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Initial inequality, unequal development: Effects of family movements on child development

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Abstract

The article evaluates the link between family movements and children's socioemotional development. Using a longitudinal survey, we can track the number and role of household members and measure the children's development. We identify the movements of household members during the first seven years of a child's life. Our findings indicate that the entry of a new member into the household has a negative impact of approximately 0.2 to 0.3 standard deviations on externalizing and internalizing problems, particularly among low-educated households. These entries affect household life, undermining housing quality and limiting the mother's ability to manage her time effectively. The limited access to maternity leave and breastfeeding working conditions do intensify these inequalities. By analyzing specific movements, we observe that the father's long-lasting absence impacts externalizing problems. These results hold strong across different samples and specifications, and our study gains causal power by employing the Oster methodology. Despite the impacts on high- and low-educated households, their background plays a role in coping with stressful environments. In low-educated households, stabilization is not achievable even after several months, further exacerbating socioemotional problems. *JEL codes*: J12, J13, R20

Keywords: Family Instability; Socio-emotional Development; Inequality; Uruguay; Panel Data

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Resumen

Este artículo evalúa el vínculo entre los movimientos de los miembros del hogar y el desarrollo socioemocional de los niños. Mediante una encuesta longitudinal, se puede medir el desarrollo socioemocional de los niños e identificar las entradas y salidas de los miembros del hogar, así como su relación de parentesco con los niños. Se identifican los movimientos de los miembros del hogar durante los siete primeros años de vida del niño. Los resultados indican que la entrada de un nuevo miembro en el hogar tiene un impacto negativo de aproximadamente 0,2 a 0,3 desviaciones estándar en los problemas externalizados e internalizados, especialmente en hogares con bajo nivel educativo. Estas entradas afectan a la vida del hogar, con efectos negativos en la calidad de la vivienda y en la capacidad de la madre para gestionar su tiempo de forma eficaz. El acceso limitado al permiso de maternidad y las condiciones laborales de lactancia intensifican estas desigualdades. Al analizar los movimientos específicos, se observa que la ausencia prolongada del padre repercute en los problemas externalizados. Estos resultados son robustos a modificaciones en la selección de población y a diferentes especificaciones, y gana poder causal al emplear la metodología de Oster. Los antecedentes de los hogares, aproximados por el nivel educativo de la madre, desempeñan un rol relevante a la hora de hacer frente a entornos estresantes. En los hogares con bajo nivel educativo, la estabilización no es posible ni siquiera después de varios meses, lo que agrava aún más los problemas socioemocionales.

Código JEL: J12, J13, R20

Palabras clave: Inestabilidad familiar, Desarrollo socioemocional, Desigualdad, Uruguay, Datos de panel

1 Introduction

Over the last decades in both industrialized and developing countries, household structures have changed, experiencing a rise in cohabitation, divorce, and separation rates, a shift in emancipation's timing, and diversification in couple formation (Lundberg et al., 2016; Esping-Andersen, 2016; Pardo et al., 2020). These transformations have pushed academics to assess how all these changes are associated with family members' outcomes. In particular, several studies have focused on the impact of these transformations on children's cognitive and non-cognitive development (Amato and Gilbreth, 1999; Amato, 2010; McLanahan et al., 2013). Changes in the household structure during early childhood can lead to ambiguity in household rules, parental expectations of child behavior, and insecurity in family bonds (Pleck, 2007; Hetherington et al., 1998). These changes may also be accompanied by modifications in parent-child roles and routines, fluctuations in parental resources, and deterioration in parental quality. Also, movements in family structure can undermine parent-to-child socialization processes (Lee and McLanahan, 2015; Coleman et al., 2000; George, 1993). This process is not homogeneous; poor family background not only increases the probability of suffering family movements but also implies fewer material and emotional tools to deal with these changes, deepening inequality (McLanahan et al., 2013; Mitchell et al., 2015).

This article analyzes how family movements affect children's socio-emotional development in their first ten years. We follow households for seven years, identifying all household member's movements, measuring children's development with a standardized test, and analyzing the impact of aggregate and specific households' movements, such as fathers and grandparents. We analyze changes in two socioemotional development dimensions (externalizing and internalizing problems) and how the mother's educative background can potentiate or mitigate these effects.

Most of the literature concentrates its attention on couples dissolution (divorces or separations), exploring its impact on multiple dimensions of the well-being of the (ex)couple's members and their children (Tartari, 2015; McLanahan et al., 2013). Evidence mainly shows that the dissolution of couples leads to reductions in household members' well-being and is linked to poor cognitive child development, lower academic achievement, behavioral problems, and poorer health performances (Bzostek and Beck, 2011; Magnuson and Berger, 2009; Fomby and Cherlin, 2007; Osborne and McLanahan, 2007; Cavanagh and Huston, 2006; Mikulincer et al., 2003; Kurdek et al., 1995). These effects are found in both industrialized and developing countries and

in short and medium-term (Amato et al., 2011; Amato, 2010; Bucheli and Vigorito, 2021). The scarce evidence on multiple movements in family composition has been associated with lower educational attainment, early dropout, depression, delinquency, and drug use among adolescents (Aquilino, 1996; Brown, 2006; Cavanagh, 2008).

However, there is no consensus on whether some characteristics of family movements are more relevant than others. One strand of the literature indicates that the frequency and intensity of family change constitute the main drivers of increased problems (Fomby and Cherlin, 2007; Magnuson and Berger, 2009; Meadows et al., 2008); another part of the literature has emphasized that the nature of the transition is the most relevant issue (Ryan and Claessens, 2013; Osborne et al., 2012; Wu and Thomson, 2001). Finally, another strand points out that the family structure at birth is the most relevant for child development, rather than later family composition and movements (Bzostek and Berger, 2017).

The literature focuses mainly on household resources to understand the role of family movements on child outcomes. Household movements modify the availability of monetary, social capital, and time (parental and other members) resources (Thomson et al., 1994; Amato and Gilbreth, 1999; Thomson and Mclanahan, 2012). Resources could be reduced by the no participation of the father in the child maintenance or simply by a reduction of economies scale or increase in transaction costs (Mariani et al., 2017). A second channel to understand the potential impacts is the stress theory. Changes in the household are an additional stress source for parents and children. After that, the adaptation to a new environment would depend on the parents' (or other household members') ability to create a new safe space for the children to compensate for the initial negative shock (Cavanagh and Huston, 2006; McLanahan et al., 2013; Mitchell et al., 2015). Finally, the potential change to looser household rules explains social control channels, and evidence focuses on health outcomes and eating and exercise habits (Reczek et al., 2014).

In line with this, we explore changes in the mother's time use to capture the time resource channel and explore the stressed channel through the mother's parenting style. We also explore two household context factors that could amplify the effects: residential mobility and people per room in the dwelling. These could put more stress on the household, augmenting the impact of some household member movements. We also focus on specific changes in family composition that the reviewed literature considers most relevant (siblings, fathers, and grandparents).

The evidence in the literature links the effects of family instability fundamentally to some components of the children's externalizing problems. Family structure changes are negatively

associated with children's development, eroding the parent's affective socialization and their outcomes (Lee and McLanahan, 2015; Waldfogel et al., 2010). In particular, evidence shows how these movements increase behavioral problems (Cavanagh and Huston, 2006; Fomby and Cherlin, 2007; Osborne and McLanahan, 2007). Changes such as the exit of one parent from the household are more harmful to children's behavior, whereas changes such as one of the parent's entrance affect cognitive development (Osborne et al., 2012; Mitchell et al., 2015). Finally, whether grandmothers care for their grandchildren can impact them psychologically and be linked with externalizing behavior problems in the child (Smith et al., 2008). In this paper, we include both externalizing and internalizing problems as outcomes, although we expect to find larger effects in externalizing problems.

Family background plays an essential role in the socio-emotional development during childhood, which subsequently influences many dimensions in adolescence and adulthood (Cunha et al., 2010; Heckman and Mosso, 2014; Mitchell et al., 2015). The impacts of shocks and circumstances from the utero and in the first years of childhood are well-documented (Almond et al., 2018). This evidence mainly points to how risky parental health and care behavior affects offspring outcomes years later or how public policy has a crucial role in mitigating the negative effects (Amarante et al., 2016; Del Boca et al., 2016; Gertler et al., 2021). To consider this, we estimate the effects of family movements on the child's development differentiating by the mother's educative level as a source of inequality between households. Further, we focus on Uruguay, a developing country where inequality is a large problem, and children might have to deal with higher risks of family movements. However the literature has paid little attention to the quantitative effect of household movements on socio-emotional development in low- and middle-income countries (Boyden et al., 2015).

Evidence shows that the effects of family movements are heterogenous by socioeconomic characteristics, mainly racial or ethnic ones (McLoyd et al., 2000). They document larger effects among white people, arguing that minorities may develop better support systems for dealing with such changes (McLoyd et al., 2000). However, the effect of family movements by racial dimension may depend on the type of problem. White children show greater sensitivity to behavior problems (Fomby and Cherlin, 2007; Osborne and McLanahan, 2007), and ethnic or racial minorities show greater sensitivity in academic achievement (Heard, 2007). The nature of the socioeconomic differences differs from those studied in previous papers. While ethnic-racial differences are not marked in our context since most of the population declare European descent,

levels of economic inequality are similar to those of the US. We expect that family instability will mainly affect children whose mothers have a lower educational level due to a lack of resources, insufficient support for childcare, and the difficulties of reconciling work with housework hours.

These analyses are scarce in developing countries due to the lack of longitudinal information and more recent household changes. However, Uruguay is an exception having a divorce law since 1907; household composition has changed over the twentieth century, the large majority of new couples opt out of marriage, and children living with one parent rose steadily in the last three decades (Bucheli and Vigorito, 2019; Cabella et al., 2015). Bucheli and Vigorito (2019) documents how union dissolution has adverse effects on well-being and how per capita household income could be a channel to explain it. In a follow-up paper, the same authors find that separation worsens child educational outcomes and affects some time-use domains, but there is no effect on socio-emotional well-being (Bucheli and Vigorito, 2021). Again, one of the main channels is economic hardship. Cid and Stokes (2013) found that separation affects school attainment only among teenage boys. Finally, focusing on a different household change, Amabile (2022) explores the effect of sibling birth, exploiting sex composition. She finds that boys who have brothers have lower motor skills and non-cognitive development levels. We find entrance impacts positively on the externalizing problems mainly among low-educated households. This change is modulated by a decrease in housing conditions and a change in mothers' time use increasing housework hours.

We use the Nutrition, Child Development, and Health Survey (ENDIS), a longitudinal survey that collects information at three points in time and that can be combined with the Continuous Household Survey to provide information on the household structure at four points. The data covers socioeconomic information and measures of children's cognitive and non-cognitive development, parenting practices and styles, and the time use of parents and other household members. Our main outcome variable is the Child Behavior Checklist (CBCL) to measure children's socioemotional development. We explore household heterogeneity through the mother's educative level on which we approximate the inequality of origin of the children, and the famliy-friendly rights of mother's jobs.

This paper contributes to the literature on three points. First, we discuss the effect of the household aggregate movements (entries and exits) jointly with the type of movement. We identify aggregate movements in the household (entries or exists) and then focus mainly on the movements of fathers, grandparents, and siblings. As the main difference with most of

the literature, these movements are not only divorce or separation of parents but also include movements of grandparents and siblings. Second, we introduce a set of channels to identify the mechanisms behind family movements, exploring in particular the mother capacity to decide about her time use. Last, we analyze this in a middle-income country context, where both the literature about child development and family movements are scarce, and higher levels of inequality, adolescent pregnancy, and household arrangements can lead to different results.

The rest of the paper is organized as follows. Section 2 presents the database and main variables constructed and used in the analysis. Section 3 describes the empirical approach. Sections 4 and 5 present our main results, in Section 4 the effects of aggregate movements on a child's development, and in Section 5 the effects of specific movements (father, grandparents, and siblings). Robustness checks are discussed in Section 6. Finally, Section 7 concludes.

2 Data and Main variables

2.1 Data

We use the three waves of the ENDIS, collected in 2013, 2015, and 2019 by the National Statistics Institute of Uruguay. This survey is matched with the Continuous Household Survey of 2012 (referred to in this paper as *wave 0*), which constitutes the sample frame of the ENDIS, and is representative of children in urban areas who were between 0 and 3 years old in 2013. It collects information on the household composition and basic socioeconomic variables, as well as information on the mother's outcomes (education, employment, etc.) and the child's nutrition, development, and health. It was administrated by trained college students, guaranteeing the data's high quality.[1]

ENDIS covers practically all the early childhood stages of this sample of children (see Figure A1 of the Appendix). In the first wave, children in the sample had between 1 and 47 months of age; in the second wave, they had between 24 and 79 months; and in the third wave, between 60 and 131 months (see Table A1 of the Appendix). The survey's attrition is within reasonable figures; in the first wave, there is information on 3,077 children and their households, and in the last wave, five years later, the balanced panel has 1616 children and their families (Panel (b) in Table A1 of the Appendix).

[1] Data collection required the signature of informed consent by the participants and has the approvement of the Ethics Committee of the Faculty of Medicine of the University of the Republic (Res. No. 159, March 18, 2013, file: 070153-000486-13). Technical data on the sampling procedures of the survey can be found at the website: https://www.ine.gub.uy/endis

For our study, we further restrict the sample to consider only households in which the survey respondent is the mother of the child, as our analysis unit is the mother-child binomial. This represents 89.9 percent of the balanced panel sample. We also restrict the sample to non-missing values in all the relevant variables representing 8.4 percent of the balanced panel. Based on these filters, we have a final sample of 1301 children and their families (Panel (c) in Table A1 of the Appendix). In this sample, there is a slightly higher proportion of girls than in the complete sample, especially in the last wave (49 to 47%). The average age of our sample goes from 26 months in the first wave to 52 months in the second wave and 94 months in the last wave. The age is very similar to the unbalanced sample.

