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ABSTRACT

Intergenerational Effects of Compulsory Schooling Reform on Early Childhood Development in a Middle-Income Country*

This paper explores the intergenerational effects of the 1997 compulsory schooling reform in Turkey, which extended compulsory schooling from five to eight years, on the developmental outcomes of children aged 36 to 59 months. We draw upon data from the 2018 Turkey Demographic and Health Survey, which features a comprehensive module on early childhood development (ECD), and estimate the impact of mothers' exposure to education reform using RDD. Our analysis reveals a significant increase in maternal educational attainment and corresponding enhancements in children's readiness to learn. Exploring the underlying mechanisms, we find a notable expansion in the number and variety of activities parents, especially fathers, engage in with their children. In a further examination of parental outcomes, we find evidence pointing to narrower educational and age disparities between partners, suggesting an improvement in mothers' agency—aligned with the heightened engagement of fathers with their children. Despite the typical emphasis on mothers in ECD research, our study indicates a significant enhancement in fathers' involvement with their children accompanied by improvement in children's cognitive outcomes.

JEL Classification: H52, I26, J13, J24

Keywords: compulsory education, early child development, parental investment, mother's agency, cognitive skills

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1 Introduction

About 250 million children living in low and middle-income countries (LMICs) are estimated to be at risk of non-optimal early childhood development (ECD) (Black et al., 2017). The incidence of low cognitive and/or socio-emotional development among children in Turkey is similar to that in several other middle-income countries.[1]

The early years of life are crucial for development because of the brain's significant structural and functional changes during this time (Knudsen, 2004; Aboud and Yousafzai, 2015). Child development is influenced by health, nutrition, poverty, home environment, policies, and socio-cultural contexts.[2] Parenting skills and parental investments in time and material resources are the primary environmental factors in early childhood that can affect child development (Francesconi and Heckman, 2016).[3] Suboptimal ECD can hurt education, work productivity, and earnings, potentially leading to a recurring cycle of developmental challenges and poverty across generations.[4] However, creating supportive environments that promote children's growth can help alleviate these harmful effects (Britto et al., 2017). Differences in outcomes that arise during early childhood, particularly in cognitive development, persist. Later remedial interventions are costly and have limited effects (Thompson and Nelson, 2001; Cunha and Heckman, 2008; Heckman and Mosso, 2014).[5]

Several studies have investigated the impact of various policy interventions that seek to enhance ECD in LMICs. These interventions range from cash transfers or free childcare

[1]The percentage of 3- to 4-year-old children with low cognitive and socioemotional development were 3.3% and 26.1% in Turkey, according to the 2018 Turkey Demographic and Health Survey. In comparison, McCoy et al. (2016) report that the corresponding percentages were 7.0% and 17.7% in Lebanon, 9.9% and 30.7% in Jordan, 10.6% and 21.6% in Iraq, 6.9% and 24.3% in Tunisia, 2.1% and 14.2% in Kosovo, 1.2% and 8.0% in Macedonia, 0.4% and 4.6% in Serbia.

[2]The ecological model developed by Bronfenbenner emphasizes that human development is influenced by interactions with people, objects, or symbols in the environment (Bronfenbrenner, 2013).

[3]For example, Cameron and Heckman (2001) and Yeung and Pfeiffer (2009) show that differences in parental socioeconomic status and the early childhood family environment account for a large share of the black-white test score gap. In a different line of research, studies by Milne et al. (1986), Bertrand and Pan (2013), Kalil and Mayer (2016), and Autor et al. (2019) analyze why children, particularly boys, from single-parent families have lower academic achievement.

[4]It is well-documented that intergenerational correlations of education and income are large, and family characteristics significantly determine lifetime inequalities in human capital, income, and utility (Huggett et al., 2011; Black and Devereux, 2011; Chetty et al., 2014).

[5]These findings have led to the conclusion that skill formation is a dynamic process, with long-term returns being greater from investments in the early years, though pay-offs also take a considerable time to materialize (Heckman and Carneiro, 2003; Todd and Wolpin, 2003; Cunha et al., 2006; Agostinelli and Wiswall, 2016).

services to parenting counseling or at-home intervention.[6] In contrast to these studies, this paper aims to assess the intergenerational effects of a compulsory schooling reform that raised years of compulsory schooling from 5 (primary school) to 8 (middle school) in Turkey on ECD and to identify the potential mechanisms at play. To the best of our knowledge, this is the first study to examine the impact of compulsory schooling reform on ECD in LMICs.[7]

Studies examining the impact of compulsory schooling reforms are rare in LMICs because these reforms are typically not enforced well, even when put into place. However, the reform in our study was effectively enforced and resulted in an increase in girls' schooling by more than a year (Kırdar et al., 2016). Unlike the interventions studied in the papers discussed above, many of which are small-scale, the reform affected a significant proportion of the population in Turkey as the enrollment at the secondary school level (grades 6–8) was 52.8% during the year before the law changed.[8] Moreover, the reform was not related to schooling and child development outcomes, as its timing was related to political events. While the reform in our study was not specifically aimed at improving ECD outcomes, as opposed to the studies mentioned above, it still has the potential to significantly impact ECD through the intergenerational effects of parental education. Several studies have shown a causal link between mothers' education and children's cognitive outcomes (Andrabi et al. (2012), Carneiro et al. (2013), Cui et al. (2019), Dickson et al. (2016), Hasan et al. (2020), Macmillan and Tominey (2022), and Mazumder et al. (2023)).

