the parent-child relationship, selection effects, and stress and instability.

## **2.1 Financial resources**

A parental divorce tends to lead to a decline in the total household income (Amato, 2010; Sweeney, 2007, 2010). The loss of financial resources affects children's school engagement via different mechanisms. First, there are less financial means that can be invested in children's educational careers and cognitive stimulation (Brooks-Gunn, Klebanov, & Liaw, 1995). Second, financial problems can also deteriorate the relationship between parents, and between parents and children (Conger, Conger, & Martin, 2010). The quality of the relationship between parents, and the relationship between parents and children have an important impact on children's school engagement (Hakvoort, Bos, van Balen, & Hermanns, 2010). We elaborate on this topic further in section 1.1.2.

The post-divorce availability of financial resources is strongly related to the presence of a stepparent in the household, as parental repartnering is in general related to an increase in the total household income (Sweeney, 2007). Dewilde and Uunk (2008) found that, controlling for education, remarriage leads to an increase in the income of women in 11 European countries, including Belgium. Although the financial resources of stepfamilies are on average higher than those of single-parent families, they are often lower than those of intact families (Manning & Brown, 2006). Furthermore, despite the higher availability of financial resources in comparison to single-parent families, stepparents tend to invest their financial means less in stepchildren than in their biological children (Henretta, Wolf, Van Voorhis, & Soldo, 2012).

There has been very little research on the relation between residential arrangements and the availability of financial resources to children. There are some indications that residential contact increases the available financial resources by making parents more compliant to contribute financially to the child (Bender, 1994; Seltzer, 1991). Selectivity may also play a role, as higher educated parents are more likely to choose for shared residence (Sodermans, Matthijs, & Swicegood, 2013).

## **2.2 Parent-child relationship**

A parental divorce is often accompanied by less effective parenting of the residential parent (in most cases the mother) and less contact with the non-residential parent (in most cases the father) (Amato, 2010). The loss of contact with the non-residential parent is on average related to lower parental involvement and a worse parent-child relationship. The parent-child relationship may influence children's school engagement through two mechanisms. First, different aspects of the parent-child relationship have been demonstrated to influence children's school engagement directly. Such aspects are parents' school involvement, communication with

the child, educational expectations, monitoring, emotional closeness, warmth and trust (Mo & Singh, 2008; Murray, 2009; Parcel, Dufur, & Cornell Zito, 2010; Spera, 2005). Second, a good parent-child relationship can facilitate the adjustment process of the child to the new family situation (King & Sobolewski, 2006).

The on average lower quality of the parent-child relationship in families with divorced parents may be affected by the post-divorce living arrangement of the child. Firstly, the presence of a stepparent can influence the parent-child relationship. The arrival of a stepparent in the family may increase the time the repartnered parent spends with the child and reduce some of the stress of the separation, and in this way, improve the quality of parenting and the parent-child relationship (Thomson, Mosley, Hanson, & McLanahan, 2001). Contrary, parental repartnering may also negatively affect the parent-child relationship. For instance, Artis (2007) found that worse parenting practices of the mother explain a considerable part of the negative relation between stepfather presence and children's educational outcomes. It is possible that repartnering distracts parents from spending time with their children and compromises parental competencies (Coleman, Ganong, & Fine, 2000). Regarding the influence of repartnering on the relationship between the child and the non-repartnering parent, maternal cohabitation may have a negative effect on the amount of contact between the child and the father (Juby, Billette, Laplante, & Le Bourdais, 2007). This may, in its turn, be related to a lower quality of the parent-child relationship, given the correlation between the quantity of contact between parents and children and the quality of their relationship (Amato & Gilbreth, 1999).

Second, shared residential arrangements are related to a positive relationship between fathers and children, because the contact and relationship between father and child can be maintained (Bauserman, 2002; Dunn, Cheng, O'Connor, & Bridges, 2004; Spruijt & Duindam, 2009). There are however some cases in which shared residence is not related to a positive father-child relationship, such as the lack of cooperation between mother and father on childrearing issues (Sobolewski & King, 2005), high levels of parental conflict (Donnelly & Finkelhor, 1992), child abuse or mental health problems of the father (Bauserman, 2002; Dunn et al., 2004). The mother-child relationship does not tend to differ between shared and mother residence (Sodermans, Botterman, Havermans, & Matthijs, 2015).

### **2.3 Selection effects**

Selection bias may also (partially) explain the relation between children's post-divorce living arrangements and their educational outcomes (Amato, 2010). Families with shared residence often differ on a number of background variables from families with sole mother or father

residence. These selection variables, such as mother's education or parental competencies, may also influence children's school engagement, and turn the relation between post-divorce living arrangements and children's school engagement spurious. It is therefore important to take these selection effects into account when investigating the relation between living arrangements and child outcomes.

With regard to stepparent presence, research on selectivity has been limited and the findings are relatively mixed (Sweeney, 2010). More research has been conducted on the role of selectivity in residential arrangements. Three selection variables can be found in the research literature. First, parents in shared residential arrangements tend to have a higher socio-demographic profile than parents in sole mother residence (Buchanan, 1992; Donnelly & Finkelhor, 1993; Tschann, Johnston, & Wallerstein, 1989). Because children of a higher socioeconomic background tend to be more engaged in school (Gruman, Harachi, Abbott, Catalano, & Fleming, 2008), parents' educational level may influence the relation between shared residence and children's school engagement. Second, child characteristics also influence the likelihood of being in shared residence. The relation between shared residence and child's age is described as non-linear by Juby, Le Bourdais and Marcil-Graton (2005): the probability of shared residence increases when children are younger than five, then remains stable for a couple of years, and it rises strongly again during adolescence. Also, shared residence occurs slightly more often among boys than girls (Nielsen, 2011; Spruijt & Duindam, 2009), as fathers tend to be more involved with boys than girls (Juby et al., 2005). Children's age and sex are also related to school engagement, and may thus operate as selection mechanisms: school engagement tends to diminish during adolescence (Simons-Morton & Chen, 2009) and girls report on general a higher engagement in school than boys (Appleton, Christenson, & Furlong, 2008). Third, shared residence is more common among low-conflict couples (Bauserman, 2002; Sodermans, Matthijs, et al., 2013; Spruijt & Duindam, 2009). High levels of parental conflict tend to have a negative impact on children's engagement in school (Havermans et al., 2014), and therefore, parental conflict may render the relation between shared residence and children's school engagement partially spurious.