2.2 Main variables

2.2.1 Child development

This paper's main outcome of interest is the children's socio-emotional development, measured through the Child Behaviour Checklist (CBCL). This instrument, developed by Achenbach and Edelbrock (1991), is applied in the three waves of the ENDIS to children over 17 months of age. CBCL is designed to identify externalizing social-emotional problems, e.g., inattention or aggressive behavior, and internalizing problems, such as anxiety, isolation, or withdrawing into oneself.

In the first wave of the survey, the CBLC was only applied to children living in the capital city. This added to the age cap of the instrument, implies an important restriction to the availability of information on development in the first wave. Thus, we only study children's socioemotional development in waves 2 and 3 when children are two years old and over. We first use a non-parametric regression to standardize the test results concerning the child's age and interviewer identification (Rubio-Codina et al., 2016). Then, we standardize the residual of this regression to obtain continuous variables centered in the mean for each wave.

Table 1 presents the average standardized scores of the child's externalizing and internalizing problems. There are no statistically significant differences in both types of problems between waves. Both types of problems are higher for children of low-educated mothers compared to high-educated ones. While the former have average results that are systematically under the sample mean, the latter is over the sample mean in both waves.

Table 1: Average scores of externalizing and internalizing problems by survey wave

	Externalizing problems		Internalizing problems		Observations
	Wave 2	Wave 3	Wave 2	Wave 3	
Total	-0.020	-0.029	-0.037	-0.045	1301
Mother's education					
Low	0.204	0.142	0.222	0.167	581
High	-0.202	-0.166	-0.247	-0.216	720
p-value	0.000	0.000	0.000	0.000	
Stable households	-0.106	-0.137	-0.129	-0.176	802/703

Note: The CBCL score is standardized with non-parametric regressions, considering the child's age in months and identifying the interviewer who administered the instrument. Higher scores imply a higher probability of problems. Differences in scores over time are not significant. The p-value for the difference between the second and third waves is 0.828 for externalizing problems and 0.849 for internalizing problems. Mother's education is defined by the higher level obtained; Low education refers to mothers that had not completed secondary school and High education refers to those that have at least completed secondary school. Source: ENDIS Waves 2 and 3.

2.2.2 Family movements

We build two measures for family movements, which are our main variables of interest: i) aggregate household movements that account for the entries and exits of household members, and ii) type of movements, focusing on the entrances and exits of specific household members.

As mentioned, our analysis focuses on waves 2 and 3 as the child development information is fully available for these periods. However, as will be detailed in the next section, we use lagged information on family movements and the presence of household members. In this section, we provide descriptive statistics of the presence and movements of household members for waves 0 to 3 of ENDIS.

Aggregate movements We identify the presence of an entry (exit) if there is an entry (exit) of any member of the household between wave $t-1$ and wave t. Recall that the reference is the mother-child binomial, so the entry does not necessarily refer to the household but to this unit. For example, we would identify as an entry of the grandparents the situation in which the mother and child live alone in $t-1$, and in t move to live with her parents.

Panel (a) in Table 2 shows the proportion of children that live in households that experienced an entry of a member in each wave and Panel (b) shows the presence of exits. For reference, Panel (c) shows the proportion of stable households in each wave (those with no entries or exits). Note that households can have simultaneous entries and exits, so these figures do not add up to one.

For the complete period, between Wave 0 and 3, almost half of the children live in households

with at least one entrance and 40 percent with at least one exit. Both entries and exits increase as children age and are consistent with the differences in the time gaps between waves. The presence of movements is lower between waves 0 and 1, on average, nine months apart, and children are very young (under four years old). As the gap increases and children are older, the prevalence of movements is higher, reaching over 25 percent of households between waves 2 and 3, with a gap of at least three years.

Table 2: Entrances and exits to the household

	Wave 0 - Wave 1	Wave 1 - Wave 2	Wave 2 - Wave 3	Wave 0 - Wave 3
(a) Entry				
Total	0.121	0.240	0.292	0.467
Mother's education				
Low	0.162	0.277	0.355	0.519
High	0.088	0.210	0.242	0.425
p-value	0.000	0.005	0.000	0.001
(b) Exit				
Total	0.088	0.223	0.273	0.403
Mother's education				
Low	0.125	0.280	0.366	0.527
High	0.058	0.176	0.197	0.303
p-value	0.000	0.005	0.000	0.001
(c) Stable households				
Total	0.819	0.616	0.540	0.348
Mother's education				
Low	0.754	0.539	0..441	0.253
High	0.872	0.679	0.621	0.425
p-value	0.000	0.000	0.000	0.000
Observations	1301	1301	1301	1301

Note: Entrance is defined as the presence of a household member in t that was not present in $t-1$. Exit is defined as the absence in t of a member that was present in $t-1$. Mother's education is defined by the higher level obtained; Low education refers to mothers that had not completed secondary school and High education refers to those that have at least completed secondary school. Source: ENDIS Waves 0 to 3.

Specific movements We also explore if the effects of family movements on child development depend on who enters o exits the household. We identify the presence in the household and the movements of the father, grandparents, and siblings. As our unit of analysis is the mother-child binomial, we do not consider the mother's movements. Siblings are defined as children living in the household with a maximum age difference of 9 years with the child of interest.[2]

Figure 1 shows the presence and movements of the father, grandparents, and siblings in each wave, and Table A2 of the Appendix shows the percentage of households with at least one of these members.[3] We observe the expected trends as children get older: a smaller proportion of

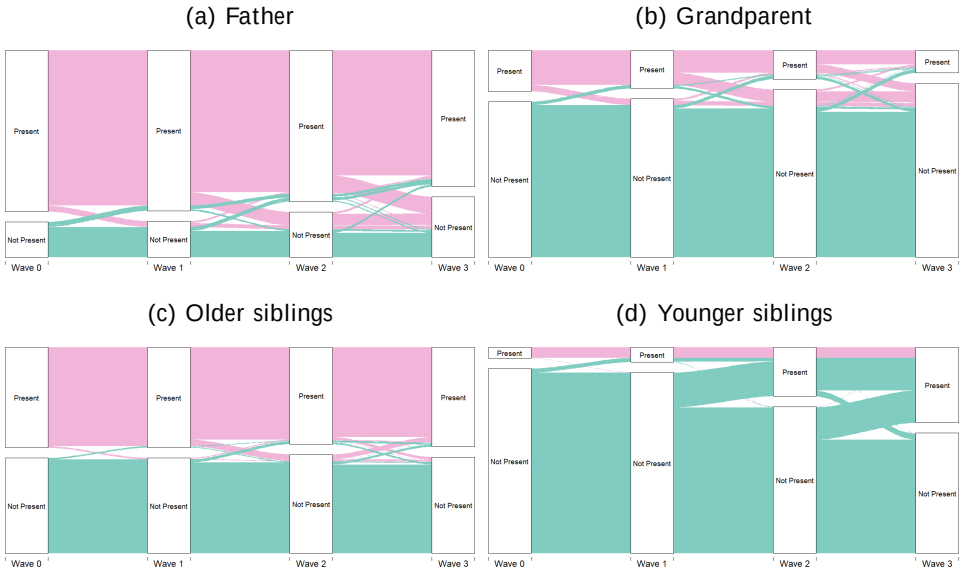
[2] This age difference is based on assuming that siblings with larger age differences will not be competitive in terms of resources with the child of reference. Similar selection options have been used in the literature (Bernal, 2008).

[3] Note that we consider the presence of at least one grandparent or sibling but identify movements of each individual. If, for example, in the same period one grandparent enters and one grandparent leaves the household

fathers' and grandparents' presence and an increase in the presence of siblings.

Over 80 percent of the children live with their fathers when they are under 4 years old (Waves 0 and 1), but couple separations lead to the exit of fathers, and their presence is reduced to around 69 percent in wave 3. We also observe an important increase in the presence of siblings, from around 56 percent when children are 0 to 3 years old to 75 percent when children are 6 to 10 years old. The presence of grandparents shows a smaller decrease, from 21 to 12 percent. While for fathers and siblings, the larger movements occur between waves 2 and 3, for grandparents the larger movement occurs between waves 1 and 2.

Figure 1: Presence of father, siblings, and grandparent



Note: These movements are computed based on the balanced panel of 1301 children. We define all the movements of father, grandparents, and younger and older siblings in a household with always a mother and a child. Siblings are defined as children living in the household with a maximum age difference of 9 years with the child of interest. We consider whether the relative is part of the household at the moment of the respective wave. Source: ENDIS Waves 0 to 3.

Large and statistically significant differences exist in the presence of the father, siblings, and grandparents for high and low-educated mothers, as shown in Table A2 of the Appendix. The father's presence is higher for children of more educated mothers, and the difference between both groups is stable over time. This supports previous evidence that educational differences in the father's presence emerge at very early ages, mainly from fathers that were never present (Cabella et al., 2016). The presence of siblings is always lower for more educated mothers, but this difference decreases with time, which aligns with previous evidence of educational differences on fertility calendar (Nathan et al., 2016; Pardo and Cabella, 2018). Last, the presence of grandparents is lower for high-educated mothers, also following previous evidence on the educational

both specific movements are reported, but the presence variable would not change.

differences of extended household formation.

As shown in Figure 1, the entrance of fathers or grandparents and the exit of siblings are not empirically relevant. Of the total entries in the household between waves 0 and 3 (including other types of relationships with the child that are not father, grandparents, or siblings), 90 percent are represented by the entry of siblings. In the case of exits, the relative weight of the father is the highest (approximately a third of all exits). Still, the importance of grandparents is not insignificant (19%).

Considering the complete period, 34 percent of the children experience the entry of a younger sibling, 17 percent experience the father's exit, and 14 percent the exit of the grandparent (Table A2 of the Appendix). All types of movements are more frequent for children with low-educated mothers and in most cases statistically significant. The entry of fathers, grandparents, and older siblings and the exit of any siblings represent less than 5 percent of the sample. Considering this, we will only consider the relevant movement in our study: the exit of fathers or grandparents and the entry of younger siblings.

2.3 Other variables

Several variables are considered as other outcomes, controls, and potential heterogeneous results. We group these variables in a) characteristics of the child (age, measured in years, sex, and a dummy indication if the child is enrolled in child care or education), b) characteristics of the household (proportion of households residing in the capital city, household size, number of household members by room, residential mobility, and household income without mother's income), and c) characteristics of the mother (education, age, time use, parenting style, and income).

Residential mobility indicates that between $t-1$ and t the mother and child declare to either live in another administrative region, live in a house with fewer bedrooms, or live in a different type of dwelling (house, apartment).

The mother declares Labor hours in each wave of the survey. Housework hours are also reported by all mothers in wave 2 but only reported by women living in couples in wave 3 (77% of the sample). We estimate a model of the housework hours in wave 3 for women living in couples, against housework in waves 1 and 2, whether the woman had a partner in waves 1 and 2, a dummy indicating if she participates in the labor market in wave 3, her age, and household size. Then, we impute the value of housework for a single woman as a prediction of this model

plus a normally distributed error term. For labor and housework hours we consider the value 0 if the mother does not perform the activity.

Parenting styles are measured following the typology suggested by Cerutti et al. (2012) based on a set of questions asked to the mother regarding her beliefs about parenting. In wave 2 the questions adapt an instrument developed locally and have been used in previous studies (see for instance Perazzo et al. (2019)). In the third wave, an adaptation of Ideas About Parenting (Heming et al., 1990) is available, also used by Carneiro et al. (2021). We build an index of authoritarian beliefs, which is the type of practice that is more clearly identified. We select the questions that are related to authoritarian practices (based on Perazzo et al. (2019) for wave 2 and Carneiro et al. (2021) for wave 3) and standardize the mean of the sum of the answers. Then, the index is expressed in a dichotomous variable that takes value 1 when the value is greater than the median in each wave.

Table 3 shows the average values (total and for the mother's educational level) of the variables considered in the analysis. As these variables are always used in contemporary terms, we present the results for waves 2 and 3. The differences between low- and high-educated mothers are as expected and significant in all cases. The exceptions are the demographic characteristics of the children, the residence mobility, and assistance to care and education in the last wave. Note that education in Uruguay is mandatory for children aged four and over and in the last wave all the children in our sample are over 5. Table A3 of the Appendix shows these same descriptive statistics, plus the standardized CBCL scores of internalizing and externalizing problems, for households that experience different types of family movements in Waves 2 and 3. We observe that children in stable households have, on average, fewer development problems than those with movements.

Table 3: Descriptive statistics of control variables and other children outcomes by wave

	Wave 2				Wave 3			
	Total	Mother's education			Total	Mother's education		
		Low	High	p-value		Low	High	p-value
Characteristics of the child								
Age	3.8	3.9	3.8	0.360	7.4	7.4	7.3	0.045
% Girls	0.489	0.494	0.486	0.759	0.489	0.494	0.486	0.759
Care or education attendance (1=Yes)	0.834	0.764	0.891	0.000	0.998	0.997	0.999	0.445
Characteristics of the household								
% Montevideo	0.410	0.341	0.466	0.000	0.410	0.341	0.466	0.000
Household size	4.4	4.8	4.0	0.000	4.3	4.7	4.1	0.000
Members per room	2.2	2.6	2.0	0.000	2.1	2.3	1.9	0.000
Residential mobility	0.438	0.448	0.431	0.521	0.373	0.382	0.366	0.548
Household income without mother	1406	950	1780	0.000	1133	717	1468	0.000
Characteristics of the mother								
% High education	0.552	-.-	-.-	-.-	0.552	-.-	-.-	-.-
Age	32.7	31.0	34.1	0.000	36.3	34.7	37.6	0.000
Hours of labor	21.7	15.6	26.7	0.000	22.7	16.0	28.2	0.000
Hours of housework	22.8	26.1	20.0	0.000	23.2	26.2	20.8	0.000
Authoritarian Index (1=Yes)	0.350	0.443	0.274	0.000	0.437	0.538	0.355	0.000
Income	884	411	1266	0.000	827	424	1153	0.000

Note: We computed descriptive statistics using a balanced panel of 1301 observations. Mother's education was categorized based on the highest level achieved, with *Low education* referring to mothers who had not completed secondary school and *High education* referring to those who had completed at least secondary school. Household income was reported in constant dollars for the year 2019. Residential mobility captured changes between time periods $t-1$ and t, such as the mother and child relocating to a different administrative region, moving to a house with fewer bedrooms, or residing in a different type of dwelling (e.g., house, apartment). Hours of labor were reported on a weekly basis and weekly hours of housework were reported in wave 2 and for women living in couples in wave 3, and imputed for woman not in couples in wave 3. Parenting styles were measured using the typology proposed by Cerutti et al. (2012) and Heming et al. (1990), which involved a series of questions addressed to the mother regarding her beliefs and practices related to parenting. Source: ENDIS Waves 2 and 3.