We use data from the 2018 wave of the Turkey Demographic and Health Survey (TDHS), which includes a detailed module on ECD. Child development measures are based on a module developed by UNICEF, which is commonly used as a part of the Multiple Indicator Cluster Surveys (MICS) and the Demographic and Health Surveys (DHS) in many LMICs. Our parent-centric data includes a rich set of outcomes, including detailed information on household members' activities with children and the family environment during early childhood. This allows us to pinpoint the potential mechanisms of the impact on childhood development starting from when children are 24 months old. We identify the reduced-form impact of the policy—via mothers' policy exposure—using regression discontinuity design (RDD). In the estimation of RDD, we use both parametric and nonparametric approaches.

[6]See, e.g., Araujo et al. (2021), Attanasio et al. (2022), Bos et al. (2024), Hernández-Agramonte et al. (2024), Jakiela et al. (2024), Justino et al. (2023), Lavy et al. (2022), Sylvia et al. (2021), Wang et al. (2023).

[7]Using the regional variation in China's compulsory schooling reforms, Cui et al. (2019) examine the effect of mother schooling on school enrollment and test scores of adolescents.

[8]TUIK (Turkish Statistical Institute), Education Statistics.

We study four child development indicators for 36- to 59-month-old children: literacy-numeracy, readiness to learn, physical development, and social-emotional development—which together form the early childhood development index (ECDI). Among these indicators, readiness to learn and social-emotional development reflect general skills and behaviors strongly related to later life outcomes. Numerous studies suggest that the traits assessed in these areas—such as understanding and following instructions independently, managing aggressive behaviors, staying focused, and interacting positively with peers—are fundamental early childhood milestones that significantly impact future life outcomes (Duncan et al., 2007; Grantham-McGregor et al., 2007; Heckman, 2007; Hoover-Dempsey et al., 2005; Jensen, 1969; Moffitt et al., 2011; Ricciardi et al., 2021). In addition, in pediatrics, shortcomings in these domains are typically viewed as indicators of developmental issues (for Disease Control (CDC), 2024). Hence, our study focuses on the readiness-to-learn and social-emotional domains of the ECDI—as in McCoy et al. (2016). While the importance of these two pre-academic skills in later skill acquisition and avoiding later learning problems has long been recognized, the causal linkages from parental background and home environments to readiness to learn and social-emotional development have not received much attention.[9]

In contrast, we put less emphasis on literacy-numeracy and physical development items of the ECDI index. Literacy-numeracy measures in our data include recognizing numeric symbols, letters of the alphabet, and full words. These are substantially more advanced than the types of pre-academic skills captured in developmentally comparable tools (e.g., the Ages and Stages Questionnaire, the Malawi Developmental Assessment Tool), which focus, for example, on basic counting but not on recognition of numeric symbols. In addition, as McCoy et al. (2016) report, observed differences in this domain might be more likely to reflect differences in countries' social/cultural norms around early education than children's cognitive capacity. The physical development items include the pincer grasp, a skill usually mastered before the age of 12 months, thus indicating only very severe developmental delays in the 3 to 4-year-old age group. Another component in the physical domain, being "too sick to play," assesses children's health status rather than their developmental abilities.

[9]Previous research found that home environmental factors and parental income and education are associated with readiness to learn among children in kindergarten and early school years. Home environmental factors discussed by the literature on child development and psychology include the degree of cognitive stimulation at home and the nature of parent-child interactions (Pettit et al., 1997; Connell and Prinz, 2002). This literature suggests that lower income and education among parents may account for differences in readiness to learn since such parents display less nurturing parenting styles (Pettit et al., 1997; Nord, 1999).

We find that the reform increases the probability of completing middle school by 14 to 20 percentage points (pp) among the sample of mothers with young children in the TDHS survey. The results show that mothers' exposure to the reform increases their children's readiness to learn by 4–5 pp. Moreover, in subpopulations for which we observe a stronger impact on mothers' middle school completion, we find a larger and more precisely estimated effect on their children's readiness to learn. In addition, the coefficients regarding the effect of the mother's exposure to the reform on her children's social-emotional development are large and positive but statistically insignificant. However, we find no evidence of an effect on literacy and numeracy or physical development. We also show that the reform does not change the composition of our sample of mothers with young children, and our findings are robust to correcting for multiple hypothesis testing.

Cunha and Heckman (2007) conceptualize children's skill formation as a process determined by self-productivity, investments made in them, and other environmental factors, including parenting skills. The latter two factors can plausibly be influenced causally by parental education. Increased earnings or shifts in parental preferences can lead to greater material investments in children's skill formation, such as books, toys, and ECD services. Parental time investments, such as playing and engaging in other activities that contribute to children's skill formation, might also be affected. Even if material or time investments do not quantifiably increase, an enhancement in parenting skills attributable to education could improve the quality of these investments through more subtle means, such as the choice of toys or the vocabulary used during playtime.

We use this framework of Cunha and Heckman (2007) to investigate several potential mechanisms that may explain the rise in the readiness to learn. For this purpose, we define treated households as those in which mothers are exposed to compulsory school reform. We first study whether there is a change in parental involvement with children, using a detailed list of activities that household members engage in with children. The results show that parents in treated households—particularly fathers—engage in more activities with their children. In addition, we find that the new activities the father is involved in are not those already done by the mother, implying an increase in the variety of activities parents engage in. Furthermore, we find that the increase in the number of parental activities does not come at the expense of the other family members being involved with children. When we explore the specific activities, we find that fathers are likelier to play with their children and

take them outside, while mothers are likelier to read to their children. Overall, these results indicate that parental time investment in children's skill development increases through a rise in both the quantity and diversity of parental activities with children, particularly in paternal activities.

