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ORIGINAL PAPER

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 ($n = 1630$). 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 fatherchild 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

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Introduction

Children with divorced parents tend to have lower school performance and school engagement than children with continuously married parents (Bernardi and Radl 2014; Brown 2010; Cavanagh and 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 et al. 2014; Kelly and Emery 2003; Sigle-Rushton et al. 2014).

Children with divorced parents are a very heterogeneous group. One source of heterogeneity is children's post-divorce living arrangements. 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 them Belgium (Bjarnason and Arnarsson 2011). In these arrangements,

children live "for substantial amounts of time with both parents (Kline et al. 1989, p. 54). This "considerable" amount of time is sometimes operationalized as minimum 66% of the time (Sodermans et al. 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 et al. 2003; Sodermans et al. 2013). These two developments are intertwined, as shared residential arrangements increase the likelihood of children living together with a new partner of a parent. This is both a natural consequence of living in two households (Sodermans et al. 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 et al. 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 et al. 2013). 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. 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 et al. 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 well-being outcomes, such as self-esteem (Liem and Martin 2011).

Based on the research literature we propose four mechanisms that can explain the potential relation between children's post-divorce living arrangements and school engagement. A first mechanism concerns the financial resources in the household. A parental divorce tends to lead to a decline in the total household income (Amato 2010; Sweeney 2007, 2010). This loss of financial resources can affect children's school engagement. There are less financial means that can be invested in children's educational careers and cognitive stimulation (Brooks-Gunn et al. 1995). Financial problems can also deteriorate the relationship between parents, and between parents and children (Conger et al. 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 et al. 2010). We elaborate on this topic in the next paragraph.

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 and 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 et al. 2012). By contrast, less is known about 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 et al. 2013).

A second mechanism that can explain the potential link between post-divorce living arrangements and school engagement, is the quality of the 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 worsened parent-child relationship. The parent–child relationship may influence children's school engagement in two ways. 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 and Singh 2008; Murray 2009; Parcel et al. 2010; Spera 2005). Second, a good parent–child relationship can facilitate the adjustment process of the child to the new family situation (King and Sobolewski 2006).

The on average lower quality of the parent–child relationship in families with divorced parents can 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 et al. 2001). Contrarily, parental repartnering may also negatively affect the parent–child relationship. For instance, Artis (2007) found that worsened 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 et al. 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 et al. 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 and Gilbreth 1999). Second, shared residential arrangements are related to a positive relationship between fathers and children compared to mother residential arrangements, because the contact and relationship between father and child can be maintained (Bauserman 2002; Dunn et al. 2004; Spruijt and 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 child-rearing issues (Sobolewski and King 2005), high levels of parental conflict (Donnelly and 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 et al. 2015).

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 and Finkelhor 1993; Tschann et al. 1989). Because children of a higher socioeconomic background tend to be more engaged in school (Gruman et al. 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 et al. (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 and 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 and Chen 2009) and girls report on general a higher engagement in school than boys (Appleton et al. 2008). Third, shared residence is more common among low-conflict couples (Bauserman 2002; Sodermans et al. 2013; Spruijt and 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.

A final factor in the relation between post-divorce living arrangements and school engagement may be 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 and 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 and Forgatch 2002; Sun and Li 2009). Hetherington and Kelly (2002) estimated that children need five to 7 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 et al. 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 and Duindam 2009), the strain of shared residence on their network of friends (McLanahan and Sandefur 1994), and the mobility between the maternal and the paternal household (Jensen 2009).

The research question of this study is: "What is the relation between children's post-divorce living arrangements and their school engagement?" This study contributes to the research literature in two ways. First, investigating the combination of residential arrangements and the presence of residential stepparents can give 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, the use of structural equation models allows us to specify direct and indirect relations while controlling for endogeneity. The following hypotheses are investigated: (H1) financial resources are a mediator in the relation between school engagement and the presence of a stepparent; (H2a) the father-child relationship is a mediator in the relation between residential arrangement and school engagement; (H2b) the quality of the relationship between the child and the repartnered parent is a mediator in the relation between school engagement and the presence of a stepparent; (H2c) the quality of the relationship between the child and the non-repartnered parent is a mediator in the relation between school engagement and the presence of a stepparent; (H3) 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; (H4a) the direct relation between shared residence and school engagement is negative compared to mother residence; (H4b) the direct relation between stepparent presence and school engagement is negative compared to single-parent families.