3 Methodology

We seek to understand the effect of family movements on children's socio-emotional development. Our outcome is the individual development ($Y^k_{ch,t}$) of the child ch measured by either the externalizing or the internalizing problems (k) using the standardized CBCL score at time t. We estimate the average effect on socio-emotional development and explore heterogeneous effects by the mother's educational level. Also, we studied the channels that could explain them. In every case, we clusterize errors at the household level.

We consider whether the entrances (n) or exits (x) from the household h at time t affect children's socio-emotional development. We consider a dummy variable indicating whether there is any entry or exit to the household (Z^i), with $i = \{x, n\}$. The movements are considered in two distinct stages, between $t-1$ and t ($Z^i_{h,t}$) and between $t-2$ and $t-1$ ($Z^i_{h,t-1}$). We distinguish between effects on child development at the period when the movement happened and effects that could require a longer maturation period. We also assess if there are cumulative effects of repeated movements over time. With these objectives, we estimate the following equation:

$$Y^k_{ch,t} = \beta_0 + \sum_{i=x,n} [\beta^i_1 \cdot Z^i_{h,t} + \beta^i_2 \cdot Z^i_{h,t-1}] + \alpha \cdot C_t + \omega \cdot X_t + \eta_{ch} + \mu_{ch,t} \quad (1)$$

In Equation 1, β^i_1 accounts for the effects of recent family movements, and β^i_2 shows whether the effect of movements takes longer to be observed in the children's outcomes. The sum of β^i_1 and β^i_2 (test F) allows us to account for the cumulative effects of family movements (i) on children's social-emotional development. Additionally, we consider the effect of simultaneous movements (entries and exits) in each period by the sum of β^x_t and β^n_t (test F). All the coefficients are expressed in standard deviations (std).

The variable η_{ch} represents the child fixed effects, and $\mu_{ch,t}$ is a random term. We include time-varying control variables (X). These controls are income quintile (without the mother's income), children's age, and school attendance. We also include as control the number of household members in t and $t-1$, as the presence of movements can be higher in larger households. This implies that the effects of the movement are relative to the household size.[4]

Finally, we consider potential channels (C) in our specification to identify the indirect effects of family movements on the child's development. In this specification, we evaluate whether child development is affected by potential channels. In the next subsection (Equation 2), we explore if there are indirect effects of family movements when these movements affect the channels that affect child development. The channels include household variables, such as residential mobility and the number of people per room in the dwelling, and mother variables, such as hours of housework and labor in the week, and the authoritarian-parenting index.

Channels To gain a better understanding of the relationship between family movements and child development, we explore the presence of indirect effects. We examine how family movements are associated with the channels that affect child development. Thus, we only consider significant channels in Equation 1 for externalizing or internalizing problems. Following Hadfield et al. (2018) categorization, we focus on one primary type of channels: family and parenting characteristics (authoritarian parenting style and hours spent on work and housework). Additionally, we consider contextual factors such as the number of people per room and the residential movements. Our specification is as follows:

[4] We also carry out specifications including only the controls and specifications assuming that $Z^i_{h,t-1} = 0$, which allows us to identify the effect of movements between time t and $t-1$, regardless of those that occurred in the previous period (between $t-1$ and $t-2$).

$$C_t = \beta'_0 + \sum_{i=x,n} [\beta'^i_1 \cdot Z^i_{h,t} + \beta'^i_2 \cdot Z^i_{h,t-1}] + \omega' \cdot X_t + \eta'_{ch} + \mu'_{ch,t} \quad (2)$$

The β'^i_1 and β'^i_2 parameters account for the indirect effects of family movements on child development.

Discussion Unobserved parental characteristics are relevant in family structure, transitions, and child outcomes. We partially deal with this issue, including fixed effects that mitigate some biases associated with factors that lead to family structure changes and are also linked to child outcomes. However, we expect them only partially to address them. For instance, following McLanahan (2004) idea about children's diverging paths, Lundberg et al. (2016) claims parenting patterns reflect different incentives to invest in children, so it is inappropriate to treat their outcomes as if they were the effect of family change per se.[5] As the results associated with family movements and child performance can be biased for selectivity, our results should be interpreted with caution regarding causality.

To gain causality power, we implement the methodology proposed by Oster (2019) to assess how omitted variables and selectivity might affect our results. This method quantifies the ratio of selection on unobservables to observables (δ) needed to attribute the entire effect of the variable of interest to selection bias. To discard a potential null effect of our interest variable by the impact of the unobservables, the cut-off is set at one (Altonji et al., 2005). A value above the unit implies that even if the weight of the unobservables is the same as one of the observables, the effect of the variables would still be different from zero. This methodology assumes that the complete set of unobservable and observable independent variables would imply an R-squared (R_{max}) equal to 1. However, Oster (2019) argues that $R_{max} = 1$ boundary may lead to an over-adjustment, and she suggests $R_{max} = 1.5R^2$ as the minimum threshold to exclude the zero in the adjusted coefficient. For the sake of transparency, this paper presents our results for R_{max}=1.5R and $R_{max} = 1$.

[5] For example, whether mothers with different educational attainment face different probability to suffer couple's interruptions

4 Initial inequality, unequal development: Family aggregate movements

This section has three parts; first, we explore the impact of the aggregate movements on the child's development, for our main purpose is to explore the heterogeneous responses by the mother's education. Secondly, we explore potential channels of the change, considering those that involve housing and the mother's time use; finally, we discuss all these results.

4.1 Household members' movement and child socioemocional development

We present the main results in Table 4, summarizing our findings in six columns. The first three columns show the results for externalizing problems (panel I.), while the last three columns show the results for internalizing problems (panel II.). Columns (1) and (4) present our results for the entire sample, after which we split the data into households with mothers who have high (columns 2 and 5) and low (columns 3 and 6) levels of education.

In Table A3 of the Appendix, we present the mean value for both problems in different types of households for both waves. We observe clear differences between children living in stable households and those who experienced entries and exits. Performing the estimation of Equation 1 in Table 4, there is a positive effect of an entrance, resulting in an increase of externalizing problems from 0.235 std (p-value=0.009). This effect is mainly evident in households with low-educated mothers and is contemporaneous, increasing to 0.220 (p-value=0.076) std. Additionally, we find a cumulative effect of entrances, leading to increased problems for the whole sample of 0.401 (p-value=0.017) s.d. and 0.456 (p-value=0.050) s.d. in households with low-educated mothers. The exit of someone in the household negatively impacts externalizing problems between -0.191 (p-value=0.078) standard deviation among children with highly educated mothers. In the case of exits, there are no cumulative effects between $t-2$ and t. Cumulative movements do not affect contemporaneous externalizing problems or lagged ones.

Table 4: Externalizing and Internalizing problems. Aggregate movements. Fixed Effect

	I. Externalizing problems			II. Internalizing problems		
	All	Mother's education level		All	Mother's education level	
		High	Low		High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Entry (t)	0.235***	0.181	0.220*	0.103	-0.038	0.196
	(0.089)	(0.111)	(0.124)	(0.092)	(0.090)	(0.132)
Exit (t)	-0.156	-0.191*	-0.144	0.000	-0.108	0.044
	(0.104)	(0.108)	(0.165)	(0.116)	(0.128)	(0.162)
Entry (t-1)	0.166	-0.049	0.236	0.131	-0.225	0.309**
	(0.104)	(0.138)	(0.145)	(0.117)	(0.146)	(0.138)
Exit (t-1)	0.019	0.136	-0.034	0.084	0.190	0.051
	(0.130)	(0.150)	(0.190)	(0.148)	(0.185)	(0.178)
Cumulative effect of entries and exits - F test						
Entry	5.706**	0.365	3.870**	1.648	1.551	5.014**
Exit	0.476	0.075	0.330	0.137	0.094	0.111
Cumulative effect of movements at the same moment - F test						
In t	0.435	0.006	0.195	0.810	1.194	1.992
In t-1	1.376	0.243	0.842	2.066	0.055	2.861*
R2	0.023	0.044	0.038	0.019	0.039	0.076
Obs.	2602	1440	1162	2602	1440	1162

Note: We computed a household (mother and child) fixed effect model using a balanced panel of 1301 observations. The outcome variables are the externalizing and internalizing problems measured by the CBCL. this is a standardized score with non-parametric regressions, considering the child's age in months and identifying the interviewer who administered the instrument. Higher scores imply a higher probability of problems. Mother's education was categorized based on the highest level achieved, with *Low education* referring to mothers who had not completed secondary school and *High education* referring to those who had completed at least secondary school. We also include a set of control variables: household income, hours of labor and housework, parenting styles, people per room, residence mobility, child's age, school attendance, and wave. The coefficients of the main controls are included in cols. (3), (6), and (9) of Table A4 of the Appendix. The Oster test for significative results rejects homogeneity assuming $R_{max} = 1$, but δ is always over 1 for $R_{max} = 1.5R^2$ (see Table A9 of Appendix). Source: ENDIS Waves 0 to 3.

In panel II. of Table 4, we show the impact on internalizing problems. We do not find any contemporaneous impact of household movements. However, there is a lagged effect of entries among those with low-educated mothers that increase problems by 0.309 std (p-value=0.025), a cumulative impact of entries of 0.505 (p-value=0.026), and a cumulative impact of lagged movements of 0.343 (p-value=0.091).

These results align with the literature that claims household changes can immediately impact high-education households more. In this case, due to the exit of household members. However, as time passes by, those households can adjust their situation (Maslauskaitė and Steinbach, 2020; Walper et al., 2020). The opposite case is observed in children with low-educated mothers; movements do not have an immediate impact because the previous circumstances were already difficult. However, after a while, those households cannot accommodate adequately and suffer medium and long-term consequences.

4.2 Channels

In this subsection, we analyze a set of potential channels that could be affected by individuals' entry and exit, indirectly impacting children's development. To achieve this, we estimate a model of internalizing or externalizing problems against the potential channels (same as Equation 1 but excluding the aggregate movements of people). We used Random Effects (RE) and Fixed Effects (FE) to perform these estimates. While we have more confidence in the Fixed Effects model, we also included Random Effects to examine the direction of associations between channels and externalizing and internalizing problems (see Table A4 in the Appendix). We only considered channels that showed significant results with Fixed Effects, as significance only with Random Effects may indicate a time-invariant association, which is unlikely to be explained by household movements.

Potential channels related to internalizing problems are significant among low-educated households, in which overcrowding (around 0.150 std, p-value=0.052) and hours worked by the mother (around 0.120 std, p-value=0.035) positively impact problems. Hours worked are also positively associated with externalizing problems among children of low-educated mothers (around 0.080 std, p-value=0.092). On the other hand, this type of problem decreases with the hours of housework in children whose mothers have a high educational level (around 0.115 std, p-value=0.036).

Unlike what we expected, the authoritarian style does not influence externalizing or internalizing problems. When we look at the estimates using the random effects model, we find a positive association, particularly with externalizing problems, in households where the mothers have a higher educational level. However, when using the fixed effects model, these effects disappear, likely because they represent structural behaviors that are absorbed by the fixed effects.

The channels associated with housing (residential mobility and overcrowding) should be analyzed jointly because they can be part of the same process. The same is true regarding mothers' time use (hours worked and hours of housework). Therefore, this section analyzes what happens with these four potential channels.

4.2.1 Housing

In this subsection, among the potential mechanisms tested in Table A4 of the Appendix, we explore the potential mechanical changes, whether there are movements in the household conformation: mobility and overcrowding. If, at the same time, the father (or grandparents) of the child move out from the child's household, and there is a residence moving, both would impact

the stress level of the mother and child. A similar idea is applied to the entrance of a new child and the rise of people per room or overcrowding.

Table 5 shows the main results of entries and exits. In panel I., we estimate the Equation 2 for residence mobility for the complete sample and splitting by mother's education. We find that the exit of a household member positively impacts contemporaneous mobility by 15.0 p.p. (p-value=0.012). This impact is higher among households with low-educated mothers, increasing the probability in around 17.2 p.p. (p-value=0.015). The F-test for the cumulative impact significance of the entrances and the exits in mobility shows that the entrance of a new member does not impact mobility. However, there is a relevant impact of exits of 20.5 p.p. (p-value=0.081) and again among households with low-educated mothers, leading to these general results with a probability increase of 25.9 p.p. (p-value=0.032). Additionally, when there are simultaneous contemporary movements (entrances and exits in t), the probability of residential mobility increases by 18.9 p.p (p-value=0.004), and fundamentally motivated by what happens in the exits, as observed in the entire population and mothers with low educational level. However, in households with high educational levels, where exits and entrances seen in isolation did not generate changes in mobility when they coincide, they increase this probability by 17.1 p.p (p-value=0.095).

