

Do Kids See it Coming?

Analyzing Children's Cognitive Abilities in the Years before Parental Separation in Norway.

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Evidence from several nations has demonstrated that children and adolescents with divorced or separated parents do on average less well in school compared to those who grow up with nondivorced parents (Amato, 2014; Raley & Sweeney, 2020). This is the case for school grades (Mandemakers & Kalmijn, 2014; Nilsen et al., 2020), as well as for academic attainment (Grätz, 2015). The effects of parental separation on children's educational outcomes are generally modest, but nevertheless deserve further investigation because educational disadvantage is associated with lower educational and economic attainments in adulthood (Amato & Keith, 1991). Most previous studies have treated separation as a single event, comparing educational outcomes prior and after parental separation. However, treating parental separation as a discrete event neglects that parental separation is often preceded by a continuous process of family decline as part of the dissolution process. Hence, the negative effects of children's educational outcomes may unfold even before the actual separation, putting children at the risk of developmental setbacks (Amato, 2010). Although scholars agree that marriages that end in divorce are plagued by dysfunction and conflict even before the formal separation process, this is rarely explicitly tested. Therefore, I adopt a process-oriented approach, as suggested by Amato (2010) and Kim (2011) and answer the following research question: Are children's cognitive abilities already deteriorating in the period before separation?

Such negative pre-separation effects can be explained using two theoretical frameworks: (1) the resource perspective and (2) the stress perspective. Based on the resource perspective, research has found that many married women with children increase their labor supply when marital conflict and the risk of divorce increase (Özcan & Breen, 2012). This limits the amount of time they can spend with their children (e.g. help with homework). The stress perspective states that due to parental conflicts children's stress increases, which in turn negatively affects their school success. From this, I derive the following hypothesis: Children's cognitive skills worsen even before their parents separate (*Hypothesis 1*).

Prior research examining pre-separation effects on children's well-being found mixed results. Goisis et al. (2019) found no anticipation effects prior to parental separation on children's physical health in their fixed-effects analysis. Regarding mental health, Strohschein's (2005)

growth curve model confirms that children exhibit higher levels of anxiety, depression and antisocial behavior even before their parents separate than children whose parents remain married. Studies that analyzed anticipation effects on children's cognitive abilities (e.g. math and reading scores) found no negative effects before divorce (Aughinbaugh et al., 2005; Kim, 2011). Kim (2011) used a matching approach with a growth curve model and found negative effects on children's math test during and after parental divorce, but no effects before divorce. However, the comparison was based on a small treated sample size (n=142). Aughinbaugh et al. (2005) found that children from families with both biological parents had higher reading and math scores than children from divorced families, but the difference disappeared when they controlled for pre-divorce characteristics. However, both studies relied on US data all studies have treated each group as homogeneous. However, I argue that not all children anticipate parental separation in the same way and want to examine whether there are heterogeneous effects. Protective factors can mitigate the negative effects of parental separation on children's well-being. The presence or absence of such "shock absorbers" (Amato, 2000, p. 1272) can lead to heterogeneous effects of parental separation on children's well-being. Even before parental separation, it is plausible that protective factors can lead to heterogeneous effects in anticipation of separation. One moderator in this regard is family's socioeconomic background. Parents who have more resources before divorce may be better able to provide a safe and stable environment for their children (Bernardi, 2014). Following this line of reasoning, I argue that children with more socioeconomic resources prior to parental separation will experience less negative outcomes than children with low socioeconomic resources (*Hypothesis 2a*). However, based on the *more to loose hypothesis* (Breen & Goldthorpe, 1997), it is also plausible that parents from higher socioeconomic backgrounds have fewer opportunities to convey benefits to their children, as parental conflict and increased work supply limit the amount of time parents can spend with their children. However, children from higher socioeconomic backgrounds were accustomed to these resources and now notice a marked difference. This reasoning leads to the contradictory hypothesis that children with higher socioeconomic resources experience more negative outcomes before parental separation than children with low socioeconomic resources (*Hypothesis 2b*). Heterogeneous effects are also possible with respect to children's gender, as previous research shows that the association between marital conflict and child maladjustment is stronger for boys than girls (Davies & Lindsay, 2001). Thus, I argue that boys' cognitive abilities deteriorate more than girls' cognitive abilities in the years preceding parental separation (*Hypothesis 3*).