## **2.4 Stress**

A parental divorce is often a stressful experience for children. The stress does not only stem from the experience of the family dissolution itself, but also from other stressful events before and after the divorce, such as parental conflict, moving to a different neighborhood, changing schools, and the loss of contact with the non-residential parent (Osborne & McLanahan, 2007).

This stress can interfere with children's motivation and engagement in school (Raufelder et al., 2013).

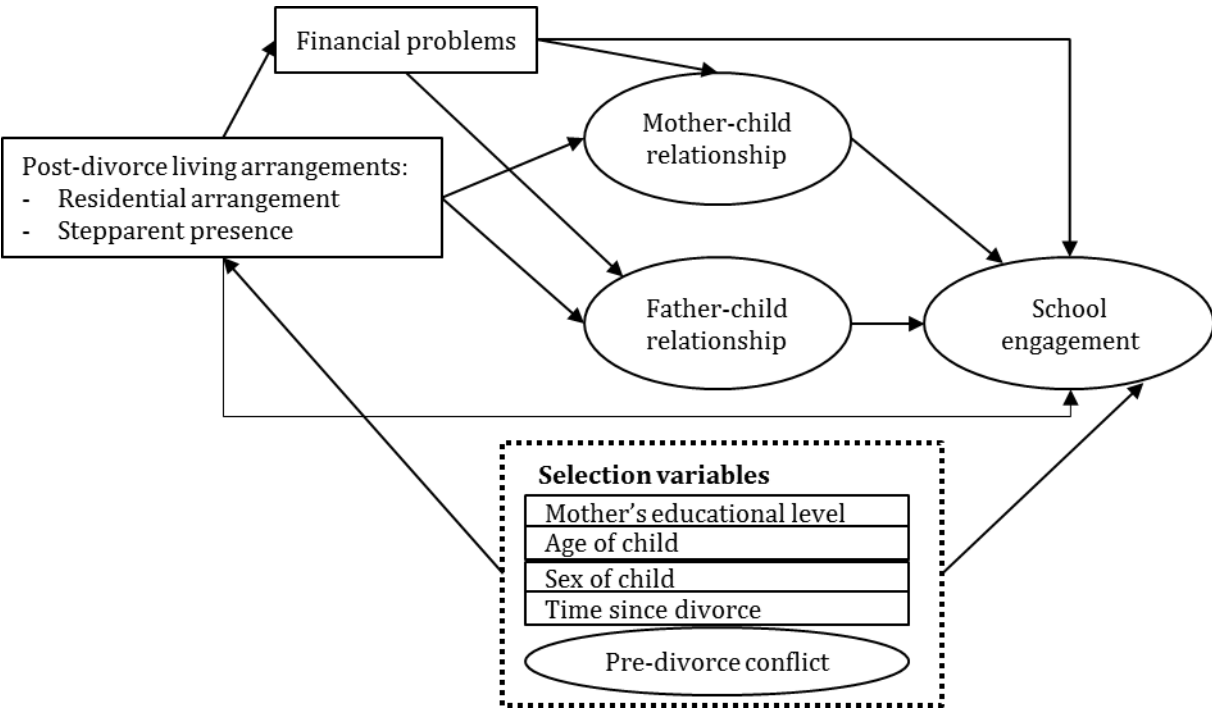
Parental repartnering is an additional family transition for children after parental divorce. Some recent studies have shown that a higher number of family transitions negatively affects children's educational attainment (Heard, 2007; Martinez & Forgatch, 2002; Sun & Li, 2009). Hetherington and Kelly (2002) estimated that children need five to seven years to adjust to stepfamily formation. After this period, it is possible that children benefit from growing up in a stepfamily, because of the additional parental figure and higher financial means (Wagmiller, Gershoff, Veliz, & Clements, 2010).

A small number of studies have looked at the stress of children in shared residence compared to children in mother residence. Children in shared residence may have higher stress levels caused by living in two households (Bauserman, 2002; Spruijt & Duindam, 2009), the strain of shared residence on their friendship network (McLanahan & Sandefur, 1994), and the mobility between the maternal and the paternal household (Jensen, 2009).

### **3 Aim of this study and hypotheses**

The main research question is: "What is the relation between children's post-divorce living arrangements and their school engagement?" Post-divorce living arrangements are operationalized as the combination of residential arrangement and stepparent presence. The focus is on different explanations of the relation between living arrangements and school engagement, namely on 1) financial resources, 2) parent-child relationship, 3) selectivity, and 4) stress. The conceptual model is presented in Figure 1. Latent variables are represented with ovals, directly observed variables with boxes.

Figure 1. Conceptual model of the relation between post-divorce living arrangements and school engagement



First, the indirect relation via the financial resources is investigated. Given the small number of studies on the relation between residential arrangements and children’s financial resources, we only formulate a hypothesis on the relation between stepparent presence and financial resources. We hypothesize that the presence of a residential stepparent increases the financial resources in the household and functions as a mediator in the relation between post-divorce living arrangements and school engagement (H1).

Second, the indirect relation via the parent-child relationship is investigated. With regard to the residential arrangement, we hypothesize that shared residence is related to a better father-child relationship than mother residence and that the father-child relationship in this way mediates between post-divorce living arrangements and children’s school engagement (H2a). In stepfamilies, we also expect that the parent-child relationship is a mediator in the relation between post-divorce living arrangements and school engagement. With regard to the direction of this mediating effect, the research literature reports both positive and negative effects of repartnering on the relationship between the repartnered parent and the child. We therefore do not specify the direction of this relation (Q2b). With regard to the direction of the mediating effect on the relation between the non-repartnered parent and the child, we hypothesize that the presence of a stepparent is related to a worse relationship between the child and the non-repartnered parent (H2c) in comparison to single-parent families.