We find a mechanical effect that shows an immediate increase in the number of people per room of around 0.264 (p-value=0.002) when there is an entrance in the household, representing an increment of 12%. This effect is slightly higher among low-educated households, around 0.341 (p-value=0.013) representing a rise of 14%, and somewhat lower among those with a higher educational level, around 0.252 (p-value=0.002), which is 12.8%. The exit of a household member leads to the opposite effect, decreasing the number of people per room at around 0.307 (p-value=0.002); again, among low-educated mothers, the effect is higher in absolute term, around 0.408 (p-value=0.001). For households with mothers with low levels of education, we observe a cumulative effect in both entries and exits. In the case of entries, the effect is around 0.447 percentage points (p-value=0.069), and in the case of exits, the effect is 0.654 percentage points (p-value=0.004). We do not find any effect of total movements; then, there is compensation between entries and exits within the household.

Therefore, while entries cause the number of people per household to increase without any consequence in the change of housing, regardless of the educational level of the mother, in the case of children with low-educated mothers, the exit of members is associated with a change of residence where the number of people per room is reduced (overcrowding increases). This process

is more intense when household members leave sequentially over time.

Table 5: Residence mobility and People per room. Aggregate movements. Fixed Effect

	I. Residence Mobility			II. People per room		
	All	Mother's education level		All	Mother's education level	
		High	Low		High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Entry (t)	0.039	0.058	-0.030	0.264***	0.252***	0.341**
	(0.055)	(0.075)	(0.065)	(0.083)	(0.082)	(0.137)
Exit (t)	0.150**	0.113	0.172**	-0.307***	-0.210	-0.408***
	(0.060)	(0.093)	(0.071)	(0.101)	(0.130)	(0.121)
Entry (t-1)	-0.008	0.015	-0.082	0.084	0.072	0.106
	(0.073)	(0.102)	(0.086)	(0.138)	(0.178)	(0.144)
Exit (t-1)	0.056	0.014	0.087	-0.153	-0.054	-0.246*
	(0.079)	(0.129)	(0.080)	(0.159)	(0.314)	(0.143)
Cumulative effect of entries and exits - F test						
Entry	0.070	0.221	0.705	3.113*	1.975	3.312*
Exit	3.051*	0.479	4.611**	4.148**	0.450	8.595***
Cumulative effect of movements at the same moment - F test						
In t	8.248***	2.788*	2.509	0.134	0.124	0.140
In t-1	0.362	0.051	0.003	0.270	0.007	0.697
R2	0.064	0.061	0.118	0.136	0.126	0.201
Obs.	2602	1440	1162	2602	1440	1162

Note: We computed a household (mother and child) fixed effect model using a balanced panel of 1301 observations. The outcome variables are people per room in the household and the residence mobility which captured changes between time period $t-1$ and t, such as the mother and child relocating to a different administrative region, moving to a house with fewer bedrooms, or residing in a different type of dwelling (e.g., house, apartment). Mother's education was categorized based on the highest level achieved, with *Low education* referring to mothers who had not completed secondary school and *High education* referring to those who had completed at least secondary school. Entry (t) is defined as the presence of a household member in t that was not present in $t-1$. Exit (t) is defined as the absence in t of a member that was present in $t-1$. We also include a set of control variables: hours of labor and housework, parenting styles, child's age, school attendance, and wave. The full estimation is shown in Table A5 of the Appendix. The Oster test for significative results rejects homogeneity assuming $R_{max}=1$, but δ is always over 1 for $R_{max}=1.5R^2$ (see Table A9 of Appendix). Source: ENDIS Waves 0 to 3.

4.2.2 Time use

We now consider the other two mechanisms associated with the mother's time use: labor and housework hours. First, in panel I. of Table 6, we consider the effect of the household movements on the mother's market working hours; we observe a negative impact of an entrance, primarily among highly educated mothers. An entrance reduces around 32.7% (p-value=0.052) of working hours for the whole sample, and among higher-educated mothers, the reduction reaches 53.6% (p-value=0.013). The same size reduction in working hours is observed among those who had experienced an entrance in the lagged period between $t-2$ and $t-1$ (58.4% and p-value=0.062). This aligns with the entry of a younger sibling: after birth mothers reduce working hours in the contemporaneous wave and the next one. These results align with Uruguay's high and persistent maternal penalty (Querejeta and Bucheli, 2023) —the cumulative reduction in working hours is 112% (p-value=0.016) if there are entrances in both periods. We did not find the effects of the

exit of household members on the number of hours worked. Contemporaneous movements also reduce the high-educated working hours led by the entrance shown before.

In panel II. of Table 6, we show the changes in mothers' housework hours when there are changes in the household composition. Main changes arise when new members (mainly offspring) enter. The contemporaneous impact is between 20.5% (p-value=0.035) among the high-educated mothers and 25.9% (p-value=0.015) among the low-educated ones. The main difference is among the low-educated; the effect remains in time, an entrance between $t-2$ and $t-1$ rises 26.8% (p-value=0.019) the housework, and the cumulative effect, if there are entrances in both periods, is 52.7% (p-value=0.006). Again, contemporaneous and lagged total movements raise housework in similar percentages led by the entries among low-educated households.

This aspect shows notable differences in behavior by mothers' educational level. Mothers with a higher level of education replace market work hours with housework hours when new household members enter, mainly offspring. In comparison, mothers with low levels of education increase their overall workload by not reducing their market work hours and increasing their housework tasks.

Table 6: Hours. Aggregate movements. Fixed Effect

	I. Ln Hours Work			**II. Ln Hours Housework**		
	All	Mother's education level		All	Mother's education level	
		High	Low		High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Entry (t)	-0.327*	-0.536**	-0.017	0.220***	0.205**	0.259**
	(0.168)	(0.216)	(0.230)	(0.073)	(0.097)	(0.106)
Exit (t)	0.040	-0.071	-0.026	0.038	0.031	0.012
	(0.189)	(0.275)	(0.233)	(0.092)	(0.148)	(0.112)
Entry (t-1)	-0.182	-0.584*	0.014	0.183**	0.050	0.268**
	(0.186)	(0.312)	(0.181)	(0.079)	(0.101)	(0.114)
Exit (t-1)	-0.267	-0.080	-0.338	0.003	-0.035	0.032
	(0.234)	(0.417)	(0.234)	(0.107)	(0.160)	(0.133)
Cumulative effect of entries and exits - F test						
Entry	2.565	5.805**	0.000	9.452***	2.243	7.768***
Exit	0.373	0.067	0.729	0.064	0.000	0.045
Cumulative effect of movements at the same moment - F test						
In t	2.030	5.218**	0.021	6.905***	2.684	3.985**
In t-1	4.060**	3.143*	1.420	1.978	0.008	3.139*
R2	0.055	0.072	0.104	0.049	0.040	0.114
Obs.	2602	1440	1162	2602	1440	1162

Note: We computed a household (mother and child) fixed effect model using a balanced panel of 1301 observations. The dependent variables of interest were the logarithm of labor hours and housework hours, measured on a weekly basis. Mother's education was categorized based on the highest level achieved, with *Low education* referring to mothers who had not completed secondary school and *High education* referring to those who had completed at least secondary school. Entry (t) is defined as the presence of a household member in t that was not present in $t-1$. Exit (t) is defined as the absence in t of a member that was present in $t-1$. We also include a set of control variables: parenting styles, people per room, residence mobility, child's age, school attendance, and wave. The full estimation is shown in Table A6 of the Appendix. The Oster test for significative results rejects homogeneity assuming $R_{max}=1$, but δ is always over 1 for $R_{max}=1.5R^2$ (see Table A9 of Appendix). Source: ENDIS Waves 0 to 3.

Differences in the ability to manage time use may be due to the type of benefits that mothers receive in their jobs. We explore whether two workers' rights were available in the mothers' jobs: maternity leave and breastfeeding working hours reduction. In the first wave of the ENDIS, we identify that 61% of mothers were employed, and out of those, only 58.2% had these benefits, varying significantly by educative level. Among high-educated mothers, 75% were employed, and 70.4% were in jobs with those rights. The low-educated mother occupation is only 47%, and 41.3% are in those *better* jobs.

We perform a complementary estimation of Table 6 differentiating mothers time use between those who had a job with rights or not, excluding unemployed and inactive mothers. These results show very similar differences to those found above. Mothers with the right either maternity leave or breastfeeding working hours reduction can substitute market work hours with the rise in household work hours that imply a new member in the household. On the other hand, mothers without these benefits, facing the same situation, increase the overall workload as they cannot reduce their market work hours (see Table 7).

Table 7: Hours by maternity and breastfeedin benefits. Aggregate movements. Fixed Effect

	I. Ln Hours Work		**II. Ln Hours Housework**	
	w/benefits (1)	w/o benefits (2)	w/benefits (3)	w/o benefits (4)
Entry (t)	-0.522***	-0.069	0.250**	0.309**
	(0.149)	(0.361)	(0.112)	(0.152)
Exit (t)	0.093	-0.241	0.060	-0.010
	(0.239)	(0.349)	(0.166)	(0.156)
Entry (t-1)	-0.299	0.073	0.150	0.184
	(0.246)	(0.294)	(0.139)	(0.235)
Exit (t-1)	-0.168	-0.792	0.028	0.012
	(0.321)	(0.499)	(0.227)	(0.256)
Cumulative effect of entries and exits - F test				
Entry	5.805**	0.000	3.526*	2.084
Exit	0.026	2.134	0.073	0.000
Cumulative effect of movements at the same moment - F test				
In t	3.107*	0.584	2.959*	2.297
In t-1	1.604	2.346	0.551	0.408
R2	0.111	0.131	0.077	0.218
Obs.	1052	580	1052	580

Note: We computed a household (mother and child) fixed effect model using a balanced panel of 1301 observations. The dependent variables of interest were the logarithm of labor hours and housework hours, measured on a weekly basis. The benefits of maternity leave and breastfeeding are defined based on the first wave of the ENDIS, considering those mothers who have maternity leave and the right to reduced working hours for breastfeeding in their jobs. The estimation includes only employed mothers. Entry (t) is defined as the presence of a household member in t that was not present in $t-1$. Exit (t) is defined as the absence in t of a member that was present in $t-1$. We also include a set of control variables: parenting styles, people per room, residence mobility, child's age, school attendance, and wave. Source: ENDIS Waves 0 to 3.

To sum up, the results presented in this section documented what happens in the household (mother and child) when there are aggregate movements in a contemporaneous and a lagged

moment by the mother's educative level. We documented that an entrance increases externalizing and internalizing problems within low-educated households and persistently changes the housing situation and the mother's welfare. In these households, an entrance of a new member generates persistent overcrowding and increases housework hours for the mother without reducing working hours. Among highly educated households, an entrance persistently reduces the mother's market working hours, increases only contemporaneously housework and people per room in the house; both effects disappear as the newborn grows.

These results give us insights into exploring whether contemporaneous entrances affect the low-educated externalizing problems and lagged entrances the internalizing ones. The cumulative entrances increase both problems, but the timing is different. Descriptive differences between children in stable and households with entries in internalizing and externalizing problems are small at 2-5 years old and 7-10 years old (Table A3 of the Appendix). However, our results show significant effects of entries in externalizing problems and no effect on internalizing problems. We next focus on how specific movements impact this unequal development and how the household (mother and child) deals with these changes.

5 Initial inequality, unequal development: Family specific movements

In this section, we analyze whether specific movements, i.e. father, grandparents, and siblings, have differential effects. We continue analyzing the unequal consequences for child development based on the educational levels of the mother and how families deal with changes in the short and medium term.

We estimate the Equations 3 to 5 which include the absence of the father and the presence of grandparents and siblings. The model specification implies that we estimate differential effects in reference to a household with exclusively a father, mother, and one child during the whole period.[6] To operationalize this, we include the absence of the father (Z_f^a) and the presence of grandparents (Z_g^p), younger siblings (Z_s^p), older siblings (Z_S^p), and other types of household members to compute all the potential households and their movements in time. In Table A3 of the Appendix we observe clear differences between the reference household and those with the movements we study (father's or grandparent's exit and entry of younger sibling).

[6] Remember that our reference household is modified concerning previous estimates since, in those cases, the benchmark was households with no entries or exits, regardless of their composition.

Equation 3 compute the father's movements. We include as control a broad definition of other members (Z^p_o), which can be all the other members of the household other than the mother, father, and reference child. To estimate grandparent's movements as in Equation 4, the variable referring to the presence o other members also excludes grandparents ($Z_{o_{-g}}$). Finally, to estimate siblings Equation 5, the "Others" variable does not include siblings ($Z_{o_{-s,S}}$). The results of these specifications must always be interpreted with respect to the reference household. To make our estimates clearer, we exclude infrequent movements. Thus, when we estimate the father's movements, we do not consider the households where the father re-enters the household (8% of the estimation sample). In the case of the estimates that focus on grandparents, we exclude these entries (7%), while in the case of siblings, we exclude the exit of younger siblings and the entry or exit of older siblings (13%).

To evaluate the effects of the father's absence and exit, we estimate the following model:

$$Y^k_{ch,t} = \gamma_0 + \sum_{j=0,1,2} [\gamma_{1+j} \cdot Z^a_{f,t-j} + \gamma_{4+j} \cdot Z^p_{o,t-j}] + \alpha \cdot C_t + \omega \cdot X_t + \eta_{ch} + \mu_{ch,t} \tag{3}$$

As $Z^a_{f,t-j}$ is the absence of the father at time $t-j$, then the coefficients γ cover all the households possibilities. The sum of γ_1, γ_2, and γ_3 shows the effect of the father's absence in every period (father always absent) on the children's development; γ_1 expresses the effect on children's development of the father's exit between t and $t-1$ (since $Z^a_{f,t-2} = 0$ and $Z^a_{f,t-1} = 0$, the father was present at $t-1$ and $t-2$); and the sum of γ_1 and γ_2 reflects the situation in which the father is only present at $t-2$. We do not consider the case in which the father exits and re-enters the household. We include the presence of other members of the household at t, $t-1$ and $t-2$ as controls ($Z^p_{o,t}$, $Z^p_{o,t-1}$, and $Z^p_{o,t-2}$) to identify our reference household.