A striking finding of this paper regarding parental inputs is the rise in fathers' involvement with children. To better understand this, we explore the characteristics of fathers and marital match. First, we find that the educational levels of fathers whose wives are exposed to the policy are notably higher than those of fathers whose wives are not exposed to the policy; however, this difference is not statistically significant at conventional levels. This could result from improved prospects of more educated women in the marriage market and the direct effect of the compulsory schooling reform on men's educational distribution, which we cannot distinguish. Second, a more educated woman could better facilitate her husband's involvement with their children. This would be more likely if women's bargaining power in marriage increases due to their reform exposure. To examine this, we measure the impact of the reform on the age and education gaps between partners. We find strong evidence that the probability that mothers have educational attainment that is at least as high as that of fathers increases substantially. Moreover, we estimate a sizeable negative effect of mothers' reform exposure on the age gap between partners, although this is not statistically significant at conventional levels. These findings are consistent with a rise in women's bargaining power.

Another mechanism we study is whether parents in treated households increase the material investments for child development, such as the availability of toys and books. We find evidence for an increase in the probability that treated households have a children's book, but there is no evidence of a similar increase in the availability of toys. Finally, we explore the effects on the probability of employment of mothers and fathers or the use of childcare services. However, we find no evidence of an effect on these outcomes. It is, therefore, possible to rule out a substantial increase in family income or investments through non-parental education as part of the mechanisms.[10]

[10]Consistent with our findings, analyzing the effect of the 1997 compulsory schooling reform, Aydemir and Kirdar (2017) find significant effects on women's wages but much smaller effects on men's wages. They also report a small effect on women's employment and no effects on men's employment.

2 Related Literature

Our study's first contribution is to the literature on improving ECD in LMICs. These policies can be cash-based, with conditionalities in some cases, or aim to induce behavior changes in parents through interventions such as home visits (see Nores and Barnett (2010) and Little et al. (2021) for reviews). Understanding the mechanisms through which parental education affects ECD—which our paper investigates—has implications for the design of ECD interventions in LMICs.

Many RCT-based studies examining the impact of home-visiting and parental-training interventions report positive impacts on ECD outcomes and improved parental time and material investment (see, e.g., Araujo et al. (2021); Attanasio et al. (2022), Carneiro et al. (2019), Justino et al. (2023), Hernández-Agramonte et al. (2024)). In addition, many of these studies report that parental investment is a key mechanism in improved ECD outcomes. For instance, combining an RCT with a structural model, Attanasio et al. (2020) show that the increase in parental investment induced by the RCT accounts for over 91% of the policy impact on cognition and 66% of the policy impact on socio-emotional skills. Sylvia et al. (2021) find that the impact of a parenting program in China on infant skill development was accompanied by increases in not only parental investment but also parenting skills, and Wang et al. (2023) report that these effects persisted over time. Other studies that combine cash transfers with interventions aiming at the stimulation of children (such as parental training) also report positive impacts on cognition and increased parental investment (Macours et al., 2012; Premand and Barry, 2022).[11]

Parental investment is key in improving ECD outcomes in these RCT studies. The results of our study—indicating an improvement in child cognitive outcomes accompanied by a significant rise in parental investment—are similar. Although the reform in our study was not specifically aimed at improving parental investment in children and ECD outcomes, it still affects ECD through the intergenerational effects of improving parental education. Parental education could impact ECD not only via parental investment but also via parental income. However, we find that the reform does not increase parents' employment. In addition, Aydemir and Kirdar (2017) find that wage returns to education are low, using the same compulsory schooling reform. Hence, even if an income channel exists, it is likely to

[11] Similarly, Özler et al. (2018) find that combining parental training with other interventions (teacher training) results in better child development outcomes than the other intervention alone.

be small in our context.

Some RCT studies examining the impact of home-visiting interventions report improved maternal agency as a key mechanism in improved child cognition. For instance, examining the impact of such a program in Bangladesh, Bos et al. (2024) find improved maternal agency, as well as increased parental investments, as the underlying causes of improved child cognition. An important piece of evidence regarding mothers' agency comes from the study of Lavy et al. (2022), who examine the impact of advisor-guided parent training sessions in a poor neighborhood of Quito, Ecuador. These training sessions focus on building women's self-confidence and self-awareness while strengthening their family role. They find that mothers increase their child investment, and the cognitive and non-cognitive skills of treated children improve.

Our findings also suggest improved maternal agency due to the compulsory schooling reform. Indicators typically used for women's bargaining power, such as the age gap and the education gap, change in favor of women. In addition, the rise in paternal involvement with children is consistent with improved maternal agency. In essence, increased parental investment in children and improved maternal agency—which our study highlights as the mechanisms underlying the estimated impact of the compulsory schooling reform on ECD—are also the mechanisms highlighted by the RCT literature about the impact of home-visiting and parental training interventions on ECD.