Third, we investigate the selection effects. We hypothesize that the relation between post-divorce living arrangements and school engagement is (partially) determined by the selection variables of parents' education, child's age and sex, and levels of parental conflict (H3). We examine whether these selection variables are simultaneously associated with children's post-divorce living arrangements and their school engagement. We specified the direction of the relations between the selection variables, school engagement and post-divorce living arrangements in section 1.1.4.

Finally, we examine the direct relation between post-divorce living arrangements and school engagement, controlling for financial resources, parent-child relationship and selectivity. The direct relation, controlled for financial resources, the parent-child relationship and selectivity, includes the effect of stress. Because the lack of stability in shared residence can be stressful for children, we expect that the direct relation between shared residence and school engagement is negative in comparison to mother residence (H4a). The presence of a stepparent may also be stressful for children. Therefore, we hypothesize that the direct relation between stepparent presence and school engagement is negative in comparison to single-parent families (H4b).

## **4 Data and methods**

### **4.1 Leuven Adolescent and Family Study**

The data of this study come from the first four rounds of the Leuven Adolescent and Family Study (LAFS, 2008-2011). LAFS is a repeated cross-sectional study, collected in yearly rounds since 2008 in Flanders, the Northern part of Belgium, by the Family and Population Studies research team of the University of Leuven ([www.soc.kuleuven.be/lago](http://www.soc.kuleuven.be/lago)). The data are collected in secondary schools. In the Flemish educational system children make the transition to secondary school in the year they turn 12 (if they did not repeat a grade). Secondary school typically consists of six years, but a small proportion of students in a vocational track opts to follow a seventh year. A two-phase sampling strategy is implemented (Vanassche et al., 2012). First, secondary schools are selected by a disproportional quota sampling technique to increase the response rate at the school level. Second, classes of pupils in the selected schools are surveyed. The distribution of sex (male/female), year (first to seventh year) and educational track (general track, technical track, vocational track) in the dataset reflects the distribution in the total school population in Flanders (Vanassche et al. 2012). With regard to other background variables, there are several indications that the distribution in the LAFS data closely resembles the Flemish population of secondary school children. First of all, 26% of children in the LAFS data have

divorced parents (when children with deceased parents are excluded). This proportion corresponds to the estimate of 26% by Lodewijckx (2005) using population register data (Vanassche et al., 2011). Second, the proportion of children with a non-Belgian nationality in the LAFS data (5%) is close to the official figure of 7% (Vanassche et al., 2011). Third, 14% of the children in LAFS answered that they live in an economically deprived family (i.e. a family that often or always has financial difficulties). According to EU-SILC data, 13% of the Flemish children between 0 and 17 years old lived in poor families in 2010 (Vandenbroucke & Vinck, 2013). Finally, concerning parents' educational level, 50.3% of the children in the complete LAFS sample have a mother with a degree of higher education and 46.6% have a father with a degree of higher education. These proportions are very similar to estimates of the proportion of highly educated men and women in the birth cohort 1971-1980 (Groenez, 2010). We assumed that this birth cohort closely corresponds to the age group of parents with children between 12 and 18 years old in 2008-2012.

The research sample of this study consists of children with divorced or separated parents who have residential contact with their mother and have provided information on their residential arrangement and parental repartnering (n=1,360). Given the low number of children in (almost) full-time father residence (n=157) and the specific characteristics of this group (Sodermans, Vanassche, et al., 2013), we focus in this study only on children who have full-time or part-time residential contact with their mother. Children who did not answer the residence question (n=357), and children who did not give information on parental repartnering (n=17) were also excluded from the analyses. The sample consists of children between 11 and 23 years old (Table 1) with a mean age of 15.

## **4.2 Variables**

### **4.2.1 Dependent variable: School engagement**

The dependent variable in the analysis is school engagement. This variable is measured on a 12-item scale by means of pupils' self-reports. Self-reports are the most common way to measure school engagement, especially when assessing the emotional and cognitive dimensions. Using teacher reports or observational methods for these dimensions of school engagement are often considered as inferential (Fredricks & McColskey, 2012).

Children were asked whether they agreed with statements regarding their behavioral, emotional and cognitive school engagement on a 5-point scale (Brutsaert, 1993). The internal consistency of the scale in the LAGO-data was reconfirmed in a previous study, with a Cronbach's alpha of

0.86 (Vanassche, 2013). Behavioral items relate to the behavior of a student in school, such as making the effort to complete homework, and being persistent and eager to learn. Emotional items are linked to school and study, such as showing interest or disinterest in school, and being focused or distracted in class. Cognitive items of school engagement consider the psychological investment in learning, such as looking up additional information on subject material.

#### **4.2.2 Predictor variable: Post-divorce living arrangements**

The post-divorce living arrangement of children is measured by a categorical variable, combining information on children's residential arrangement and the presence of a stepparent. Children were asked whether they live full-time with their mother, most of the time with their mother, with mother and father, most of the time with their father, and full-time with their father. The residential arrangement of children can be mother residence (full-time or most of the time with mother) or shared residence (with mother and father), as children in father residence (full-time or most of the time with father) are not included in the research sample. Children were also asked whether their mother and father live together with a new partner (1=yes, 2=no). There is no information available whether this is a cohabiting relationship or a marriage. The living arrangement variable combines the information on children's residential arrangement and the presence of a new partner in the maternal and paternal household. This variable consists of six categories: 1) mother residence with no stepfather; 2) mother residence with a stepfather; 3) shared residence with no stepfather and no stepmother; 4) shared residence with a stepfather and no stepmother; 5) shared residence with a stepmother and no stepfather; and 6) shared residence with a stepmother and a stepfather.

#### **4.2.3 Mediator variable: Financial resources**

Financial family resources are measured by the frequency of financial problems within the family. This frequency is indicated on a four-point scale: never; seldom; sometimes; and regularly. For children with divorced parents, this question is asked in relation to both mother and father.