To consider the effect of the presence and exit of grandparents, we estimate the following equation:

$$Y^k_{ch,t} = \gamma_0 + \sum_{j=0,1,2} [\gamma_{1+j} \cdot Z^a_{f,t-j} + \gamma_{4+j} \cdot Z^p_{o_{-g},t-j} + \gamma_{7+j} \cdot Z^p_{g,t-j}] + \alpha \cdot C_t + \omega \cdot X_t + \eta_{ch} + \mu_{ch,t} \tag{4}$$

The parameters γ_7, γ_8, and γ_9 in Equation 4 express the association between the socioemotional development and the presence of grandparents. To observe the effect of grandparents' exit in t, we performed an F-test of the sum of γ_8 with γ_9 (grandparents were present at $t-2$ and $t-1$, but they are not in t, that is $Z^p_{g,t} = 0$). Finally, considering γ_9, we capture the effect of the

grandparents' exit after $t-2$ - $Z^p_{g,t-1}=0$ and $Z^p_{g,t}=0$. we do not consider any entrance from grandparents in the period.

We also estimate a specification that includes the presence and entries of siblings into the household. We distinguish between younger and older siblings (Z_s and Z_S). In this case, our estimation is as follows:

$$Y^k_{ch,t}=\gamma_0+\sum_{j=0,1,2}[\gamma_{1+j}\cdot Z^a_{f,t-j}+\gamma_{4+j}\cdot Z^p_{o_{-(s,S)},t-j}+\gamma_{10+j}\cdot Z^p_{s,t-j}]+\gamma_{13}\cdot Z^p_{S,t-2}+\alpha\cdot C_t+\omega\cdot X_t+\eta_{ch}+\mu_{ch,t} \tag{5}$$

The parameter γ_{10} in Equation 5 identifies the effect of the entry of a younger sibling in t ($Z^p_{s,t-1}=0$ and $Z^p_{s,t-2}=0$); the sum of γ_{10} and γ_{11} refers to the sibling's entrance in $t-1$; and the sum of γ_{10}, γ_{11}, and γ_{12} identifies that the sibling is always in the household. Since we do not observe frequent exits of older siblings, and to gain parsimony in our estimation, we include the presence of older siblings at $t-2$, associated with parameter γ_{13}, which accounts for the presence of these siblings throughout the entire period.

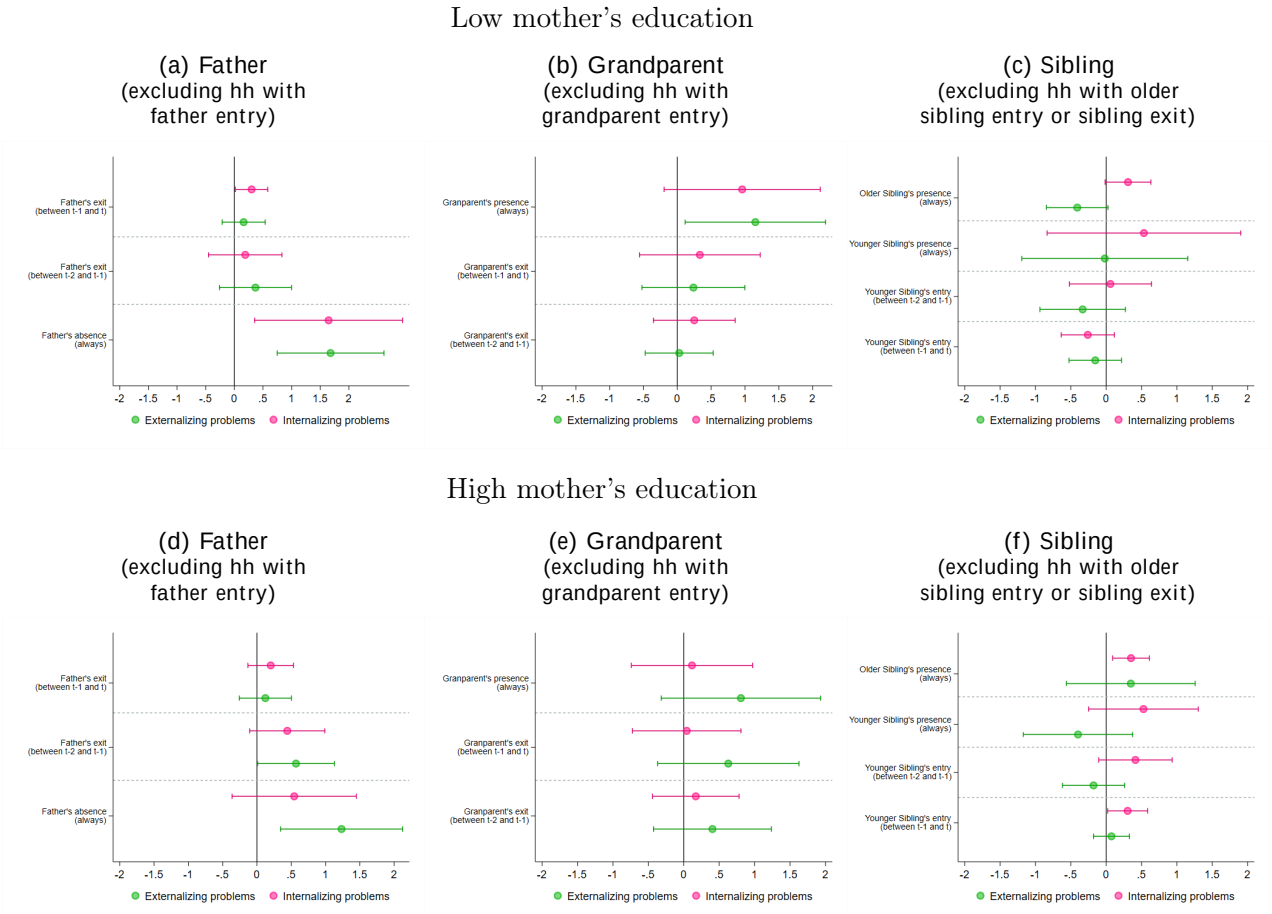
In Figure 2, we present the results of the main movements on the externalizing (green) and internalizing (pink) problems with respect to the reference household, separated by the mother's educational levels. The estimate for the entire population is presented in Figure A2 of the Appendix.

In the first column (panels a and d), we show the impact of the father's movements. Panel a of Figure 2 shows the households with low-educated mothers and panel d the high-educated ones. We find more externalizing problems in 1.681 std. (p-value=0.003) and internalizing problems (1.646 std. and p-value=0.036) when the father has been absent for the whole period in a low-educated household. Similar results are found for externalizing problems among the children with highly educated mothers increasing problems in 1.233 std. (p-value=0.023). Father's recent exit impacted internalizing problems of children of low-educated mothers (0.302 std. and p-value=0.079), and previous exits affected externalizing problems among highly educated (0.569 std. and p-value=0.095).

The second column shows the effect of the grandparent's presence in low and high-educated households (panels b and e). We only find the presence for the whole period of grandparents in low-educated households increases externalizing problems (1.153 std. and p-value=0.068). Finally, we show the sibling's impacts in the third column (panels c a and f). The presence of older

siblings increases internalizing problems for children from low- and high-educated households by 0.309 std. (p-value=0.116) and 0.351 std (p-value=0.026), respectively. Younger siblings have impacts in the case of children with mothers with a higher educational level, internalizing problems increase by 0.303 std. (p-value=0.077) when they have siblings born recently (between t and $t-1$).

Figure 2: Externalizing and internalizing problems by mother's education level. Incidence of family transitions. Fixed Effects

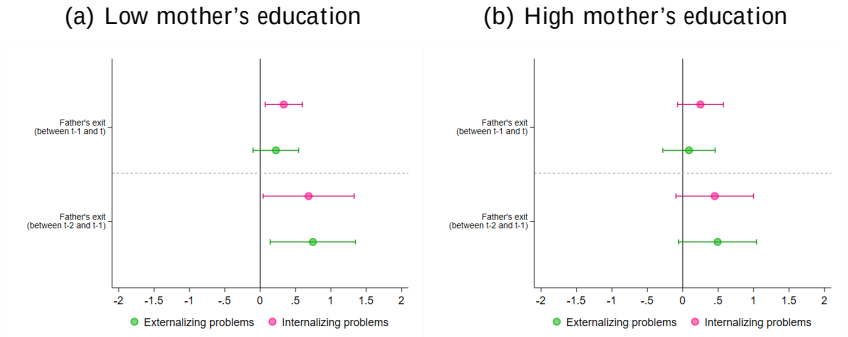


Note: Six panels of this figure show the incidence of some relative movement on the externalizing and internalizing problems of the child. Each dot represents the coe□cient estimate while bars represent the 90% confidence interval; these coe□cients always respect a benchmark household with a mother, father, and child. The upper panel shows the result among households with low-educated mothers and the lower panel with highly educated ones. In the first column, we consider only those households with no father's entries, and we show the father's movements: a recent exit, a medium-term exit, and a complete absence. In the second column, we exclude the sample of those households with grandparent's entries, and we show the grandparent's movements: the continuous presence, a recent exit, and a medium-term exit. The third column shows sibling movement excluding from the sample those households with older sibling entries or younger sibling exits, first the presence of an older sibling, the presence of a younger sibling, and then the recent and medium-term entry of a younger sibling. The coe□cients arise from the estimates in Tables A7 and A8 of the Appendix. The Oster test for significative results rejects homogeneity assuming $R_{max} = 1$, but δ is always over 1 for $R_{max} = 1.5R^2$ (see Table A9 of Appendix). Source: ENDIS.

To get more precise estimates of the effects of the father's movements, we restrict the sample to those households where the father is present in wave 0 (see Figure 3). By doing this, we only consider households that had the possibility of the exit of the father. We find impacts

only for those children in low-educated households on externalizing and internalizing problems, contemporaneously and with a lagged movement. Whether the father exits in the lagged period, both types of problems increase in 0.746 std (p-value=0.042) for the externalizing problems and 0.685 std. (p-value=0.080) for the internalizing problems. When the exit is contemporaneous internalizing problems rise in 0.333 std. (p-value=0.037). Again, there are differences in this case if we consider children from households with low and high education levels. Movements impact both households, but there is a bigger magnitude among those with lower education.

Figure 3: Externalizing and internalizing problems by mother's education level. Incidence of family transitions. Presence of fathers in wave 0. Fixed Effects



Note: Panels of this figure show the incidence of some relative movement on the externalizing and internalizing problems of the child by the mother's educational level. In this sample, we exclude from the sample those households without the father in wave 0. Each dot represents the coe□cient estimate while bars represent the 90% confidence interval; these coe□cients always respect a benchmark household with a mother, father, and child. The figure shows the father's movements: a recent exit and a medium-term exit. We exclude the alternative "complete absence" of the father because we require his presence in wave 0 in the estimates. The coe□cients arise from the estimates in Tables A7 and A8 of the Appendix. The Oster test for significative results rejects homogeneity assuming $R_{max} = 1$, but δ is always over 1 for $R_{max} = 1.5R^2$ (see Table A9 of Appendix). Source: ENDIS.

6 Robustness analysis

6.1 Selection on unobservables

As a first robustness check, we implement the methodology proposed by Oster (2019) to assess how omitted variables and selectivity might affect our results. Table A9 of Appendix presents the ratio of selection on unobservables to observables (δ) needed to attribute the entire effect of the variable of interest to selection bias. We present the δ ratio for the statistically significant results of sections 4 and 5. The first two columns indicate the variable of interest for the δ ratio. We estimate two ratios, the first assuming that the complete set of unobservable and observable independent variables would imply an R-squared (R_{max}) equal to 1 (third column). The second follows the adjustment proposed by Oster (2019), using $R_{max} = 1.5R^2$ as the minimum threshold to exclude the zero in the adjusted coefficient (last column).

To discard a potential null effect of our interest variable by the impact of the unobservables, the cut-off is set at one (Altonji et al., 2005). A value above the unit implies that even if the weight of the unobservables is the same as the one of the observables, the effect of the variables would still be different from zero. For almost all the variables of interest, the ratio is under one for $R_{max} = 1$ but is far over one for the adjusted condition in all the variables. This gives additional support to the results previously discussed.

6.2 Persistence in the child's problems

We perform a dynamic model including the lagged child development as an explanatory variable in the specification that considers the aggregate movements (see Table A10 of Appendix). With this, we seek to prove that the effects found in our main specifications are indeed due to the movements that occur in the household in t and $t-1$, and not driven by the fact that movements observed in $t-1$ affect contemporary child development and, as a consequence of their persistence, affect child development in t. The estimations are made with random effects because including fixed effects generates biased estimators due to mean reversion of the lagged coefficient (Hurwicz-type bias), particularly in panels that include a small number of time periods (Nickell, 1981). We include the specification without the lagged variable in the odd columns for reference.

Our analysis consistently finds that the entrance of a new member into the household is associated with an increase in externalizing problems (panel I, Table 1). Specifically, we observe a differential impact depending on the mother's background. In low-educated mothers' households, the entrance of a new member raises externalizing problems by 0.226 standard deviations (p-value=0.063), whereas for children of high-educated mothers, the impact is slightly lower at 0.149 standard deviations (p-value=0.009). Furthermore, the lagged entrance of a new member increases externalizing problems only for children of low-educated mothers by 0.183 standard deviations (p-value=0.061). Across all samples, we find that despite the high persistence of externalizing problems, household movements play a significant role in shaping them.