The second contribution of our study is to the literature analyzing the intergenerational effects of parental schooling on child and adolescent cognitive development (Andrabi et al., 2012; Carneiro et al., 2013; Cui et al., 2019; Dickson et al., 2016; Hasan et al., 2020; Macmillan and Tominey, 2022; Mazumder et al., 2023).[12] [13] While these studies use various

[12]In the Indonesian context, some papers study the effect of parental exposure to school construction reform on the education, health, cognitive, and socio-emotional development outcomes of children (Akresh et al., 2023; Hasan et al., 2020; Mazumder et al., 2023). However, the children under study are older in these studies (aged five and higher). Moreover, among these studies, only Hasan et al. (2020) examine cognitive and socio-emotional development outcomes, and Mazumder et al. (2023) investigate test scores in grades 6 to 9. Akresh et al. (2023) is primarily interested in the schooling outcomes of the next generation. Agüero and Ramachandran (2020) study the effect of increases in parental schooling in Zimbabwe due to the elimination of apartheid-style policies against blacks on the schooling of children aged 6 to 15.

[13]While the change in compulsory schooling is for middle school grades in our context, the increase in parental education in the UK context (Dickson et al., 2016; Macmillan and Tominey, 2022) and the US context (Carneiro et al., 2013) is for higher schooling levels. In contrast, Andrabi et al. (2012), as well as the studies using the school construction program in Indonesia, use variation in mothers' schooling at an even lower level. The Chinese compulsory schooling laws in Cui et al. (2019) and the elimination of apartheid-style policies against blacks in Agüero and Ramachandran (2020) impact similar grade levels to our case.

country-specific test scores as measures of cognitive development, our study measures child development based on a module developed by UNICEF, which is commonly used as a part of the MICS and the DHS in LMICs; therefore, it has more generalizability. In addition, the previous studies focus on child development outcomes during schooling years, whereas our study explores early childhood outcomes before formal schooling. To the best of our knowledge, the evidence regarding the earliest age at the impact of a mother's education on children's cognitive outcomes comes from the UK. Using the change in minimum school leaving age in the UK, Dickson et al. (2016) and Macmillan and Tominey (2022) find that the impact of mother schooling on children's cognitive skills emerges at school entry age (about age 4).[14] Our finding about the positive impact of the mother's exposure to the compulsory schooling reform on the child's cognitive outcomes (readiness to learn) is measured at an earlier age (36–59 months).

While the earlier literature detects the effect of maternal education on cognitive outcomes, such as test scores, our finding detects the effect on readiness to learn, which can be interpreted as a soft skill necessary to develop cognitive abilities. Our results, therefore, highlight the importance of analyzing different types of early childhood abilities to understand potential drivers of the divergence in concurrent or later test scores. Even though we observe no effect on numerical or literacy skills,[15] the positive effect on readiness to learn fits well with the conceptualization by Cunha and Heckman (2007) of skill formation as a dynamic process where earlier advantages become persistent over the lifetime.

Our study is also methodologically different from the above literature about the intergenerational impact of parental schooling. We utilize an RDD design (comparing month-year of birth cohorts), which has good internal validity properties (Lee and Lemieux, 2010). In contrast, the previous studies on this topic use geographical variation in school availability or the enforcement of schooling as the source of exogenous variation in schooling. This variation is unlikely to be independent of potential outcomes of child development, whereas the independence of mothers' birth cohorts from these potential outcomes is more plausible. Second, we do not aim to estimate the causal impact of mother's schooling because the exclusion restriction assumption that the compulsory schooling policy does not affect

[14]These cognitive skills are based on teachers' assessment of reading, writing, language, and mathematics skills.

[15]Children who are 36- to 59-month-old might be too young to observe an impact on numerical and literacy skills.

fathers' schooling is a strong one. However, the potential failure of the exclusion restriction assumption is at least as much a concern in the other studies due to the same reason.

Our third contribution concerns the importance of *paternal* involvement for ECD. Our finding of an increase in both the extent and variety of paternal involvement with children is novel in the literature. Most interventions aimed at improving ECD, as well as studies measuring the intergenerational effects of parental schooling, focus on mothers. For instance, in the RCT literature regarding the impact of home interventions on ECD, several studies specifically examine investments by mothers (Bos et al., 2024; Attanasio et al., 2022; Justino et al., 2023). Similarly, in the literature about the intergenerational impact of schooling, Carneiro et al. (2013) and Andrabi et al. (2012) document more maternal investment in children, although Macmillan and Tominey (2022) find no effects of time investments. However, there is more room for improvement in fathers' involvement, as they generally participate in fewer activities with their children. In fact, we find a substantial impact on paternal involvement with children.

3 Background Information

Before the 1997 education reform, the school system in Turkey comprised 5 years of compulsory primary school, 3 years of noncompulsory middle school, and 3 years of high school education. Almost all schools in Turkey are co-educational. The 1997 Basic Education Reform Law (No. 4306) raised compulsory schooling from five to eight years by merging the first two education levels under the umbrella of basic education.

The extension of compulsory schooling had been discussed for a long time at the time of the policy; however, its actual timing was related to political developments. The secular government that had recently come to power seized the opportunity to curb (or delay) religious education by extending compulsory schooling.[16] As such, the timing of the reform did not coincide with better-than-average economic conditions, during which other health or schooling investments are generally more likely. Moreover, there was no concentrated policy effort to raise middle school attendance prior to the reform.

[16]Before the policy, students could enroll in Quranic Studies after completing primary school. Hence, they would not be exposed to a secular co-educational system anymore. Also, before the policy, students could enroll in *Imam-Hatip* middle schools, which provided both religious and secular education. More precisely, they provided additional religious courses on top of the secular curriculum given in other schools. After the policy, students could enroll in *Imam-Hatip* schools only at the high school level.