To answer my research question, I utilize Norwegian registry data (2005 - 2017). Using fixed effects regressions allow me to analyze within changes in the years before and the year of parental separation. The children in my sample are between 9 and 15 years old. The outcome variables are math and reading achievement in grades 5, 8, and 9. In 5th grade, all children in my sample live with their biological parents ($n = 196,791$). Of these children, 1,096 experience parental separation in 8th or 9th grade, allowing me to analyze children's cognitive abilities up to four, three and one years before separation. For the analysis heterogeneous effects depending on children's socio-economic background, I use the highest education of the parents. Parental income and children's age serve as my control variable.

Figure 1 shows the results for my first hypothesis. The red vertical line represents children's standardized math and reading scores in the year of separation. The results demonstrates that

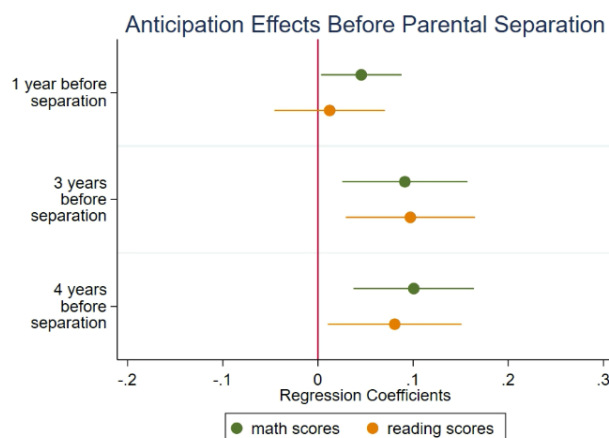


Figure 1: Results Fixed-Effects regression. Children's cognitive abilities in the years before separation. *Source:* Norwegian register data. Author's own calculation.

children's cognitive abilities are significantly better three to four years before separation than in the year of separation. One year before separation, however, the effect on children's reading scores is no longer significant. Thus, consistent with my first hypothesis, children's cognitive abilities already decline slightly even before the year of formal separation.

Figure 2 displays the results of the analysis of heterogeneous effects in anticipation of parental separation depending on children's socioeconomic resources. Four years before separation, math scores of children of parents with high and low educational backgrounds are significantly better than in the year of separation. The effect is particularly strong for children of parents with high levels of education. However, three years before separation, a significant effect is only observed for children of parents with low educational background. The math scores of children of middle-income parents do not seem to be affected. The pattern for the analysis of

heterogeneous effects as a function of parental educational background for reading scores is puzzling. Therefore, I cannot confirm either hypothesis 2a or hypothesis 2b.