In the analyses, we only include the measure of the financial situation in the maternal household. There is a strong correlation between maternal and paternal financial situation for children in shared residence: in 48% of the cases, the score on both scales is the same. Introducing the parental and maternal financial situation into the model would increase the risk of multicollinearity in the analyses. Also, including paternal financial situation in the model would make the model more complex, as we expect that the financial situation of the father is not a mediator for children in mother residence. Although one could state that the paternal financial

situation may influence the outcomes of children in mother residence through payments of child support, one has to bear in mind that this effect runs via the maternal financial situation (Bianchi, Subaiya, & Kahn, 1999). We do not expect that excluding the paternal financial situation has a strong impact on the research findings. As mentioned earlier, in almost half of the cases, the paternal situation is the same as the maternal financial situation. For almost all other cases (40%), the financial situation with the mother is slightly worse. Also, the economic situation of mothers tends to be more affected by repartnering than the economic situation of fathers (Aassve, Betti, Mazzuco, & Mencarini, 2007; Dewilde & Uunk, 2008). The lack of a correlation between the financial situation of the father and repartnering is confirmed by bivariate analyses on the research sample (results not presented here).

#### **4.2.4 Mediator variable: Mother-child and father-child relationship**

The quality of the relationship between the child and mother and father is measured by the Network Relationships Inventory scale of eighteen items (Furman & Buhrmester, 1985). This scale consists of nine items measuring the mother-child relationship quality, and nine items measuring the father-child relationship quality. Children were asked to which degree they agreed with different statements about the relationship they have with their parents, such as how many time they spend with their mother/father and whether they respect their mother/father. The internal consistency of this scale in the LAGO-data was reconfirmed in a preceding study, with a Cronbach's alpha of .91 for mothers and .93 for fathers (Sodermans, Vanassche, Matthijs & Swicegood 2013).

#### **4.2.5 Selection variables**

Selection variables in the model are the educational level of the mother, conflict before divorce, child's age and sex, and time since divorce. Note that there is a small overrepresentation of girls in the research sample. This overrepresentation can be explained by the fact that more girls than boys have experienced a divorce in the full LAFS sample; and that more boys than girls live in father residence and are thus excluded from the sample. The variable measuring mother's educational level has three categories: lower (no degree of secondary school), medium (degree of secondary school) and higher educated (degree of tertiary education). The latter group forms the reference category. The level of pre-divorce conflict is measured by the Conflict Awareness Scale (Grych & Fincham, 1993). Child's age is included as a continuous variable centered on its mean of 15. For sex, girls are coded 1 and boys 0. We further control for time since divorce. This variable is calculated by subtracting children's age at time of divorce from their current age.

Table 1. Mean/proportion, standard deviation, range and proportion missings

<b>Metric variables</b>	<i>Mean</i>	<i>SD</i>	<i>Range</i>	<i>% missing</i>
<i>School engagement</i>				
1. The more I learn, the more eager I get to learn even more (Curiosity)	2.58	1.09	1-5	0.6
2. When I get home, I mostly feel like I have learned something (Knowledge improvement)	2.79	1.03	1-5	0.5
3. Studying mostly seems like a waste of time (Loss of time)	2.69	1.14	1-5	0.8
4. There are many things in life, which I feel are more important than studying (Not that important)	3.65	1.06	1-5	1.5
5. It seems to me that studying is important, because I feel it helps my development (Development)	3.23	0.95	1-5	1.0
6. I don't understand why studying is of any importance for the things I want to do later in my life (Not important for future)	1.99	0.99	1-5	1.1
7. Studying in itself is a waste of time (Useless)	2.34	1.09	1-5	1.3
8. I do not like to study (Don't like to study)	3.72	1.13	1-5	0.6
9. When I don't immediately find a solution for a problem relating to my study, I keep on searching until I find a solution (Persistent looking for solution)	3.08	1.01	1-5	1.0
10. I like to search for additional information on school topics (Extra documentation)	2.25	0.99	1-5	0.7
11. I often daydream in class (Daydreaming)	3.40	1.08	1-5	1.1
12. If I would know in advance that a subject would not be examined, I would not study for it (Study if necessary for test)	3.80	1.04	1-5	1.0
<i>Parental conflict before separation</i>				
1. How often do your parents fight or argue about money? (Money)	2.54	1.26	1-5	16.8
2. How often do your parents fight or argue about childrearing? (Childrearing)	2.44	1.14	1-5	17.0
3. How often do your parents fight or argue about the children? (Children)	2.43	1.19	1-5	17.8
4. How often do your parents absolutely disagree with each other? (Disagree)	3.30	1.17	1-5	17.7
5. How often do your parents have serious conflicts? (Serious conflicts)	2.84	1.23	1-5	17.6
<i>Time since divorce</i>	7.93	4.33	0-20	5.2
<i>Financial problems with mother</i>	2.14	0.98	0-4	2.4
<i>Age of child</i>	15.20	1.98	11-23	0.0
<i>Mother-child and father-child relationship</i>				
1. Does your mother respect you? (Respect)	3.72	1.00	1-5	1.0
2. And your father?	3.06	1.26	1-5	4.0
3. How often do you spend time with, make fun with your mother? (Spend time)	2.95	1.09	1-5	0.6
4. And your father?	2.35	1.19	1-5	3.3
5. Do you share secrets and feelings with your mother? (Share secrets)	2.48	1.31	1-5	0.3

6. And your father?	1.64	0.93	1-5	3.6
7. How much do you care about your mother? (Care mother)	4.41	0.86	1-5	1.2
8. And your father?	3.67	1.38	1-5	4.2
9. Does your mother care about you? (Care child)	4.30	0.90	1-5	1.5
10. And your father?	3.58	1.38	1-5	4.7
11. Does your mother appreciate what you do? (Appreciate)	3.54	1.01	1-5	1.3
12. And your father?	2.99	1.23	1-5	4.5
13. Does your mother think it is worth talking to you? (Worth talking to)	3.76	1.08	1-5	0.9
14. And your father?	3.05	1.31	1-5	4.6
15. Does your mother think you have good ideas? (Good ideas)	3.30	1.02	1-5	1.2
16. And your father?	2.81	1.19	1-5	4.8
17. Does your mother think she can learn from you? (Learn from)	2.75	1.12	1-5	1.2
18. And your father?	2.29	1.15	1-5	4.5

<b>Categorical variables</b>	<b>%</b>		
<i>Sex of child</i>			
Boy	42.0		0.0
Girl	58.0		
<i>Educational level of mother</i>			
Low	7.2		9.4
Medium	40.9		
High	51.9		
<i>Living arrangements</i>			
Mother - single mother	35.9		0.4
Mother- stepfather	36.2		
Shared- single mother and father	6.8		
Shared- single mother and stepmother	6.9		
Shared- stepfather and single father	6.6		
Shared- stepfather and stepmother	7.5		

Source: LAFS 2008-2011.