In panel II of Table A10 of the Appendix, we observe a similarly high persistence for internalizing problems. The contemporaneous entrance of a new member increases internalizing problems by 0.116 standard deviations (p-value=0.026), while exits from the household contribute to a 0.148 standard deviation increase (p-value=0.019) in the population. Notably, exits lead to a larger increase in internalizing problems for children of low-educated mothers, with an effect size of 0.204 standard deviations (p-value=0.028). These dynamic models demonstrate how

socioeconomic background plays a significant and quantifiable role in the relationship between household movements and child development.

6.3 Specific movements in the complete sample

Finally, we perform an additional robustness check, changing the sample of our estimations for specific movements, presented in Figure A3 of Appendix. Instead of estimating the movements with different sub-samples, we perform the Equations 3 to 5 with the whole sample of 1301 households. We also find positive effects of father's absence on externalizing problems of 0.890 std. (p-value=0.087) and 0.791 std. (p-value=0.053) for both low and high-educated households respectively. As in the main estimation, older siblings in low-educated households raise internalizing problems (0.597 std., p-value=0.091), but not in high-educated ones.

7 Conclusions

Using a longitudinal survey that collects information about children's nutrition, development, and health and their household composition, we analyze how the household member's mobility impacts the child's socioemotional development. Our analysis contributes to understanding the influence of family movements on child development. We discuss the effects of entries and exits of household members at the aggregate level; we consider whether there are cumulative effects over time, and we identify if there are any mechanisms that may be playing a role. Additionally, we discuss whether the aggregate gaze may lose relevant elements for the child's development, which can be recovered considering the relationship of the mover with the child.

We find an effect of new member entries on children's externalizing problems. These effects occur mainly among households with a lower educational level, where the effects accumulate over time, amplifying the socioeconomic gap with higher education. These results can be explained fundamentally by the changes in the mother's time use and their impossibility of substituting work in the market for housework, increasing the overall workload. Mothers under social protection of famliy-friendly rights jobs are able to conciliate better their time use, whether these rights are no available difficulties arise and problems are exacerbate.

To analyze the impact of specific movements, we modify our reference household to be composed of one child, the mother, and the father. We find that the permanent absence of the father has important effects on the child's externalizing and internalizing problems, regardless of the

mother's educational level. When we restrict our sample to only households with the father at least in wave 0, we also find that the father's exit, either between t and t-1 and between t-1 and t-2, affects the child's problems but only in households with a lower educational level.

We also find that the permanent presence of grandparents increases the child's externalizing problems when the mother has a lower educational level. The presence of older siblings operates similarly but on the child's internalizing problems. This last result occurs regardless of the mother's educative level.

The results are consistent with household resources being crucial to deal with the impact generated by composition changes (Maslauskaitė and Steinbach, 2020). In our case, the differences in resources are measured by the mother's educative level, which brings her emotional tools and the power to decide how to split her hours between work and housework.

Our findings comprehensively analyze the effects of aggregate and specific household movements. Considering aggregate movements enables us to delve into intertemporal dynamics and explore various channels in detail. However, such an approach tends to obscure certain heterogeneities that become apparent when we incorporate the type of bond between the mover and the child into our analysis.

In conclusion, our study demonstrates that the impacts of household movements on child development are contingent upon the initial conditions. We observe that preexisting socioeconomic inequalities are further exacerbated by these movements, resulting in greater disparities in children's development. These findings underscore the importance of considering the broader socioeconomic context when examining the effects of household mobility on children's well-being.

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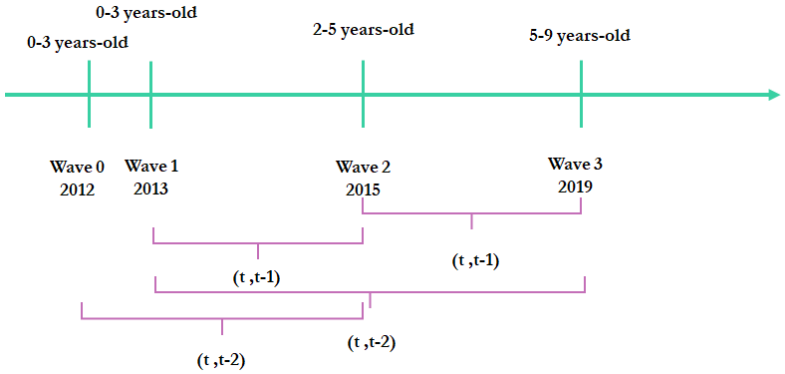
Appendix

Figure A1: Survey timing and effects



Note: The timeline shows the three waves of the ENDIS survey (Wave 1, 2, and 3) and Wave 0 which is part of the National Household Survey. Waves 0 and 1 were carried on when the child was between 0 and 3 years-old, in wave 2 the children were between 2 and 5 years-old; and finally in wave 3, they were between 5 and 9 years-old. As we have the outcome variable only in the waves 2 and 3, we consider two lags for the movements in the household. Changes between t and $t-1$, and between $t-1$ and $t-2$.

Table A1: Survey and sample characteristics

	Wave 1	Wave 2	Wave 3
(a) ENDIS			
N	3077	2611	2471
% Girls	0.481	0.473	0.467
Age in months			
Mean	24.84	51.32	92.68
Min	0	24	60
Max	47	79	131
(b) Balanced panel			
N	1616	1616	1616
% Girls	0.491	0.491	0.491
Age in months			
Mean	25.03	51.27	93.28
Min	0	24	65
Max	47	79	118
(c) Final Sample			
N	1301	1301	1301
% Girls	0.489	0.489	0.489
Age in months			
Mean	25.56	51.82	93.84
Min	2	27	71
Max	47	75	118

Notes: Panel (a) refers to the total ENDIS sample; Panel (b) refers to the total ENDIS balanced sample; and Panel (c) refers to the sample used in this study (mother of the child responds to the survey in all waves and no missing values in relevant variables). In Wave 3 the ENDIS had a refreshment, which explains the di□erence in the maximum child's age between Panel (a) and Panel (b) and (c). Source: ENDIS Waves 1 to 3.

Table A2: Movements and presence of father, siblings, and grandparents

	Presence by wave				Wave 0/3	
	0	1	2	3	Entry	Exit
(a) Father						
Total	0.820	0.816	0.769	0.695	0.038	0.165
Low education	0.747	0.735	0.687	0.606	0.050	0.191
High education	0.878	0.878	0.834	0.759	0.028	0.144
p-value	0.000	0.000	0.000	0.000	0.037	0.024
(b) Older Siblings						
Total	0.513	0.513	0.495	0.508	0.055	0.059
Low education	0.613	0.606	0.597	0.596	0.079	0.093
High education	0.433	0.438	0.413	0.438	0.034	0.032
p-value	0.000	0.000	0.000	0.034	0.000	0.000
(b) Younger Siblings						
Total	0.057	0.076	0.251	0.386	0.343	0.007
Low education	0.071	0.093	0.276	0.394	0.356	0.010
High education	0.046	0.063	0.231	0.379	0.332	0.004
p-value	0.056	0.040	0.064	0.581	0.358	0.183
(c) Grandparents						
Total	0.209	0.194	0.147	0.115	0.036	0.136
Low education	0.253	0.231	0.170	0.141	0.052	0.176
High education	0.174	0.165	0.128	0.094	0.024	0.104
p-value	0.001	0.003	0.031	0.008	0.007	0.000

Note: Results based on the balanced panel of 1301. Siblings are defined as children that live in the household and have a maximum age di□erence of 9 years with the child of interest. Mother's education is defined by the higher level obtained; Low education refers to mothers that had not completed secondary school and High education refers to those that have at least completed secondary school. Source: ENDIS Waves 0 to 3.

Table A3: Descriptive statistics by wave and household type

	Total	Benchmark	Stable	Entries	Exits	Father exit	Grand. exit	Sibling entry
(a) Wave 2								
CBCL								
Exteriorizing	-0.018	-0.083	-0.106	0.153	0.140	0.105	0.199	0.077
Interiorizing	-0.036	-0.174	-0.129	0.076	0.191	0.201	0.226	-0.005
Characteristics of the child								
Age	3.8	3.7	3.9	3.9	3.8	4.0	3.7	3.8
% girls	0.489	0.594	0.496	0.449	0.495	0.430	0.469	0.439
Care or education attendance (1=Yes)	0.834	0.885	0.837	0.824	0.844	0.900	0.796	0.790
Characteristics of the household								
% Montevideo	0.410	0.448	0.423	0.439	0.346	0.360	0.276	0.439
Household size	4.4	3.0	4.2	5.1	4.2	4.0	3.9	5.3
Members per room	2.2	2.1	2.1	2.7	2.3	2.2	2.5	2.9
Residence mobility	0.438	0.406	0.397	0.506	0.564	0.520	0.735	0.491
Household income without mother	1409	1699	1603	1317	853	396	946	1438
Characteristics of the mother								
Age	32.7	34.6	34.0	29.9	30.2	29.9	26.9	30.4
% High education	0.552	0.781	0.610	0.484	0.439	0.470	0.418	0.509
Hours of labour	21.7	23.6	23.0	19.3	19.6	23.5	18.4	18.1
Hours of housework	22.8	19.2	22.2	24.3	23.8	20.7	25.3	25.0
Authoritarian Index (1=Yes)	0.350	0.260	0.340	0.359	0.384	0.280	0.418	0.355
Income	884	1111	973	776	611	748	503	834
% of sample	100.0%	7.4%	24.0%	22.2%	11.5%	7.7%	7.5%	16.4%
(b) Wave 3								
CBCL								
Exteriorizing	-0.185	-0.207	-0.137	0.172	0.084	0.120	0.081	0.205
Interiorizing	-0.145	-0.199	-0.176	0.180	0.125	0.168	0.123	0.213
Characteristics of the child								
Age	7.4	7.2	7.3	7.4	7.4	7.4	7.3	7.4
% girls	0.489	0.594	0.511	0.479	0.445	0.450	0.409	0.479
Care or education attendance (1=Yes)	0.998	1.000	0.999	1.000	0.994	0.992	0.989	1.000
Characteristics of the household								
% Montevideo	0.410	0.448	0.435	0.374	0.397	0.488	0.398	0.374
Household size	4.3	3.0	4.2	5.0	4.2	3.8	3.8	5.1
Members per room	2.1	1.8	2.0	2.4	2.1	2.1	2.1	2.5
Residence mobility	0.373	0.396	0.336	0.392	0.485	0.543	0.580	0.378
Household income without mother	1133	1556	1359	1069	575	353	684	1083
Characteristics of the mother								
Age	36.3	38.0	37.6	33.7	35.1	34.1	32.2	33.7
% High education	0.552	0.781	0.636	0.458	0.400	0.450	0.489	0.500
Hours of labour	22.7	24.5	24.5	19.0	22.3	24.4	21.9	18.5
Hours of housework	23.2	21.1	22.5	24.7	24.1	22.0	23.5	24.9
Authoritarian Index (1=Yes)	0.437	0.323	0.428	0.424	0.490	0.457	0.477	0.427
Income	827	918	893	751	658	1051	684	696
% of sample	100.0%	7.4%	27.3%	29.2%	27.3%	9.9%	6.8%	22.0%

Note: First column refers to the balanced panel of 1301 observations. *Benchmark* refers to households with child, mother, and father in the four waves, while *Stable* refers to households with no changes between t-1 and t. The last five columns refer to households that had the corresponding movement between t-1 and t (entries, exits, father exit, grandparent exit, and sibling entry). Household income was reported in constant dollars for the year 2019. Residential mobility captured changes between time periods $t-1$ and t, such as the mother and child relocating to a different administrative region, moving to a house with fewer bedrooms, or residing in a different type of dwelling (e.g., house, apartment). Mother's education was categorized based on the highest level achieved, with *High education* referring to those who had completed at least secondary school. Hours of labor and housework were reported on a weekly basis. Parenting styles were measured using the typology proposed by Cerutti et al. (2012), which involved a series of questions addressed to the mother regarding her beliefs and practices related to parenting. Source: ENDIS Waves 2 and 3.