Method

Participants

The participants of this study are drawn from the first four rounds of the Leuven Adolescent and Family Study (LAFS, 2008–2011). The research sample consists of children with divorced or separated parents between 11 and 23 years old with a mean age of 15 (Table 1). Given the low number of children in (almost) full-time father residence ($n = 157$) and the specific characteristics of this group (Sodermans et al. 2013), we focus only on children who have full-time or part-time residential contact with their mother in this study. 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 final research sample is thus limited to children who have residential contact with their mother and have provided information on their residential arrangement and parental repartnering ($n = 1360$).

Procedure

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). 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 in primary school). Secondary school typically consists of 6 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, a cluster of classes was selected from each chosen school. The aim of the selection was to include classes from all tracks and all levels of the school. The selection of classes engaged the cooperation of the school board. In each selected class, all pupils were questioned with paper-and-pencil questionnaires. Less than 1% of the pupils handed in an empty or obviously unreliable questionnaire. Cases with unreliable answers on the questionnaire were dropped during the data-cleaning (Vanassche et al. 2012).

The distribution of sex (male/female), year (first to seventh year) and educational track (general track, technical track, vocational track) in the LAFS data 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 estimates on population register data (Lodewijckx 2005). 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. 2012). 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 and 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

Table 1 Mean/proportion, standard deviation, range and percentage missing

Metric variables	Mean	SD	Range	% missing
School engagement				
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
Parental conflict before separation				
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
Time since divorce	7.93	4.33	0–20	5.2
Financial problems with mother	2.14	0.98	0–4	2.4
Age of child	15.20	1.98	11–23	0.0
Mother–child and father–child relationship				
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
Categorical variables	%			
Sex of child				0.0
Boy	42.0			
Girl	58.0			
Educational level of mother				9.4
Low	7.2			
Medium	40.9			
High	51.9			
Living arrangements				0.4
Mother–single mother	35.9			
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: $N = 1360$

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).

Measures

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 and 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.

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 on 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.

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 the maternal and the 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 et al. 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 et al. 2007; Dewilde and 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).

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 and 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 0.91 for mothers and 0.93 for fathers (Sodermans et al. 2013).

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 over-representation of girls in the research sample. This over-representation 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 and Fincham 1993). The 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.

Data Analyses

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.

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 (Brown 2006). The estimation technique used in the CFA model is maximum likelihood estimation with robust standard errors which are used to correct for non-normality and dependence of standard errors (Muthen and Muthen 2007). Robust standard errors take into account the clustering of the respondents in schools. 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 (Brown 2006). RMSEA values smaller than 0.08 suggest an adequate model fit (Browne and Cudeck 1992).

The null model of the confirmatory factor analysis is reported in Fig. 1. 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 ($p < 0.001$) and larger than 0.400. 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 Fig. 1). The standard deviation of school engagement is 0.685, 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.

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 and 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 Fig. 2. 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.

Missing values

We use full information maximum likelihood (FIML) estimations to deal with missing values (Arbuckle 1996). FIML