The law applied to all students who did not complete the 5th grade in the 1996–97 school year. A 4th grader in the 1996–1997 school year would have started primary school in September 1993, meaning that all cohorts starting primary school in the 1993-94 school year and afterward are treated. Children in Turkey start school in September of the year when they complete age six. In other words, the reform affected all children born in or after January 1987. However, some students may start either earlier or later than their designated year, implying imperfect compliance in the treatment status of the 1986 and 1987 cohorts.

The government invested substantially in improving the schooling infrastructure. The share of the Ministry of National Education (MONE) in the public investment budget, which was about 15% in 1996 and 1997, jumped to 37.3% in 1998 and remained at around 30% until 2000 (Kırdar et al., 2016). In urban areas, where the physical capacity was already high, MONE implemented policies to use the existing capacity more efficiently, such as introducing a double-shift system and expanding the number of classes in existing schools. In rural areas, MONE utilized two key policies: bussing children to nearby schools and constructing boarding schools.[17] As a result of these policies of the MONE, the number of students in basic education (grades 1 to 8) increased from 9 to 10.5 million from the 1997-98 school year to the 2000-01 school year—implying a 15% increase—compared to a 1% decline in the preceding 3-year interval (Kırdar et al., 2018).

The education reform resulted in a substantial increase in children's schooling. Drawing data from annual Turkish Household Labor Force Surveys from 2009 to 2017, Aydemir et al. (2022) estimate that the reform increased the fraction of individuals with a middle school or higher degree by about 17 pp among men and 21 pp among women. Using the 2008 and 2013 rounds of the TDHS, Kırdar et al. (2018) estimate that the reform increased girls' schooling by about one year. There are several reasons for the large response in completed schooling. First, prior to the increase in compulsory schooling years, the drop-out rate after 5th grade was approximately 40%. Hence, there was significant room for improvement and a significant fraction of the population was affected.[18] Second, the duration of the extension was long (3 years). Third, the policy had spillover effects on high school completion. Several studies show that the education reform increased not only the newly mandated middle school

[17]The number of students bussed to school increased from 127,683 in the 1996-97 school year to 621,986 in the 1999-2000 school year. In addition, the number of students in boarding schools at the basic education level rose from 34,465 in the 1996-97 school year to 281,609 in the 2001-2002 school year (Kırdar et al., 2016).

[18]Three years after the reform, the drop-out rate had fallen to less than 5%.

completion but also high school completion (Kırdar et al., 2016, 2018).[19]

Despite the rapid expansion of the schooling infrastructure, there is no indication of significant deterioration in quality. While the student-to-classroom ratio initially rose from 28.6 in the 1997-98 school year to 31.2 in the 1999-2000 school year, it declined back to 28.3 by the 2000-2001 school year as MONE's investment materialized. Similarly, the student-to-teacher ratio remained constant at around 30 during the first years after the policy and dropped below 28 by the 2002-03 school year (Kırdar et al., 2016). Using TIMMS 1999 and 2007 international tests for grade 8 students, Aydemir and Kirdar (2017) find no deterioration in the performance of students affected by the reform.

4 Data

We use the 2018 Turkey Demographic and Health Survey (TDHS). Unlike the earlier rounds of TDHS, the 2018 round collects detailed information about ECD based on a module developed by UNICEF.[20] This module elicits information from parents about the development of their children and about conditions of the home environment that are likely to be determinants of a child's development.

For each child aged 36–59 months, the 2018 TDHS asks the mother to report the status of her child in each of the 10 development indicators. These indicators include various measures to characterize whether the child is adequately developed in each of the following four domains: readiness to learn, literacy and numeracy, social-emotional development, and physical development. Literacy-numeracy measures among 3- and 4-year-olds are considered to be more likely to reflect social/cultural norms around early education than cognitive capacity, and physical development measures reflect severe developmental setbacks and children's health status (McCoy et al., 2016). Readiness to learn refers to child's self-regulating ability to learn (Greenberg and Abenavoli, 2017), and social-emotional development refers to the ability to control aggressive behaviors, avoid distraction, and get along with peers.[21]

[19] According to MONE statistics, the number of high school students in urban areas rose from 2.27 to 2.88 million from the 2000-01 school year to the 2003-04 school year, implying a 27% increase compared to the 10.5% increase in the preceding 3-year interval.

[20] This module has been commonly used as a part of the Multiple Indicator Cluster Surveys (MICS) and the Demographic and Health Surveys (DHS) in many developing-country contexts.

[21] Development in readiness to learn is drawn upon a child's ability in the following two tasks: 1) following simple directions on how to do something correctly, and 2) when given something to do, being able to do it independently. A child with an affirmative answer to at least one of these two tasks is considered as

In our empirical analysis, we explore whether and how mothers' exposure to the educational reform of interest affected child development in each of these four areas.

For each child aged 24-59 months, the 2018 TDHS also elicits information about learning activities. We observe whether anyone older than 15 in the household conducts the following activities with the child in the last three days preceding the survey: 1) reading books or looking at picture books, 2) telling stories, 3) singing songs, 4) taking the kid outside of the home, 5) playing with the kid, and 6) spending time with the kid naming, counting, or drawing things. We also observe whether each activity is conducted by the mother, father, or any other adult. Using this information, we create several variables to understand whether the compulsory schooling reform affects the involvement of fathers and mothers in learning activities differently.

The TDHS provides several variables about the presence of learning materials and supervision, which we analyze as potential mechanisms for ECD. We observe the number of children's books a child owns and whether the child plays with store-bought items, homemade toys, or any other objects at home. As indicators of supervision, we observe the number of days in the last week the child is left alone longer than one hour at home, the number of days left with any other child under age 10, and whether the child is attending daycare or kindergarten.