Table A4: Externalizing and internalizing problems. Potential channels

	All			Mother's education level					
				High			Low		
	RE	FE	FE	RE	FE	FE	RE	FE	FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
I.Externalizing problems									
Ln Hours Housework	0.050*	-0.021	-0.031	0.058*	-0.112**	-0.118**	0.038	0.055	0.041
	(0.026)	(0.058)	(0.056)	(0.032)	(0.055)	(0.053)	(0.041)	(0.090)	(0.088)
Ln Hours Work	-0.026*	0.025	0.032	-0.022	-0.042	-0.034	-0.004	0.081*	0.082*
	(0.014)	(0.032)	(0.030)	(0.020)	(0.035)	(0.034)	(0.020)	(0.048)	(0.046)
Authoritarian style	0.135***	0.013	-0.003	0.144***	-0.047	-0.047	0.102*	0.089	0.056
	(0.039)	(0.078)	(0.074)	(0.051)	(0.091)	(0.088)	(0.059)	(0.113)	(0.111)
People per room	0.056**	-0.026	-0.047	0.097***	-0.010	-0.033	0.013	-0.033	-0.052
	(0.024)	(0.045)	(0.044)	(0.034)	(0.049)	(0.048)	(0.036)	(0.067)	(0.067)
Residence mobility	-0.019	0.076	0.080	-0.005	0.059	0.061	-0.036	0.055	0.070
	(0.036)	(0.061)	(0.061)	(0.045)	(0.066)	(0.066)	(0.058)	(0.108)	(0.111)
Obs.	2602	2602	2602	1440	1440	1440	1162	1162	1162
II.Internalizing problems									
Ln Hours Housework	0.070***	0.033	0.027	0.070**	-0.021	-0.020	0.056	0.058	0.039
	(0.026)	(0.066)	(0.065)	(0.032)	(0.045)	(0.045)	(0.042)	(0.111)	(0.109)
Ln Hours Work	-0.048***	0.040	0.044	-0.057***	-0.051	-0.055	-0.009	0.117**	0.119**
	(0.014)	(0.039)	(0.039)	(0.020)	(0.037)	(0.036)	(0.021)	(0.056)	(0.055)
Authoritarian style	0.089**	0.032	0.021	0.078*	0.046	0.042	0.061	0.021	-0.008
	(0.038)	(0.071)	(0.069)	(0.045)	(0.078)	(0.076)	(0.062)	(0.104)	(0.100)
People per room	0.088***	0.065	0.060	0.097***	-0.029	-0.033	0.058	0.150*	0.146**
	(0.028)	(0.059)	(0.061)	(0.035)	(0.077)	(0.081)	(0.042)	(0.076)	(0.074)
Residence mobility	0.018	0.059	0.058	0.022	0.029	0.034	0.019	0.062	0.064
	(0.037)	(0.068)	(0.069)	(0.043)	(0.064)	(0.064)	(0.064)	(0.110)	(0.114)
Obs.	2602	2602	2602	1440	1440	1440	1162	1162	1162
Includes aggregates movements	No	No	Yes	No	No	Yes	No	No	Yes

Note: We using a balanced panel of 1301 observations. The outcome variables are the externalizing and internalizing problems measured by the CBCL. this is a standardized score with non-parametric regressions, considering the child's age in months and identifying the interviewer who administered the instrument. Higher scores imply a higher probability of problems. Mother's education was categorized based on the highest level achieved, with *Low education* referring to mothers who had not completed secondary school and *High education* referring to those who had completed at least secondary school. Entry (t) is defined as the presence of a household member in t that was not present in $t-1$. Exit (t) is defined as the absence in t of a member that was present in $t-1$. We also include a set of control variables: household income, child's age, school attendance, and wave. Source: ENDIS Waves 0 to 3.

Table A5: Residence mobility and People per room. Aggregate movements. Full estimation. Fixed Effect

	I. Residence mobility			II. People per room		
	All	Mother's education level		All	Mother's education level	
		High	Low		High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Entry (t)	0.039	0.058	-0.030	0.264***	0.252***	0.341**
	(0.055)	(0.075)	(0.065)	(0.083)	(0.082)	(0.137)
Exit (t)	0.150**	0.113	0.172**	-0.307***	-0.210	-0.408***
	(0.060)	(0.093)	(0.071)	(0.101)	(0.130)	(0.121)
Entry (t-1)	-0.008	0.015	-0.082	0.084	0.072	0.106
	(0.073)	(0.102)	(0.086)	(0.138)	(0.178)	(0.144)
Exit (t-1)	0.056	0.014	0.087	-0.153	-0.054	-0.246*
	(0.079)	(0.129)	(0.080)	(0.159)	(0.314)	(0.143)
Authoritarian style	0.015	-0.037	0.080*	-0.162**	-0.150**	-0.194*
	(0.040)	(0.058)	(0.048)	(0.065)	(0.075)	(0.105)
Ln Hours Housework	-0.008	-0.023	0.006	0.044	-0.014	0.084*
	(0.030)	(0.036)	(0.041)	(0.035)	(0.040)	(0.050)
Ln Hours Work	0.011	0.008	0.017	0.043	0.065	0.001
	(0.017)	(0.027)	(0.017)	(0.036)	(0.053)	(0.035)
People per room	0.116***	0.072	0.151***			
	(0.030)	(0.046)	(0.031)			
Residence mobility				0.236***	0.109	0.405***
				(0.064)	(0.072)	(0.099)
Child's age (3-6)	-0.024	-0.005	-0.081	0.004	0.085	-0.124
	(0.060)	(0.081)	(0.089)	(0.093)	(0.115)	(0.137)
Child's age (>6)	-0.028	-0.075	0.043	0.031	0.316	-0.421
	(0.120)	(0.163)	(0.171)	(0.198)	(0.244)	(0.279)
School attendance (1= Yes)	-0.053	-0.117	0.030	-0.115	-0.291	0.007
	(0.061)	(0.094)	(0.083)	(0.119)	(0.188)	(0.157)
Income quintile (ref: 1st quintile)						
2nd quintile	0.021	0.096	-0.004	-0.108	0.065	-0.243*
	(0.057)	(0.097)	(0.070)	(0.116)	(0.182)	(0.137)
3rd quintile	-0.033	0.008	-0.050	0.008	0.166	-0.166
	(0.065)	(0.091)	(0.086)	(0.099)	(0.126)	(0.139)
4th quintile	-0.059	-0.106	0.048	0.004	0.084	-0.092
	(0.074)	(0.090)	(0.098)	(0.112)	(0.146)	(0.129)
5th quintile	-0.009	-0.026	0.058	0.025	0.174	-0.164
	(0.072)	(0.089)	(0.099)	(0.108)	(0.131)	(0.170)
3rd Wave	-0.049	-0.011	-0.114	-0.157	-0.305*	0.083
	(0.083)	(0.114)	(0.116)	(0.129)	(0.166)	(0.190)
Household size (t-1)	0.058*	0.052	0.068*	-0.080	-0.025	-0.103
	(0.033)	(0.054)	(0.041)	(0.101)	(0.155)	(0.118)
Household size (t-2)	0.043	0.015	0.047	-0.050	-0.002	-0.062
	(0.028)	(0.058)	(0.033)	(0.055)	(0.074)	(0.067)
Constant	-0.243	0.160	-0.595*	2.684***	2.046***	3.285***
	(0.254)	(0.364)	(0.355)	(0.518)	(0.634)	(0.767)
Cumulative effect of entries and exits - F test						
Entry	0.070	0.221	0.705	3.113	1.975	3.312
Exit	3.051	0.479	4.611	4.148	0.450	8.595
Cumulative effect of movements at the same moment - F test						
In t	8.248	2.788	2.509	0.134	0.124	0.140
In t-1	0.362	0.051	0.003	0.270	0.007	0.697
R2	0.064	0.061	0.118	0.136	0.126	0.201
Obs.	2602	1440	1162	2602	1440	1162

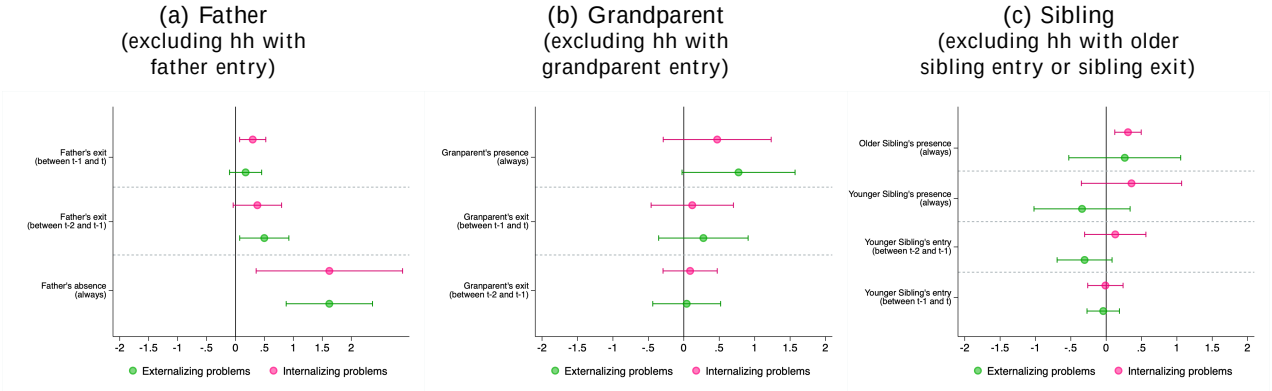
Note: We computed a household (mother and child) fixed effect model using a balanced panel of 1301 observations. The dependent variables of interest were the logarithm of labor hours and housework hours, measured on a weekly basis. Mother's education was categorized based on the highest level achieved, with *Low education* referring to mothers who had not completed secondary school and *High education* referring to those who had completed at least secondary school. Entry (t) is defined as the presence of a household member in t that was not present in $t-1$. Exit (t) is defined as the absence in t of a member that was present in $t-1$. We include also a set of control variables: parenting styles, people per room, residence mobility, child's age, school attendance and wave. Source: ENDIS Waves 0 to 3.

Table A6: Hours. Aggregate movements. Full estimation. Fixed Effect

	I. Ln Hours Work			II. Ln Hours Housework		
	All	Mother's education level		All	Mother's education level	
		High	Low		High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Entry (t)	-0.327*	-0.536**	-0.017	0.220***	0.205**	0.259**
	(0.168)	(0.216)	(0.230)	(0.073)	(0.097)	(0.106)
Exit (t)	0.040	-0.071	-0.026	0.038	0.031	0.012
	(0.189)	(0.275)	(0.233)	(0.092)	(0.148)	(0.112)
Entry (t-1)	-0.182	-0.584*	0.014	0.183**	0.050	0.268**
	(0.186)	(0.312)	(0.181)	(0.079)	(0.101)	(0.114)
Exit (t-1)	-0.267	-0.080	-0.338	0.003	-0.035	0.032
	(0.234)	(0.417)	(0.234)	(0.107)	(0.160)	(0.133)
Authoritarian style	-0.070	0.148	-0.333**	0.090	0.007	0.181**
	(0.099)	(0.130)	(0.146)	(0.066)	(0.082)	(0.089)
People per room	0.113	0.201	-0.003	0.035	-0.043	0.079
	(0.097)	(0.156)	(0.096)	(0.035)	(0.041)	(0.049)
Residence mobility	0.067	0.049	0.128	-0.022	-0.045	0.012
	(0.097)	(0.122)	(0.131)	(0.062)	(0.063)	(0.105)
Child's age (3-6)	-0.077	0.263	-0.513**	0.036	0.019	0.111
	(0.140)	(0.171)	(0.215)	(0.080)	(0.094)	(0.134)
Child's age (>6)	-0.245	0.384	-1.130**	0.158	0.167	0.193
	(0.270)	(0.307)	(0.439)	(0.155)	(0.183)	(0.258)
School attendance (1=Yes)	0.066	-0.126	0.132	-0.077	-0.245	-0.018
	(0.142)	(0.212)	(0.196)	(0.096)	(0.156)	(0.118)
3rd Wave	0.341*	0.041	0.805**	-0.070	-0.081	-0.068
	(0.176)	(0.203)	(0.313)	(0.113)	(0.134)	(0.186)
Income quintile (ref: 1st quintile)						
2nd quintile	-0.305	0.202	-0.600***	0.113	-0.066	0.223*
	(0.186)	(0.289)	(0.214)	(0.097)	(0.119)	(0.127)
3rd quintile	-0.145	0.170	-0.385	0.126	0.092	0.115
	(0.174)	(0.213)	(0.246)	(0.100)	(0.114)	(0.143)
4th quintile	-0.395**	-0.016	-0.686***	0.240*	0.151	0.280
	(0.181)	(0.234)	(0.242)	(0.137)	(0.128)	(0.218)
5th quintile	-0.476**	-0.151	-0.754**	0.139	0.065	0.212
	(0.200)	(0.236)	(0.365)	(0.118)	(0.124)	(0.198)
Household size (t-1)	-0.097	0.097	-0.109	-0.069	0.053	-0.115**
	(0.084)	(0.165)	(0.093)	(0.042)	(0.066)	(0.044)
Household size (t-2)	0.189**	-0.046	0.267**	-0.040	0.080	-0.102*
	(0.090)	(0.145)	(0.113)	(0.049)	(0.072)	(0.052)
Constant	1.939***	2.147***	1.636*	3.094***	2.453***	3.434***
	(0.611)	(0.830)	(0.889)	(0.316)	(0.393)	(0.420)
Cumulative effect of entries and exits - F test						
Entry	2.565	5.805**	0.000	9.452***	2.243	7.768***
Exit	0.373	0.067	0.729	0.064	0.000	0.045
Cumulative effect of movements at the same moment - F test						
In t	2.030	5.218**	0.021	6.905***	2.684	3.985**
In t-1	4.060**	3.143*	1.420	1.978	0.008	3.139*
R2	0.055	0.072	0.104	0.049	0.040	0.114
Obs.	2602	1440	1162	2602	1440	1162

Note: We computed a household (mother and child) fixed effect model using a balanced panel of 1301 observations. The dependent variables of interest were the logarithm of labor hours and housework hours, measured on a weekly basis. Mother's education was categorized based on the highest level achieved, with *Low education* referring to mothers who had not completed secondary school and *High education* referring to those who had completed at least secondary school. Entry (t) is defined as the presence of a household member in t that was not present in $t-1$. Exit (t) is defined as the absence in t of a member that was present in $t-1$. We include also a set of control variables: parenting styles, people per room, residence mobility, child's age, school attendance and wave. Source: ENDIS Waves 0 to 3.

Figure A2: Externalizing and internalizing problems. Incidence of family transitions. Fixed Effects



Note: Three panels of this figure show the incidence of some relative movement on the externalizing and internalizing problems of the child. Each dot represents the coe□cient estimate while bars represent the 90% confidence interval; these coe□cients always respect a benchmark household with a mother, father, and child. In the first column, we consider only those households with no father's entries, and we show the father's movements: a recent exit, a medium-term exit, and a complete absence. In the second column, we exclude the sample of those households with grandparent's entries, and we show the grandparent's movements: the continuous presence, a recent exit, and a medium-term exit. The third column shows sibling movement excluding from the sample those households with older sibling entries or younger sibling exits, first the presence of an older sibling, the presence of a younger sibling, and then the recent and medium-term entry of a younger sibling. The coe□cients arise from the estimates in Tables A7 and A8 of the Appendix. Source: ENDIS.