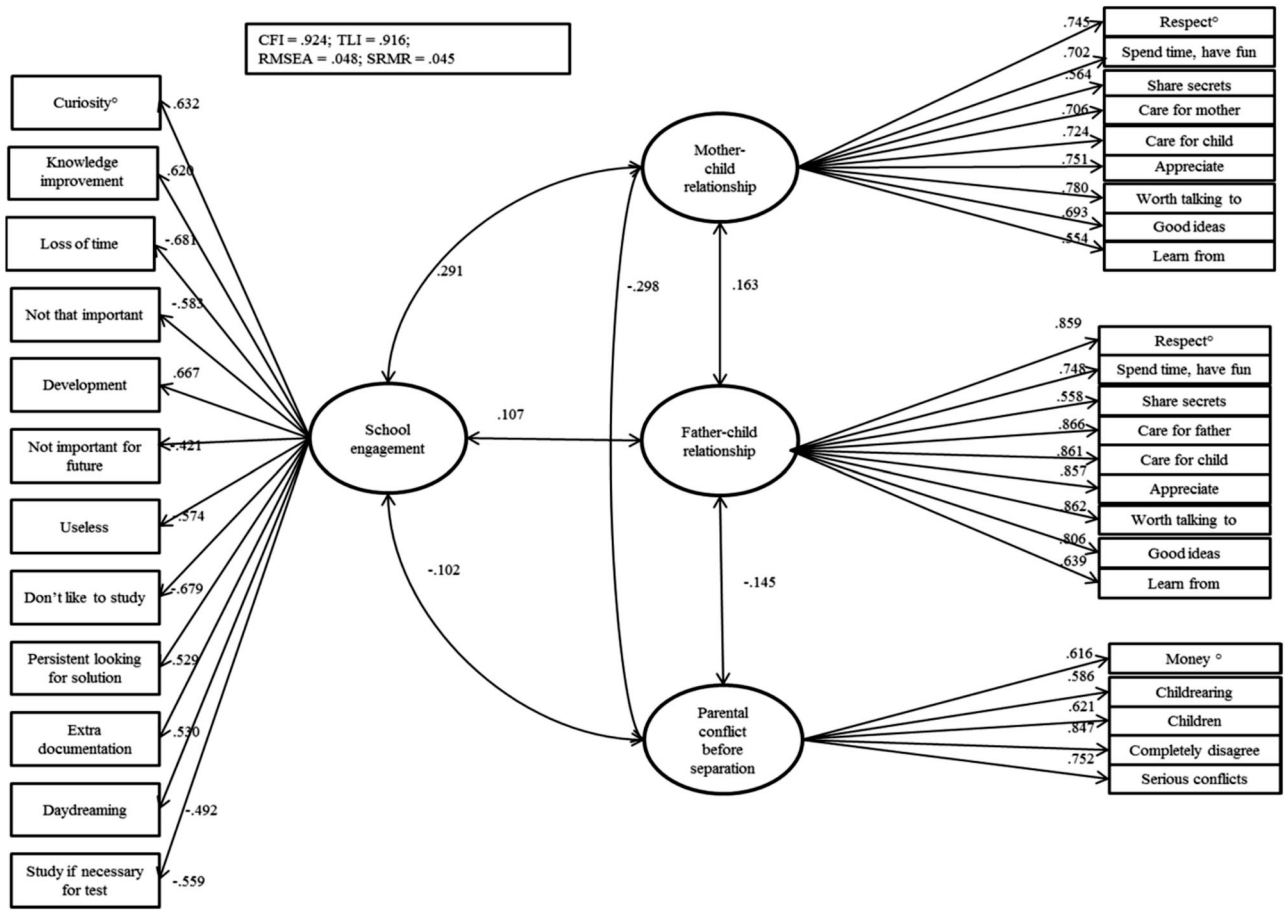

Fig. 1 Measurement model for school engagement, mother–child relationship, father–child relationship, and parental conflict before divorce. *Source*: LAFS 2008–2011. *Notes*: $N = 1360$. Standardized estimates are presented here. All relations are significant ($p < .001$). ° marker variable