The TDHS also provides a detailed set of demographic characteristics for mothers and children, which we use as control variables in our regression analysis. As mother characteristics, we control for the birth month, birth region, type of childhood residence, mother tongue, and education of grandmothers. As for child characteristics, we use dummies for the interaction of child sex and birth order and for child age (in 6-month intervals). Lastly, the data provide information about educational attainment, use of formal childcare services, employment status, and age of mothers and their partners. We analyze the effect of the educational reform on the middle school completion status and employment in the last 12

developed in this domain. To measure development in literacy and numeracy, the survey asks whether the child can 1) identify or name at least ten letters of the alphabet, 2) read at least four simple, popular words, or 3) know the name and recognize the symbol of all numbers from 1 to 10. A child demonstrating ability in at least two of these three indicators is considered as developed in literacy-numeracy skills. The social-emotional development is measured based on three behaviors: 1) getting along well with other children, 2) not kicking, biting, or hitting other children or adults, and 3) not getting distracted easily. A child demonstrating adequate development in at least two of these three indicators is considered as developed in terms of social-emotional aspects. Finally, a child demonstrating adequate ability in at least one of the following two indicators is considered as physically developed: 1) picking up a small object with two fingers, like a stick or a rock from the ground, and 2) not being sometimes too sick to play.

months of each parent, as well as on the gaps in age and schooling between spouses.

When defining our sample, we first restrict the data to the mothers born in the eight-year window around January 1987 (the cutoff date to be eligible for the extension of compulsory schooling). Then, we employ two main samples for our empirical analysis: i) women with 24- to 59-month-old children, these women's last-born 24- to 59-month-old child, and this child's father—called sample A—and ii) women with 36- to 59-month-old children, these women's last-born 36- to 59-month-old child, and this child's father—called sample B.[22] The use of two separate samples arises from the fact that while the information on ECD outcomes is for 36–59-month-old children, the other outcomes are for 24–59-month-olds. While we restrict the child samples to the youngest child in the analyzed age group of each woman,[23] We also use samples of all children in these age groups to check the robustness of our findings. We conduct certain analyses at the mother level (such as the policy impact on education), most at the child level (such as impacts on ECD outcomes), and some at the father level (such as impacts on father outcomes).

4.1 Sample Statistics

Table 1 provides summary statistics; ECD outcomes are for sample A, and the remaining outcomes are for sample B. According to our indicators, a large fraction of children in the analyzed sample demonstrates adequate physical development (98.7%), readiness to learn (96.7%), and social-emotional development (73.9%). In contrast, only 13.7% satisfy the development criteria in literacy and numeracy, which confirms our earlier observation that the themes that constitute this ECDI element are quite advanced for 3–4-year-olds. The mean values of the development indicators that are more relevant for our identification method are those at the cutoff—precisely, the limit of the expected value of the outcomes on the left-hand side. When we calculate these values, fitting a linear regression line using data on the left-hand side of the cutoff, the predicted levels at the cutoff are 0.984 for physical development, 0.958 for readiness to learn, 0.745 for social-emotional development, and 0.128 for literacy and numeracy.

[22]Here, we assume that the mothers' partners are fathers. In the sample, 97.8% of the women are married. Among the children of these married women with a partner, we cannot reach the father line number for only 3.98%. Out of the 3.98%, the survey explicitly states that the father is not in the household for 3.43%, and this information is missing for the remaining.

[23]We prefer the specification with the restriction to one child because it is more compatible with the assumption of independent observations in cross-sectional analysis.

Mothers conduct more activities with children than fathers (on average, 3.5 vs. 1.7 out of the six activities analyzed). Mothers are also much more likely to conduct at least four activities (a measure of adequate attention). The most common types of activities are taking the kid outside of the home or playing with the kid for both parents, and the gap between mothers and fathers is relatively smaller in these activities (in favor of mothers). In contrast, mothers are at least twice as likely to do other activities with children compared to fathers.

Table 1 shows that most of the children in the sample have access to learning materials. About half have at least three books at home, the majority have a toy of all kinds, and almost the entire sample has a shop-made toy (94.2%). Also, only 8.5% of the children are subject to inadequate care (i.e., either left alone or under the supervision of another kid). The fraction of children who attend daycare centers is also low (9.2%).

5 Methodology

Our identification method exploits the month-year birth cutoff in women's exposure to the reform within a regression discontinuity design. In estimating the reduced-form impacts of the education reform, we use the following sharp RDD specification,

$$y_i = \beta_0 + \beta_1 T_i + I(T_i = 0) f(x_i) + I(T_i = 1) g(x_i) + Z_i \Gamma + u_i, \tag{1}$$

where y_i shows the outcome variable for person i. Depending on the outcome, i may refer to the mother, the father, or the child. The treatment variable, T, takes the value of one when the mother's month-year of birth is after January 1987 and zero otherwise. The indicator function, $I(.)$, is one when the statement inside the parentheses is true and zero otherwise. The functions $f(.)$ and $g(.)$ stand for the time trends in the outcome variable on the left- and right-hand side of the cutoff. The running variable, x, is the month-year of birth, which is normalized at the cutoff value. In equation (1), Z denotes the set of control variables, u stands for the error term, and β_1 shows the effect of the mother's policy exposure on the outcome variable.