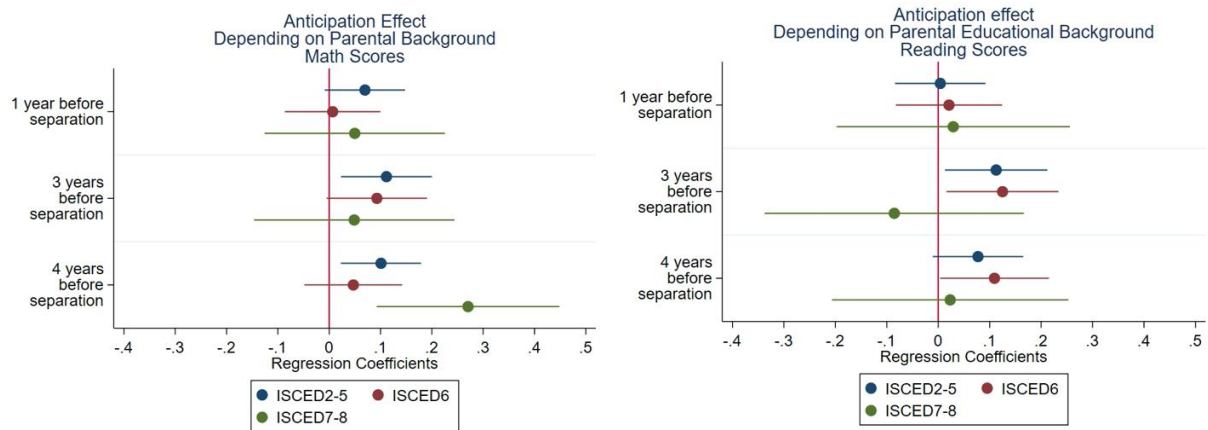


Figure 2: Results Fixed-Effects Regression. Analysis of Anticipation Effects depending on socio-economic resources. *Source:* Norwegian registry data. Author's own calculation.

However, as far as the gender of the children is concerned, the pattern is clear. Boys' cognitive abilities are more adversely affected than girls' in the years before parental separation. Their math and reading performance is significantly better three to four years before parental separation than in the year of separation. Consistent with my hypothesis, boys' cognitive abilities already deteriorate in the year before parental separation. Girl's cognitive abilities do not seem to be impaired in the years before parental separation. Therefore, I can confirm my hypothesis three that boys' cognitive abilities worsen more than girls' cognitive abilities in the years before parental separation.

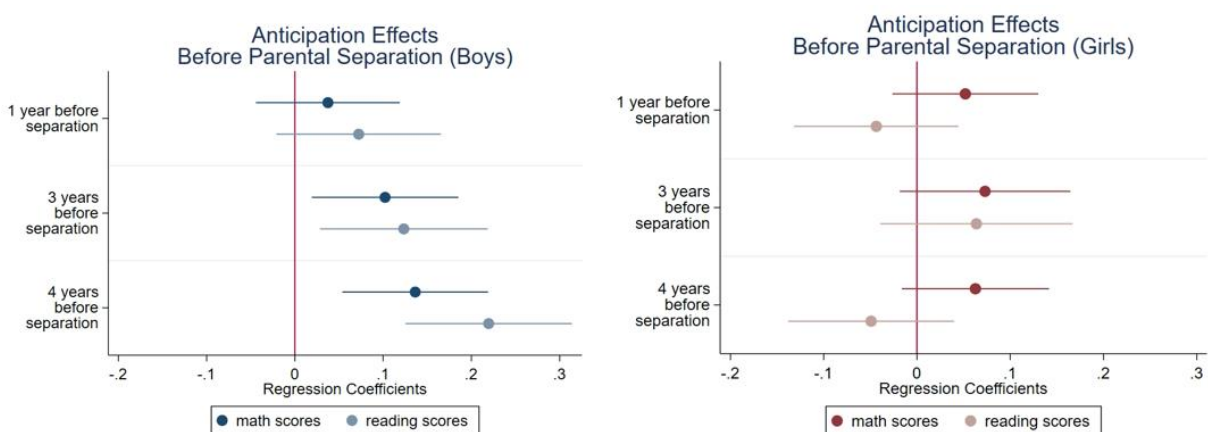


Figure 3: Results Fixed-Effects Regression. Analysis of anticipation effects depending on children's gender. *Source:* Norwegian registry data. Author's own calculation.

Putting all the results of my study together, I can conclude that children's cognitive abilities deteriorate slightly even before their parents separate. The pattern is mainly driven by boys. However, the results of the heterogeneous effects depending on children's socioeconomic

background do not to conclude whether the cognitive abilities of parents with high or low socioeconomic status are more affected in the years before their parents' separation. One limitation of my study is that I cannot measure the results in grades 6 and 7. Also, I must admit that not every high-conflict marriage ends in divorce (Hanson, 1999) and that not every divorce is preceded by a period of marital discord (Amato & Fowler, 2002). Thus, not all children may experience parental conflict prior to separation. This could also lead to fewer anticipation effects. Unfortunately, no information on relationship conflict is available in the registry data. Nonetheless, my findings highlight the importance of accounting for heterogeneous effects and underscore the relevance of the process-oriented approach rather than treating separation as a single event.

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