Table A7: Externalizing problems by mother's education level. Incidence of family transitions. Main coefficients. Fixed Effect

										Presence of fathers in wave 0		
	All	Mother's education		All	Mother's education		All	Mother's education		All	Mother's education	
		Low	High		Low	High		Low	High		Low	High
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Father												
Absence (t)	0.174	0.163	0.122	0.053	-0.003	0.058	-0.025	-0.051	-0.028	0.181	0.222	0.088
	(0.169)	(0.228)	(0.231)	(0.186)	(0.251)	(0.217)	(0.195)	(0.286)	(0.211)	(0.155)	(0.196)	(0.225)
Absence (t-1)	0.323*	0.206	0.447*	0.190	0.077	0.312	0.029	-0.124	0.191	0.443***	0.523**	0.404*
	(0.188)	(0.307)	(0.235)	(0.173)	(0.254)	(0.242)	(0.165)	(0.262)	(0.217)	(0.168)	(0.251)	(0.222)
Absence (t-2)	1.124***	1.312***	0.664	0.352	0.445	0.109	0.198	0.210	0.093	0.844***	1.005***	0.849**
	(0.360)	(0.404)	(0.407)	(0.215)	(0.289)	(0.303)	(0.171)	(0.238)	(0.260)	(0.294)	(0.333)	(0.340)
Grandparent												
Presence (t)				0.496**	0.915**	0.178						
				(0.228)	(0.382)	(0.166)						
Presence (t-1)				0.236	0.210	0.224						
				(0.170)	(0.245)	(0.235)						
Presence (t-2)				0.041	0.028	0.404						
				(0.291)	(0.306)	(0.506)						
Younger sibling												
Presence (t)							-0.042	-0.154	0.075			
							(0.139)	(0.226)	(0.155)			
Presence (t-1)							-0.264*	-0.178	-0.254			
							(0.137)	(0.213)	(0.163)			
Presence (t-2)							-0.036	0.313	-0.219			
							(0.290)	(0.516)	(0.366)			
Older Sibling												
Presence (t-2)							0.263	-0.409	0.349			
							(0.481)	(0.265)	(0.553)			
R2	0.035	0.072	0.043	0.029	0.076	0.045	0.026	0.032	0.056	0.037	0.117	0.057
Obs.	2398	1024	1374	2408	1054	1354	2260	938	1322	2134	868	1266

Note: We also include a set of control variables: parenting styles, people per room, residence mobility, child's age, school attendance, and wave. Source: ENDIS Waves 0 to 3.

Table A8: Internalizing problems by mother's education level. Incidence of family transitions. Main coefficients. Fixed Effect

										Presence of fathers in wave 0		
	All	Mother's education		All	Mother's education		All	Mother's education		All	Mother's education	
		Low	High		Low	High		Low	High		Low	High
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Father												
Absence (t)	0.297**	0.302*	0.200	0.098	-0.018	0.266	0.079	-0.019	0.224	0.325**	0.333**	0.249
	(0.137)	(0.172)	(0.202)	(0.159)	(0.197)	(0.199)	(0.167)	(0.220)	(0.205)	(0.127)	(0.159)	(0.197)
Absence (t-1)	0.080	-0.111	0.242	-0.015	-0.070	0.111	-0.030	-0.109	0.120	0.298	0.352	0.203
	(0.207)	(0.332)	(0.249)	(0.184)	(0.249)	(0.267)	(0.189)	(0.268)	(0.263)	(0.211)	(0.307)	(0.244)
Absence (t-2)	1.244*	1.455**	0.101	0.076	0.231	-0.245	0.122	0.167	0.037	0.779	0.929	0.362
	(0.708)	(0.657)	(0.439)	(0.242)	(0.336)	(0.334)	(0.232)	(0.299)	(0.285)	(0.566)	(0.569)	(0.340)
Grandparent												
Presence (t)				0.352	0.626	0.074						
				(0.263)	(0.404)	(0.202)						
Presence (t-1)				0.030	0.082	-0.128						
				(0.209)	(0.301)	(0.241)						
Presence (t-2)				0.089	0.250	0.170						
				(0.232)	(0.368)	(0.371)						
Younger sibling												
Presence (t)							-0.011	-0.260	0.304*			
							(0.152)	(0.229)	(0.171)			
Presence (t-1)							0.140	0.320	0.111			
							(0.147)	(0.206)	(0.169)			
Presence (t-2)							0.230	0.473	0.113			
							(0.276)	(0.688)	(0.271)			
Older Sibling												
Presence (t-2)							0.309***	0.309	0.351**			
							(0.114)	(0.197)	(0.158)			
R2	0.051	0.130	0.039	0.030	0.091	0.041	0.023	0.083	0.045	0.054	0.156	0.049
Obs.	2398	1024	1374	2408	1054	1354	2260	938	1322	2134	868	1266

Note: We also include a set of control variables: parenting styles, people per room, residence mobility, child's age, school attendance, and wave. Source: ENDIS Waves 0 to 3.

Table A9: Oster's Ratio of selection on unobservables to observables (δ)

	Variable	R_{max}=1	$R_{max} = 1.5R^2$
Table 4			
Col. (1)	Entry (t)	0.20	13.2
Col. (2)	Exit (t)	0.05	1.85
Col. (3)	Entry (t)	-0.43	-19.31
Col. (6)	Entry (t-1)	2.82	63.2
Table A4			
Panel I - Col. (4)	Ln Hours Housework	-0.39	-21.4
Panel I - Col. (6)	Ln Hours Work	-0.12	-6.58
Panel II - Col. (6)	Ln Hours Work	-135.4	-3078.9
Panel II - Col. (6)	People per room	0.76	19.03
Table 5			
Col. (1)	Exit (t)	0.08	2.13
Col. (3)	Exit (t)	0.24	3.29
Col. (4)	Entry (t)	0.22	2.68
Col. (4)	Exit (t)	0.17	2.01
Col. (5)	Entry (t)	0.33	4.24
Col. (6)	Entry (t)	0.43	3.26
Col. (6)	Exit (t)	0.37	2.74
Col. (6)	Exit (t-1)	-0.29	-2.24
Table 6			
Panel I - Col. (1)	Entry (t)	-0.59	-18.9
Panel I - Col. (2)	Entry (t)	-0.76	-16.2
Panel I - Col. (2)	Entry (t-1)	-0.10	-2.43
Panel II - Col. (4)	Entry (t)	0.05	1.53
Panel II - Col. (4)	Entry (t-1)	-0.06	-2.24
Panel II - Col. (5)	Entry (t)	0.15	6.19
Panel II - Col. (6)	Entry (t)	0.09	1.30
Panel II - Col. (6)	Entry (t-1)	-0.45	-6.42
Figure 3			
Panel (a) [Internalizing]	Exit (t-1/t)	0.39	5.12
Panel (f) [Internalizing]	Older Sibling present always	-0.46	-19.25
Figure 4			
Panel (a) [Internalizing]	Exit (t-1/t)	-0.61	-21.38

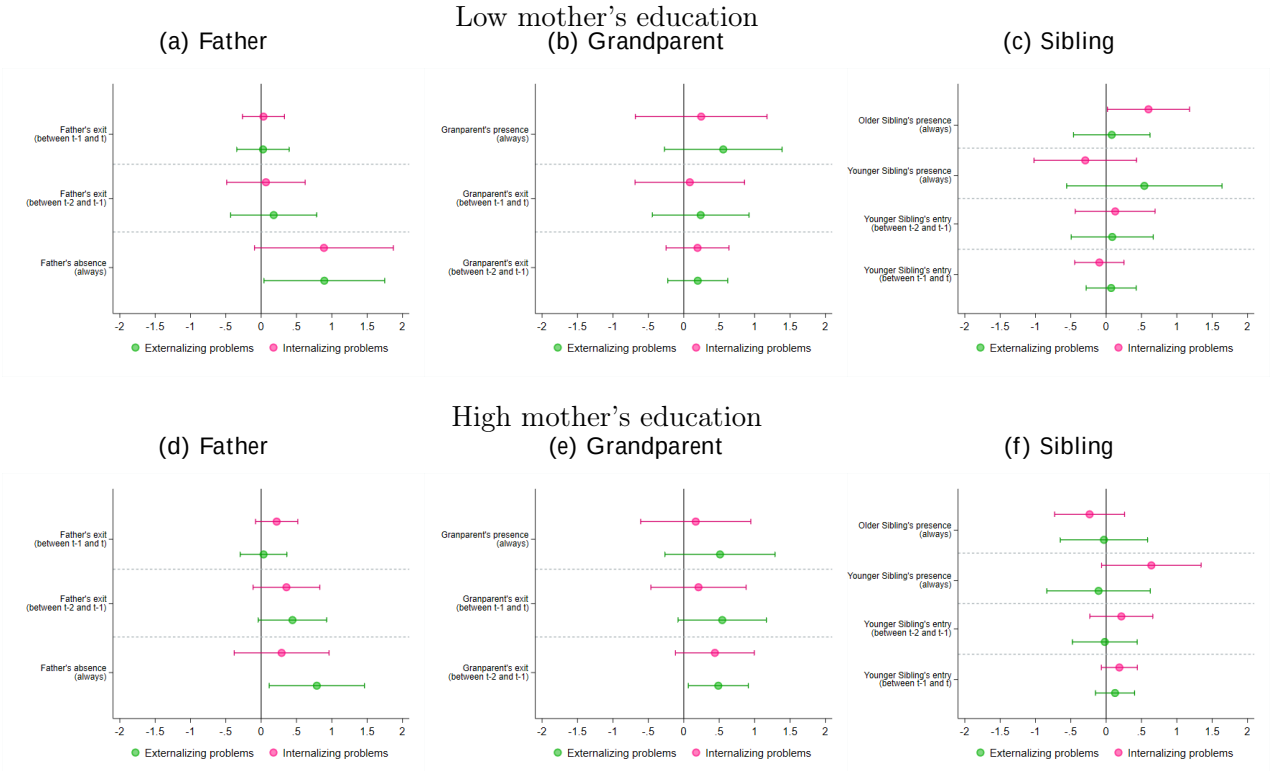
Note: The table presents Oster's δ ratio for the significative variables of Sections 4 and 5. The first two columns indicate the reference variable. R_{max}=1 presents the ratios assuming that the complete set of unobservable and observable independent variables would imply an R-squared equal to 1. $R_{max} = 1.5R^2$ presents the ratio assuming that the maximum R^2 is 1.5 times the one obtained in the estimation. Source: ENDIS Waves 0 to 3.

Table A10: Externalizing problems. Aggregate movements. Main variables. Random Effect

	All		Mother's education level Low		High	
	(1)	(2)	(3)	(4)	(5)	(6)
I. Externalizing problems						
Entry (t)	0.179***	0.211***	0.174**	0.226***	0.144**	0.149**
	(0.045)	(0.055)	(0.069)	(0.085)	(0.058)	(0.073)
Exit (t)	0.022	0.021	-0.048	-0.034	0.122*	0.096
	(0.049)	(0.064)	(0.071)	(0.089)	(0.069)	(0.093)
Entry (t-1)	0.122*	0.110	0.185**	0.183*	0.027	-0.026
	(0.062)	(0.071)	(0.086)	(0.096)	(0.093)	(0.104)
Exit (t-1)	0.068	-0.016	-0.015	-0.089	0.166	0.130
	(0.075)	(0.086)	(0.099)	(0.112)	(0.109)	(0.128)
Y_{t-1}		0.259***		0.274***		0.218***
		(0.027)		(0.039)		(0.038)
R2	0.000	0.140	0.011	0.054	0.000	0.118
Obs.	2602	1683	1162	728	1440	955
II. Internalizing problems						
Entry (t)	0.098**	0.116**	0.100	0.137	0.064	0.067
	(0.043)	(0.052)	(0.069)	(0.084)	(0.052)	(0.064)
Exit (t)	0.144***	0.148**	0.194**	0.204**	0.095	0.099
	(0.050)	(0.063)	(0.076)	(0.093)	(0.059)	(0.084)
Entry (t-1)	0.145**	0.095	0.211**	0.114	0.052	0.042
	(0.067)	(0.077)	(0.096)	(0.109)	(0.091)	(0.103)
Exit (t-1)	0.116	0.038	0.115	0.023	0.114	0.079
	(0.080)	(0.098)	(0.110)	(0.139)	(0.111)	(0.123)
Y_{t-1}		0.254***		0.255***		0.245***
		(0.030)		(0.039)		(0.047)
R2	0.002	0.090	0.023	0.017	0.000	0.083
Obs.	2602	1683	1162	728	1440	955

Note: We computed a household (mother and child) fixed e□ect model using a balanced panel of 1301 observations. The outcome variable is the externalizing problems measured by the CBCL. The dependent variables of interest were the logarithm of labor hours and housework hours, measured on a weekly basis. Mother's education was categorized based on the highest level achieved, with *Low education* referring to mothers who had not completed secondary school and *High education* referring to those who had completed at least secondary school. Entry (t) is defined as the presence of a household member in t that was not present in $t-1$. Exit (t) is defined as the absence in t of a member present in $t-1$. We also include a set of control variables: parenting styles, people per room, residence mobility, child's age, school attendance and wave. Source: ENDIS Waves 0 to 3.

Figure A3: Externalizing and internalizing problems by mother's education level. Incidence of family transitions. All sample. Fixed Effects



Note: Six panels of this figure show the incidence of some relative movement on the externalizing and internalizing problems of the child. The upper panel shows the result among households with low-educated mothers and the lower panel with highly educated ones. Each dot represents the coe□cient estimate while bars represent the 90% confidence interval; these coe□cients always respect a benchmark household with a mother, father, and child. The first column shows the father's movements: a recent exit, a medium-term exit, and a complete absence. The second column shows the grandparent's movements: the continuous presence, a recent exit, and a medium-term exit. The third column shows sibling movement, first the presence of an older sibling, the presence of a younger sibling, and then the recent and medium-term entry of a younger sibling. Source: ENDIS.