In all regressions, the control variables, Z, include the mother's birth-month dummies, dummies for the mother's childhood region of residence (at the 12 NUTS-1 level regions), dummies for the mother's childhood type of location (province center, district center, sub-district or village), dummies for the mother's mother tongue (Turkish, Kurdish, Arabic, and

other), and dummies for grandmother schooling (no education, primary incomplete, primary completion, secondary complete, high school graduate, and college graduate). In addition, all regressions in which the dependent variable is defined for children also include dummies for 10 values of birth order and sex interactions (in which the birth order variable is capped above at five) and dummies for children's age in months in 6-month brackets. For variables with missing observations, we use a missing dummy variable. We use the sample weights in the regressions and cluster the standard errors at the level of the mother's month-year of birth, as suggested by Lee and Card (2008). [24] In addition, since we test several hypotheses, we calculate Romano and Wolf (2005a,b) step-down adjusted p-values robust to multiple hypothesis testing in robustness checks.

In the estimation, we use both parametric and nonparametric (local polynomial) approaches. In our parametric approach, we use several alternative bandwidths with split linear trends on each side of the cutoff, but we also check the robustness of our findings to the use of quadratic trends.[25] In particular, we start with an 8-year bandwidth on each side of the cutoff and gradually zoom in around the cutoff by narrowing the bandwidth incrementally, one year at a time. Hence, we show the estimates for five different bandwidths from 8 years to 4 years on each side. With our narrowest bandwidth, we still have 96 clusters in our data. In the nonparametric approach, we follow the optimal bandwidth selection method of Calonico et al. (2017), but we also check the robustness using the Imbens and Kalyanaraman (2012) (IK) optimal bandwidths. We view the results of our local polynomial approach only as complementary evidence because the policy effect on women's middle school completion is statistically insignificant (marginally) albeit large in magnitude in this approach.[26]

5.1 Checks of the Identification Assumption

This subsection investigates the fundamental identifying assumption in RDD that potential outcome distributions are smooth around the cutoff. Although this assumption is not

[24] Lee and Card (2008) show that in an RDD with a discrete running variable, inference can be made by defining the difference between the expected value of the outcome variable and the predicted value from a given functional form as a specification error. Since this produces a common variance component across observations for a given value of the running variable, Lee and Card (2008) suggest using clustered standard errors for inference.

[25] Gelman and Imbens (2019) suggest using low-order polynomials for trends in RDD.

[26] Lee and Lemieux (2010) argue that "[n]onparametric estimation does not represent a 'solution' to functional form issues raised by RD designs. It is, therefore, helpful to view it as a complement to—rather than a substitute for—parametric estimation."

directly testable, we conduct the tests commonly used in the literature to assess its plausibility: (i) continuity of the score density around the cutoff and (ii) absence of treatment effects on pre-treatment covariates.

First, we examine the continuity of the score density around the cutoff, which requires that households do not manipulate the running variable to be on one particular side of the cutoff. Such manipulation is unlikely in our context because the running variable (month-year of birth) is determined prior to learning about the policy. Nonetheless, we check potential manipulation more formally using the test developed by Cattaneo et al. (2018), which compares the density of observations on each side of the cutoff. The results in Online Appendix Figure A1 show that the null hypothesis of no difference in the density of treatment and control groups at the cutoff is not rejected at the actual cutoff value.[27]

Second, we check the absence of policy effects on the pre-treatment covariates. In the absence of sorting around the cutoff, we would expect no jump at the cutoff for the pre-treatment covariates. Online Appendix Table A1 gives the results for both sample A and sample B. Out of the 50 variables, the hypothesis of null policy effect fails for 8 with sample (A) and for 5 with sample (B) at the 10% statistical significance level. While the failure rate is slightly higher than the expected level with sample (A), it is at the expected level with sample (B). Overall, the estimates indicate no serious concerns about the assumption of the absence of a jump at the cutoff for the pre-treatment covariates.

6 Results

6.1 First Stage: Mothers' Schooling

We first examine the policy effect on mothers' middle school completion status. Figure 1 illustrates the change in the fraction of women with a middle school degree or higher education over the running variable for samples (A) and (B). Here, we plot the residuals of the dependent variable after controlling for the covariates. As can be seen from the figure, a significant jump exists at the cutoff for both samples. Panel (I) of Table 2 presents the corresponding estimates from the estimation of equation (1). Panel (I-A) shows that the policy increases middle school completion probability by 14 to 20 pp for the sample covering women with 24- to 59-month-old children. Similarly, in panel (I-B), in which the

[27]The p-value is 0.495 for sample A and 0.699 for sample B.

sample includes mothers with 36- to 59-month-old children, the policy increases middle school completion probability by 9 to 15 pp; however, in this panel, statistical significance exists at conventional levels for bandwidths of 6 to 8 years. Although the coefficients in panel (I-B) for 4-year and 5-year bandwidths are statistically insignificant, they are still sizable in magnitude and only somewhat smaller than those in other columns.[28]

Panel (II) of Table 2 shows the policy impact on middle school completion status for mothers whose native language is Turkish (the majority group), while panel (III) illustrates the impact for mothers whose mother has some education (rather than no education). These analyses are conducted because the policy has a greater impact on these two subpopulations. Panel (II) indicates that the policy increases the probability of middle school completion for mothers whose native language is Turkish by 19–22 pp in sample (A) and 15–17 pp in sample (B). These effects are significantly larger than those in panel (I) and are also more consistent across different bandwidths. Similarly, the policy effect is significantly higher in panel (III) than in panel (I). The policy boosts the middle school completion rate for mothers whose mother has some education by 21–25 pp in the sample (A) and 17–21 pp in the sample (B). Given that the policy effect on middle school completion is stronger for the subgroups in panels (II) and (III), we anticipate that the estimated effects on ECD will also be larger for these subgroups.