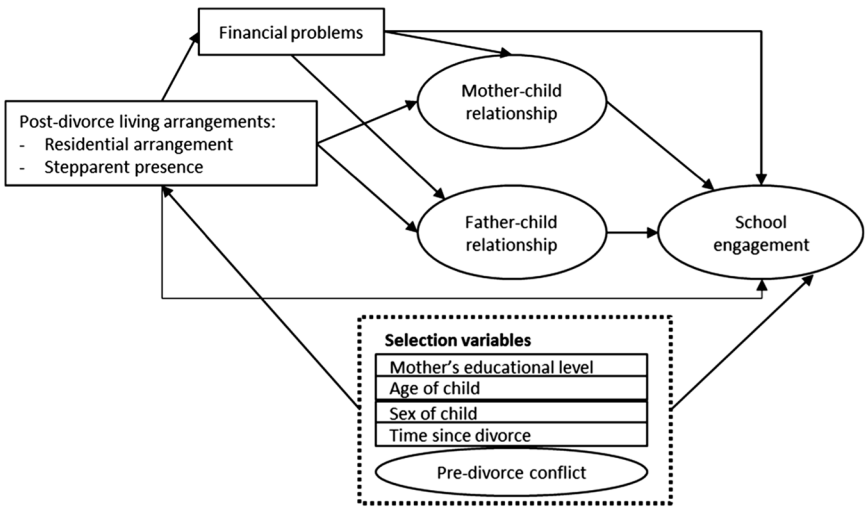

Fig. 2 Conceptual model of the relation between post-divorce living arrangements and school engagement

estimations assume that the missing elements are completely or at least partially random with a multivariate normal distribution. 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 and Bandalos 2001). For the exogenous variables, list wise deletion is used. As a consequence, the structural model is performed on 1169 observations,

Table 2 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^2	0.168		0.090		0.440		0.157	

Source: LAFS 2008–2011

Notes: N = 1360

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

because 191 observations had missing values on the selection variables.

Results

The results are presented in Table 2 (direct relations on mediators and school engagement), Table 3 (selection variables), and in Table 4 (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.

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 2: 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 2: Financial problems). As a consequence, the indirect effects via financial resources were all insignificant (Table 4). 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).

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 their mother and father, also reported on average high scores on school engagement (Table 2: 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 2: NRI father). The four living arrangements with shared residence were significantly related to higher school engagement via the better father–child relationship (Table 4). 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 4 showed different findings for stepmothers and

Table 3 Structural equation model of living arrangements

	Mother–Stepfather		Shared–Single mother and father		Shared–Single mother and stepmother		Shared –Stepfather and single mother		Shared –Stepfather and stepmother	
	Est. (s.e.)		Est. (s.e.)		Est. (s.e.)		Est. (s.e.)		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^2	0.140		0.294		0.129		0.061		0.104	

Source: LAFS 2008–2011

Notes: $N = 1360$

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 4 Direct and indirect effects of living arrangements on school engagement

Indirect effects on school engagement of	Est.	S.E.	
Mother–stepfather			
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)	***
Shared–single mother and single father			
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)	
Shared-single mother and stepmother			
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)	**
Shared-stepfather and single father			
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)	**
Shared–stepfather and single father			
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: $N = 1360$

*$p < 0.05$; ** $p < 0.01$; ***$p < 0.001$

stepfathers. Children in mother residence with a stepfather had lower school engagement via the worsen 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 (H2b and H2c).

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 3. 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).

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 2. 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 relation. The results thus (partially) confirm the two final hypotheses (H4a and H4b). Overall, the 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.

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 relations between specific family configurations in terms of parent–child relationships and financial resources, and children's school engagement. 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 the mother. This confirms the findings of previous studies that children in stepfamilies experience less economic deprivation than children in single-mother families (Dewilde and Uunk 2008; Manning and Brown 2006). We do not however 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 and 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 can also be found for

stepfathers, and children in shared residence and single father residence. Second, children in mother residence with a stepfather report a more negative 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-Burnett1991; Greif and Simring 1982). This can be an interesting topic for future studies.

Fourth, this study 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 and Kelly 2002; Jensen 2009).

Limitations and Future Research Directions

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 and Brown 2006; Sweeney 2010). Future research should look at 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 et al. 2015) and school engagement (Fredricks and 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.

Author Contributions N.H.: designed and executed the study, conducted data analyses, and wrote the paper. S.V.: collaborated with the design and writing of the study. K.M.: collaborated in editing the final manuscript.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no competing interests.

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