Notes: N= 1,360.

### 4.3 Structural equation modeling

Structural equation models are estimated in two steps. In a first step, measurement models are constructed and tested. In the second step, the relations between the latent and observed variables are analyzed.

#### 4.3.1 Construction of latent variables in confirmatory factor analysis

Confirmatory factor analyses are performed to measure the latent constructs of school engagement, the quality of the relationship between children and mother, and between children and father, and the level of conflict before separation. Confirmatory factor analysis (CFA) is an

analytical technique that tests whether the a priori conceptualized measurement model of the latent variables fits the data (T. Brown, 2006).

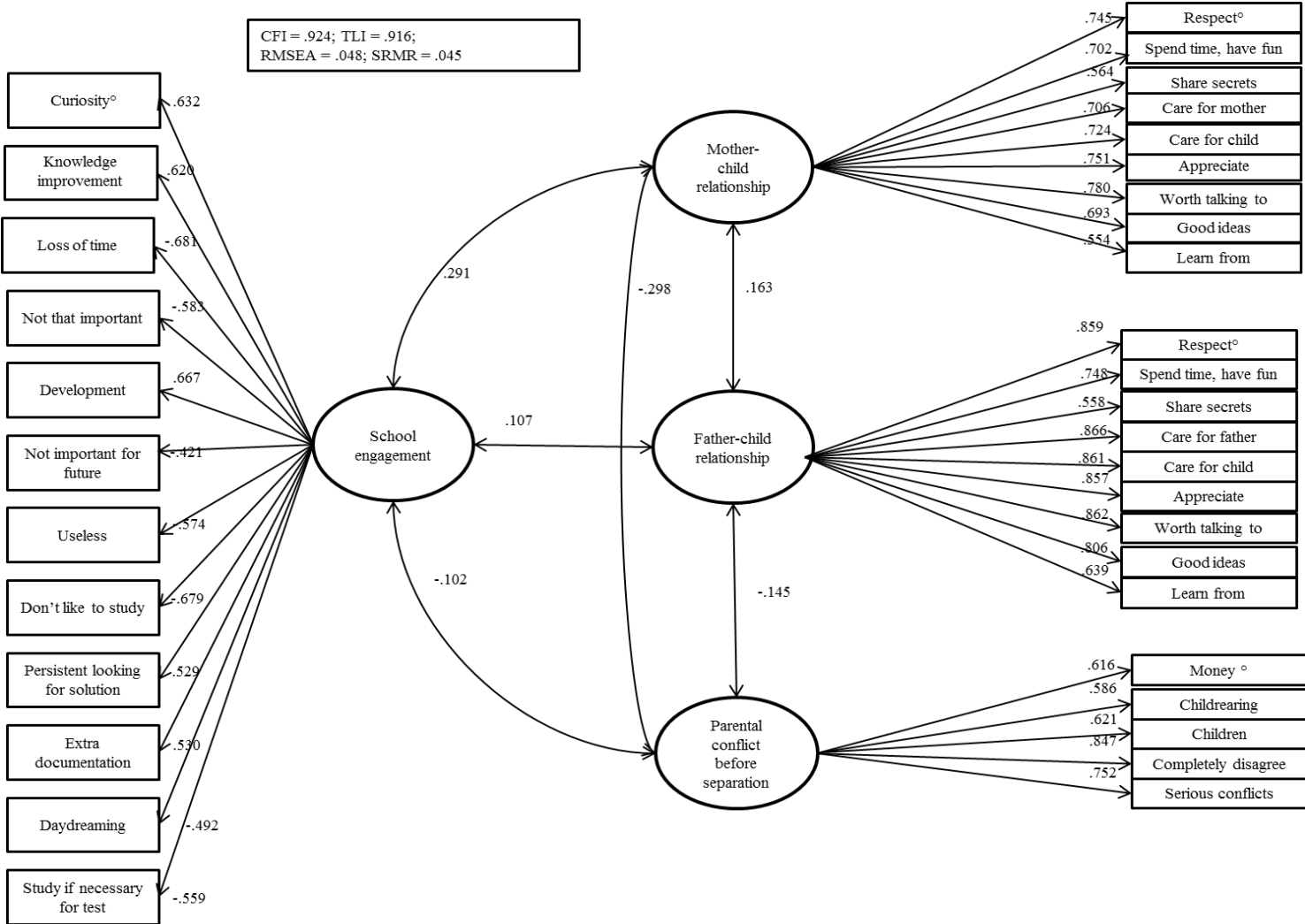
Model evaluation is based on the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR) fit index. CFI and TLI values of 0.90 or higher indicate a good model fit (Byrne, 2011). RMSEA values smaller than 0.08 suggest an adequate model fit (Browne & Cudeck, 1992).

The estimation technique used in the CFA model is maximum likelihood estimation with robust standard errors are used to correct for non-normality and dependence of standard errors (Muthen & Muthen, 2007). Robust standard errors take into account the clustering of the respondents in schools.

The null model of the confirmatory factor analysis is reported in Figure 2. The null model comprises the measurement models of all the latent variables. The fit indices of the null model indicate that the measurement model fits the data sufficiently. All standardized parameter estimates are significant ( $p < .001$ ) and larger than .400. The findings of the confirmatory factor analyses support the construct validity of the scales used in this study. The covariances between the latent variables are all significant ( $p < .001$ ) and are all in the expected direction. This finding further support the construct validity of the scales.

