

Expanded abstract

Most children no longer spend their entire childhood in a family with both biological parents, as a sizable proportion of this period is spent in a single-parent family or living with a social parent, in particular a social father. Having as perspective that the child's social development could be regarded as a conjointly project of the child, the child's parents, and the educational institution, these changes in household arrangements might impact school performance.

In general, it is believed that children from divorced couples and living in single-parent families tend to perform less well at school than children living in intact two biological parents families, even after controlling for parental characteristics. Children born outside the wedlock have not been studied as frequently as children of divorce, however, they are also more likely than children continuously living with both biological married parents to experience a variety of cognitive, emotional, and behavioral problems. Besides, the same tend to happen if the child lives with only one of his/her biological parents and his/her new mate.

Many authors addressed the effects of family structure on school performance and related topics and results differed depending on the study. Some studies show that children living in two biological parents families tend to have higher levels of performance, while other studies found small or non-significant differences.

According to Bernardi and Radl (2014), the specialized literature describes three main mechanisms that might explain the observed associations between household composition and educational attainment. The first is the reduction in economic resources following a breakup, which may adversely influence children's cognitive development and behavior, as families with two-biological-parents tend to have higher household incomes and more assets than uniparental households. The second point emphasized by the authors are the changes in parental time and practices, and parenting stress. Children in two-biological-parent families might receive more parental time, attention, supervision, and monitoring than those in children in single and social-parent families. Moreover, they tend to receive more effective parenting, experience more cooperative co-parenting and are emotionally closer to both parents. Lastly, the child's emotional distress due to parental divorce might impact negatively on school performance. Parents and children who experience family structure transitions are likely to experience elevated levels of family stress and conflict, with indirect effects on children's school performance by reducing parental warmth, support, and nurturance.

The main objective of this paper is to analyze associations between household compositions and school performance having as focus these mechanisms proposed by Bernardi and Radl (2014). More specifically, I compare school performance in Math and Portuguese in the fourth grade (or fifth year) of the fundamental level in Brazil of children living in six different household arrangements, whether the student lived with: his/her mother and father; his/her mother and a social father; his/her mother (only or with aggregates); his/her father and a social mother; his/her father (only or with aggregates); other arrangements without a father or a mother.

I used as database the ProvaBrasil of 2007 (Brazil exam) from the Brazilian National System for Evaluation of Basic Education (Saeb). The Saeb also collects data about the student's households economic and learning resources, the children's school environment, and school infrastructure, his/her teachers' and principals' characteristics, the students' behavior toward learning and his/her parents' participation in the educational process.

I estimated models by OLS that are specified as follows:

$Y_{ijkl} = \alpha + \varphi\eta_{ijkl} + \beta X_{ijkl} + \delta Z_{jkl} + \theta W_{kl} + \gamma\psi_l + \varepsilon_{ijkl}$, where the dependent variable, Y_{ijkl} , is the test score (math or Portuguese) of the student i , in class j , in school k and in state l ; η_{ijkl} are the dummies for household composition, the main variables of interest, X_{ijkl} are the student's individual and household variables, Z_{jkl} and W_{kl} are respectively the controls for the students' class and school, ψ_l are the dummies for state, and ε_{ijkl} are the errors.

The empirical strategy is the following. I began the studies with models with mostly exogenous variables not directly associated with the household. Then, the models incorporated a greater number of controls associated to the household economic and learning resources and differences between household compositions were verified. After, controls related to household's interactions between adults and students were incorporated. The complete model was then applied to subgroups of the population.

Table 1 shows the school performance for the six household arrangements in math and Portuguese. The values with asterisks with the same number indicate that the values were not significantly different in a Bonferroni test.

The highest values were observed for households with both biological parents, although differences for households with mother and a social father were not large, and not significant for Portuguese. Even without any control, these results indicate that

differences between a biological father and a social father are small. Students in households with a mother/social father may have faced a divorce and a posterior reunion and might have lived in single parents or multigenerational household for longer. Although dynamics differ, school performance are very similar, suggesting that they changes have a short time of influence and/or that positive and negative impacts have similar magnitudes. Values for households with a mother showed intermediate results. These results suggest that mothers, as they tend to be more household focused than fathers, can overcome many of the difficulties imposed by less economic resources and probably less disposable time. The three household compositions without a mother had smaller values for school performance than others, that is, the major difference is the presence of a mother.

Table 1 – School performance for households arrangements

Household composition	Math	Portuguese	Frequency	Proportion (%)
Mother/father	193.7	176.4* ¹	1237825	62.4
Mother/social father	193.0	176.2* ¹	97259	4.9
Mother	190.4	173.4	451207	22.7
Father/social mother	185.6* ²	168.4	22890	1.2
Father	185.3* ²	166.6* ³	57143	2.9
Other types	183.5	166.9* ³	117564	5.9
Total	192.0	174.8	1983888	100.0

Note: * results not significantly different in a Bonferroni test.

Source: Saeb, 2007

The results above were further analyzed using standard linear models with different sets of controls. The results showed that the observed differences in school performance were mostly explained by observable heterogeneity in school inputs, location, household economic and learning resources and household's interactions. The non-observable differences between households were sizable only for those with father and a social mother and father (only or with aggregates), suggesting mechanisms not captured by the controls of the econometric models.

Thus, differences between household types per se are dwarfed by other factors while explaining school performance, as there are many other reasons for low school performance. For instance, individuals tend to have hyperbolic preferences, overweighting the present so much that future rewards are largely ignored and such

preferences can lead to underinvestment in education, where the returns to achievement are largely delayed. If students are myopic, policies offering incentives to stay in school might improve lifetime outcomes. The findings presented in this paper may help the design of even more effective policies that might take into account factors associated with household composition and the regional distribution of household arrangements.

Reference

BERNARDI, F. and RADL, J. The long-term consequences of parental divorce for children's educational attainment. **Demographic research**, v. 30, n. 61, p. 1653–1680, 2014.