The means of the latent variables are fixed at zero. The standard deviations of the latent variables are based on the marker indicator (denoted with a ° in Figure 2). The standard deviation of school engagement is .685, of the mother-child relationship is 0.737, of the relationship with the father is 1.077, and of pre-divorce parental conflict is 0.773.

Figure 2. Measurement model for school engagement, mother-child relationship, father-child relationship, and parental conflict before divorce.



Source: LAFS 2008-2011.

Notes: N=1,360. Standardized estimates are presented here. All relations are significant ( p<.001). <sup>o</sup> marker variable



### **4.3.2 Analysis of the structural model**

Second, the structural model with direct and indirect relations between the latent and observed variables is constructed and tested. As in the confirmatory factor analysis, we rely on structural equation modeling with maximum likelihood estimations with robust standard errors to correct for the clustering of the respondents in school.

In the structural model, we specify the direct and indirect relations between the latent and directly observed variables as presented in Figure 1. This means that we model at the same time 1) a direct effect of post-divorce living arrangements on the mother-child relationship, the father-child relationship, financial problems, and school engagement; 2) direct effects of the mother-child relationship, the father-child relationship, and financial problems on school engagement; and 3) direct effects of the selection variables on post-divorce living arrangements and school engagement. The mediators are allowed to co-vary in the structural model. We also allow for correlations between the error terms of the endogenous variables in the model, for instance the error term of post-divorce living arrangements is correlated with the error term of school engagement. By doing this, endogeneity caused by unmeasured variables is taken into account. The results of the structural model are presented in the results section.

### **4.3.3 Missing values**

We use full information maximum likelihood (FIML) estimations to deal with missing values (Arbuckle, 1996). FIML estimations assume that the missing elements are completely or at least partially random with a multivariate normal distribution (Brown, 2010). For each observation, a function is estimated using those variables that have a non-missing value. These functions are accumulated and maximized across the entire sample (Arbuckle, 1996). Monte Carlo simulations show that, all else equal, FIML produces unbiased and more efficient estimations than other missing data methods, such as pairwise deletion and multiple imputations (Enders & Bandalos, 2001). For the exogenous variables, list wise deletion is used. As a consequence, the structural model is performed on 1169 observations, because 191 observations had missings on the selection variables.

## **5 Results**

The results are presented in Table 2a (direct relations on mediators and school engagement, Table 2b (selection variables), and in Table 3 (indirect relations). First, we discuss the three mediators in the model. Next, the results for the selection variables are presented. Finally, the direct relation between living arrangements and children's school engagement controlled for the mediators and selection mechanisms is discussed.

## **5.1 Financial resources**

We found a significant relation between stepfather presence and the financial situation in the maternal household. Regardless of their residential arrangement, children with a residential stepfather reported significantly less financial problems with their mother than children who live fulltime with a single mother (Table 2a: Financial problems). Financial problems in the maternal household had a significant negative relation with the mother-child relationship, but they were not significantly related to school engagement in the model (Table 2a: Financial problems). As a consequence, the indirect effects via financial resources were all insignificant (Table 3). Financial resources did not function as a mediator in the relation between post-divorce living arrangements and children's school engagement. We therefore reject the first hypothesis (H1).

## **5.2 Parent-child relationship**

The mother-child relationship and father-child relationship were both significantly related to children's school engagement. Children with a good relationship with mother and father, also reported on average high scores on school engagement (Table 2a: School engagement).

Children in shared residence reported a significantly better relationship with their father than children in mother residence, regardless of the presence of stepparents (Table 2a: NRI father). The four living arrangements with shared residence were significantly related to higher school engagement via the better father-child relationship (Table 3). We can thus confirm the hypothesis that the father-child relationship is a mediator for the relation between the shared residence living arrangement and school engagement (H2a).

The parent-child relationship can also be a mediator for stepparent presence and school engagement. The results in Table 3 showed different findings for stepmothers and stepfathers. Children in mother residence with a stepfather had lower school engagement via the worse father-child relationship. We did not find this relation between stepfather presence and the father-child relationship for children in shared residence with a stepfather. Children with a residential stepmother reported a better relationship with their mother than children living fulltime with a single mother, if they have shared residence and there is no residential stepfather. They also reported the best relationship with their father. Shared residence with a single mother and a stepmother had a significantly positive indirect relation with school engagement via the better mother-child relationship, in addition to the positive indirect relation via the better father-child relationship.

The presence of a stepfather negatively affected both the mother-child and father-child relationship in case of mother residence. The presence of a stepmother on the other hand was related to a better mother-child relationship in comparison to children in single mother residence, but this was only found for children who do not have a stepfather. We can therefore only partially confirm the hypotheses on the parent-child relationship as a mediator between stepparent presence and school engagement(Q2b and H2c).

### **5.3 Selection mechanisms**

For the selection mechanisms, we are interested in simultaneous relations between the selection variables and living arrangements, and between selection variables and school engagement. The results for the selection mechanisms are presented in Table 2b. For school engagement, we found that girls are more engaged in school than boys. There was a negative relation with the child's age, indicating that school engagement decreases with age. Children with high levels of pre-divorce parental conflict were also less engaged in school.

Older children were less likely to have shared residence than mother residence, with the exception of shared residence with two single parents. Boys were less likely to have shared residence with two single parents or with two stepparents. Recent divorces were often shared residence with two single parents, whereas older divorces were more often mother residences with a stepfather. Finally, we found that parental conflict before divorce is less prevalent among shared residential arrangements with at least one stepparent than mother residence.

To sum up, we found that age, child's sex and pre-divorce conflict are both related to children's school engagement and their living arrangements. The third hypothesis can therefore be (partially) confirmed (H3).

### **5.4 Direct relation between living arrangements and school engagement**

Finally, we discuss the direct relation between children's living arrangements and their school engagement in the left column of Table 2a. Children in shared residence with a stepfather (both with and without a stepmother) had significantly lower school engagement than children in mother residence with a single mother. Despite that the direct relation for children in shared residence with a single mother and a stepmother did not meet the significance level, the estimate also suggested a moderately negative effect.

Overall, these findings suggest that stress is also an important mediator. Children in shared residence with a stepparent combine two stressful factors in their living arrangements, namely moving between two parental households and the presence of a new partner in the maternal household.

Table 2a. Structural equation model of school engagement, mother-child relationship, father-child relationship and financial problems

	School engagement	NRI mother	NRI father	Financial problems
	Est. (s.e.)	Est. (s.e.)	Est. (s.e.)	Est. (s.e.)
Living arrangement (ref. Mother - single)				
Mother-stepfather	-0.013 (0.027)	-0.098 (0.026) ***	-0.084 (0.031)**	-0.167 (0.034) ***
Shared-single mother and father	0.019 (0.042)	-0.049 (0.038)	0.242 (0.055)***	-0.042 (0.038)
Shared-single mother and stepmother	-0.103 (0.062)	0.149 (0.044)	0.403 (0.069)***	-0.028 (0.054)
Shared-stepfather and single father	-0.084 (0.042) *	0.029 (0.043)	0.260 (0.056)***	-0.244 (0.052) ***
Shared-stepfather and stepmother	-0.089 (0.036) *	0.056 (0.042)	0.289 (0.056)***	-0.195 (0.043) ***
Financial problems	-0.010 (0.027)	-0.064 (0.033) *	0.056 (0.052)	
Mother-child relationship	0.295 (0.041) ***			
Father-child relationship	0.119 (0.043) **			
Mother's education (ref. Medium)				
Low	-0.117 (0.066)			
High	0.018 (0.050)			
Age of child	-0.029 (0.014) *			
Sex of child (ref. Boys)	0.134 (0.058) *			
Time since divorce	0.007 (0.009)			
Parental conflict before divorce	-0.075 (0.032) *			
R <sup>2</sup>	0.168	0.090	0.440	0.157

Source: LAFS 2008-2011.

Notes: N=1,360. \* p<0.05; \*\* p<0.01; \*\*\* p<0.001.

Table 2b. Structural equation model of living arrangements

	Mother- Stepfather Est. (s.e.)	Shared- Single mother and father Est. (s.e.)	Shared - Single mother and stepmother Est. (s.e.)	Shared - Stepfather and single mother Est. (s.e.)	Shared - Stepfather and stepmother Est. (s.e.)	
Mother's education (ref. Medium)						
Low	0.040 (0.158)	0.275 (0.359)	0.044 (0.416)	-0.097 (0.264)	-0.021 (0.284)	
High	-0.092 (0.068)	0.267 (0.162)	0.129 (0.112)	0.054 (0.138)	0.084 (0.127)	
Age of child	-0.029 (0.026)	-0.027 (0.039)	-0.104 (0.030)	*** -0.046 (0.036)	-0.107 (0.029)	***
Sex of child (ref. Boys)	-0.099(0.088)	-0.741 (0.139)	*** -0.092 (0.126)	-0.055 (0.101)	-0.262 (0.101)	**
Time since divorce	0.089 (0.011)	*** -0.108 (0.018)	*** -0.005 (0.012)	-0.014 (0.016)	0.023 (0.019)	
Parental conflict before divorce	0.120 (0.066)	-0.077 (0.085)	-0.331 (0.098)	*** -0.236 (0.073)	*** -0.257 (0.065)	***
R <sup>2</sup>	0.140	0.294	0.129	0.061	0.104	

Source: LAFS 2008-2011.

Notes: N=1,360. \* p<0.05; \*\* p<0.01; \*\*\* p<0.001.

Table 3. Direct and indirect effects of living arrangements on school engagement

Indirect effects on school engagement of	Est.	S.E.	
<b>Mother–stepfather</b>			
Indirect effect via:			
Relationship quality with mother	-0.039	(0.009)	***
Relationship quality with father	-0.011	(0.006)	
Financial problems	0.002	(0.005)	
Financial problem-relationship quality with mother	0.003	(0.002)	
Financial problem-relationship quality with father	0.001	(0.001)	
Sum of indirect effects	-0.035	(0.011)	***
<b>Shared–single mother and single father</b>			
Indirect effect via:			
Relationship quality with mother	-0.014	(0.011)	
Relationship quality with father	0.029	(0.013)	*
Financial problems	0.000	(0.000)	
Financial problem-relationship quality with mother	0.001	(0.001)	
Financial problem-relationship quality with father	0.000	(0.000)	
Sum of indirect effects	0.015	(0.019)	
<b>Shared-single mother and stepmother</b>			
Indirect effect via:			
Relationship quality with mother	0.044	(0.015)	**
Relationship quality with father	0.048	(0.022)	*
Financial problems	0.000	(0.001)	
Financial problem - relationship quality with mother	0.001	(0.001)	
Financial problem - relationship quality with father	0.000	(0.000)	
Sum of indirect effects	0.092	(0.031)	**
<b>Shared-stepfather and single father</b>			
Indirect effect via:			
Relationship quality with mother	0.009	(0.013)	
Relationship quality with father	0.031	(0.012)	**
Financial problems	0.002	(0.007)	
Financial problem-relationship quality with mother	0.005	(0.003)	
Financial problem-relationship quality with father	-0.002	(0.002)	
Sum of indirect effects	0.045	(0.020)	**
<b>Shared - stepfather and single father</b>			
Indirect effect via:			
Relationship quality with mother	0.017	(0.013)	
Relationship quality with father	0.034	(0.013)	*
Financial problems	0.002	(0.005)	
Financial problem-relationship quality with mother	0.004	(0.002)	
Financial problem-relationship quality with father	-0.001	(0.001)	
Sum of indirect effects	0.055	(0.023)	**

Source: LAFS 2008-2011.

Notes: N=1,360. \* p<0.05; \*\* p<0.01; \*\*\* p<0.001.

## 6 Discussion

The aim of this paper was to improve insights on the impact of parental resources on post-divorce child outcomes after divorce. By using a classification of family configurations based on children's residential arrangements and the presence of stepparents, we disentangled the effects of continued residential investments of biological parents following divorce and additional financial investments by stepparents. Therefore, we estimated structural equation models to distinguish between the direct and indirect effects of specific family configurations in terms of parent-child relationships and financial resources. We discuss four main findings of this study.

First, we see that the presence of a stepfather is related to less financial problems within the household of mother. This confirms the findings of previous studies that children in stepfamilies experience less economic deprivation than children in single-mother families (Dewilde & Uunk, 2008; Manning & Brown, 2006). We do however not find an association between financial resources and school engagement. Further studies need to explore whether this also holds for a sample of children from different family configurations (and not only children with divorced parents) and for objective, educational outcomes such as the highest educational level that pupils obtain.

Second, we found that living part-time with both parents is indirectly associated with higher school engagement via a closer father-child relationship compared to children living full-time with mother. This finding confirms the findings of previous research (Bauserman, 2002; Dunn et al., 2004; Spruijt & Duindam, 2009) and it stresses the importance of continued parental investments of mother and father following divorce for children's school engagement.

Third, the findings however also suggest that the presence of a stepparent influences the relation between residential arrangement and the parent-child relationship. First, the mother-child relationship of children with a residential stepmother (and no stepfather) in shared residence is better than the mother-child relationship of children in mother residence with a single mother. Future research should investigate whether this interaction effect can also be found for stepfathers, and children in shared and single father residence. Second, children in mother residence with a stepfather report a worse relationship with both parents than children in single mother residence. This finding is in line with previous studies that reported a negative relation between stepfathers and the mother-child relationship (Artis, 2007; Coleman et al., 2000) and between stepfathers and the father-child relationship (Juby et al., 2007). Because we do not find a negative relation between stepfather presence and the mother-child relationship for children in shared residence, this may indicate that residential contact with the father buffers



some of the negative associations between the presence of a stepfather on the mother-child and father-child relationship. Some authors have argued that children experience less loyalty conflicts between parents and stepparents in joint custody arrangements, leading to better relationships with stepparents. The underlying reasoning is that the secured ties with both biological parents make children feel more free to accept new stepparents into their families (Crosbie-Burnett, 1991; Greif & Simring 1982). This can be an interesting topic for future studies.

Fourth, this study is, to our knowledge, the first study that includes selection into residential arrangements and stepfamily formations simultaneously in the analytical model. The results show that child's characteristics and pre-divorce conflict are important selection mechanisms to take into account, as they are both associated with children's post-divorce living arrangements and their school engagement. Furthermore, we also took unobserved heterogeneity into account in the structural equation model by including the correlation between the unexplained variances of post-divorce living arrangements and school engagement. Future studies on children's post-divorce living arrangements should give more attention to the potential endogeneity of their findings, as this study find evidence of several selection effects.

Fifth, the finding that children in shared residence with at least one stepparent report the lowest school engagement, indicates that the additional complexity of multiple part-time residential figures induces some stress in the family system, that counterbalances the positive effects on the quality of the parent-child relationships and the protection against financial problems that single parents face. This is in line with previous publications that focus on children's stress in shared residence and stepfamilies (Coleman et al., 2000; Hetherington & Kelly, 2002; Jensen, 2009).

The findings of this study are subject to at least five limitations. First of all, this study uses cross-sectional data. Longitudinal data can be used to get a better insight at the processes that explain the relation between post-divorce living arrangements and child outcomes. A second limitation concerns the absence of a distinction between married and cohabiting stepfamilies. A number of studies found that children in cohabiting families had lower well-being and academic outcomes than children in married stepfamilies (Coleman et al., 2000; Manning & Brown, 2006; Sweeney, 2010). Future research should look how the mediators and selection mechanisms, proposed in this study, behave in cohabiting and married stepfamilies. Thirdly, this study is limited by a lack of information on stepparent parenting practices. Future research might explore the role of the stepparent-child relationship when interpreting the relation between children's post-divorce living arrangements and their outcomes. Fourth, we relied on children's reports of financial problems in the household instead of more commonly used income measures. This

operationalization of financial family resources may have influenced the research findings. The perception of financial problems only identifies the group of children living in households with too little financial means to invest in children's living circumstances and educational career. With regard to other variables in the model, we do not expect (strong) biases by our use of child reports. Previous studies have shown that adolescents can give valid and reliable reports of family relations (Havermans, Vanassche, & Matthijs, 2015) and school engagement (Fredricks & McColskey, 2012). Fifth, future studies are needed to compare the results of this empirical model between different cultural and institutional contexts. For example, the selection into shared residence and the social gradient of repartnering might vary considerably between countries, altering the combined outcome of both processes for child well-being.

The finding that children's post-divorce living arrangements are related to their school engagement, may have implications for school policies. This study has clearly shown that there is a strong heterogeneity in post-divorce living arrangements of children. Most schools are not yet adapted to this diversity of family forms: there is often a lack of structured communication and/or management of more complex family situations (Daly, 2009; Mortelmans, Verschelden, Van Bavel, Buysse, & Matthijs, 2014). This may have a negative effect on the involvement of non-residential parents and stepparents with the child which is, in its turn, related to worse child outcomes (Downey, 1995; King, Mitchell, & Hawkins, 2010). Therefore, we support more family-sensitive policies of schools as a mean to raise the involvement of residential and non-residential biological and non-biological parents.

Also, the findings of this study have implications for family policies. The findings show that there is an interplay between residential arrangements and the presence of stepparents that influence the financial resources in the family, the quality of the parent-child relationship and children's stress. The findings suggest that shared residence has the potential to mitigate some of the often negative consequences of divorce for children. This does not only run via the better father-child relationship, but also via the presence of stepparents in shared residence. Our findings suggest that they can have a positive impact on the mother-child and father-child relationship, on the condition that the child has residential contact with both parents. Nevertheless, the higher stress of children in these arrangements may counterbalance the benefits. The outcomes of shared residence for children are therefore not straightforward and it is yet not completely clear how shared residence is best implemented for the well-being of children. Parents should be aware of potential stressors of shared residence and acknowledge children's agency and adapting arrangements to their needs (Harris-Short, 2010). We need to give children in divorced families a

voice, in order to understand their experiences, needs and expectations in terms of how their post-divorce family life unfolds.

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