6.2 Potential Sample Selection

Our analysis is based on samples of women with children of certain ages. In particular, we use two samples: a) women with a child aged 24–59 months and b) women with a child aged 36–59 months. The education reform could change the composition of these groups of women by changing their fertility decisions. For instance, Kırdar et al. (2018) find that the reform changes the probability of ever giving birth by age 17 but not the likelihood of ever giving birth by any age after 17 (as the fertility hazard rates at ages below 17 are lower due to the policy, whereas those at ages 17–18 are higher). Hence, in this subsection, using the sample of all women in the 2018-THDS, we investigate whether the policy changes women's

[28]The fact that the policy effect on schooling with narrower bandwidths is smaller aligns with the previous literature findings. Kırdar et al. (2018) note that imperfect compliance of the two birth cohorts right around the cutoff (the 1986 and 1987 birth cohorts) due to early and late school start age than the norm. This imperfect compliance results in smaller policy effects as the bandwidth narrows because the relative importance of the two imperfectly compliant birth cohorts rises in small bandwidths.

likelihood of being included in our samples. Table 3 shows the results of our potential sample selection investigation for the full sample and the two subsamples presented in Table 2 above. For each sample, we check whether a woman who is exposed to the compulsory schooling reform is more or less likely to be included in our sample (i.e., having a child aged 24–59 months for sample (A) and a child aged 36–59 months for sample (B)) among all women aged 15–49 in TDHS.

As shown in Table 3, the effect of the policy on being included in either sample (A) or sample (B) is positive across all bandwidths for the full sample and the two subsamples. However, none of the coefficients is statistically significant at conventional levels. Quantitatively, for the full sample, the policy increases the likelihood of being included in the sample by 2 to 4 pp (across the bandwidths) for the full sample of mothers with a child aged 36–59 months and by 3 to 5 pp for the full sample of mothers with a child aged 24–59 months. The percentage-point increases for the 8-year bandwidth correspond to about a 10% increase in the selection probability into the sample (for both samples of mothers that differ by child age). Therefore, a shift in sample composition due to the policy is unlikely to be a major concern for our analysis.

6.3 Main Results: Early Child Development Outcomes

This section presents the core results of our analysis: the reduced-form estimates for child development indicators. Figure 2 shows the RDD graphs, including the 95% confidence intervals, for ECD indicators. The graphs are given for the full sample in the first column, for the sample of women whose mother tongue is Turkish (called subsample 1 in Figure 2) in the second column, and for the sample of women whose mothers have at least some education (called subsample 2 in Figure 2) in the third column. Panel (A) suggests a jump at the cutoff for the readiness to learn variable in the full sample. The jumps at the cutoff for the readiness to learn variable in panels (B) and (C), based on the subsamples, are larger. We also observe some increase at the cutoff point for social-emotional development for all samples (in panels (J) to (L)). However, no increases are visible for literacy/numeracy or physical development in Figure 2 for any sample.

Table 4 displays the reduced-form RDD estimates for ECD indicators using the full sample. We use alternative estimators and sets of control variables in Table 4. The estimators include OLS and probit. Probit estimation is possible only with the set of baseline controls

(child characteristics in Table 1).[29] Therefore, we conduct OLS estimation (i) with the set of baseline controls and (ii) with full controls (child and mother characteristics in Table 1). OLS estimation with the full set of controls is our main method throughout the paper. However, here, we provide alternative methods for our core findings regarding the ECD outcomes.

Panel (A) of Table 4 shows the results for readiness to learn. The OLS estimates with full controls reveal a positive impact of mothers' policy exposure on children's readiness to learn. The reform increases this measure by 4.1 to 7.4 pp for bandwidths ranging from 4 to 8 years on each side of the cutoff. This effect is statistically significant for bandwidths ranging from 5 to 8 years but marginally statistically insignificant with the 4-year bandwidth. The coefficients are lower for narrower bandwidths, aligning with the patterns of the policy impact on schooling shown in Table 2. Similarly, the OLS estimates with baseline controls indicate an improvement in children's readiness to learn. Quantitatively, the impact is greater and more consistent across the alternative bandwidths (6.3 to 7.7 pp). Furthermore, the estimates are more precise, with statistical significance observed for all bandwidths, at the 5% level for two of the five and at the 10% level for the other two narrower bandwidths.

The probit estimates in Table 4 also confirm the positive impact of mothers' policy exposure on children's readiness to learn. The estimated effects are statistically significant for all bandwidths except the narrowest one, for which the coefficient magnitude is consistent with estimates from other bandwidths. In fact, the coefficient estimates from probit estimation remain highly consistent across different bandwidths. Mothers' exposure to the policy boosts their children's readiness to learn by 4 to 5 pp. This magnitude of the estimated effect is reasonable given that the predicted value of the readiness-to-learn outcome at the left-hand side of the cutoff is 0.958, as discussed in the Descriptive Statistics subsection. The mean value of the readiness-to-learn outcome is above 0.995 even in some middle-income countries, such as Serbia, Moldova, and Bosnia and Herzegovina (McCoy et al., 2016).

The estimates in Table 4 show no evidence of an effect on children's literacy and numeracy or their physical development using any estimation method. Similarly, the reduced-form impacts on social-emotional development are also statistically insignificant at conventional levels. However, their coefficients are positive and large in magnitude, especially with the OLS estimation.[30]

[29]Since probit regression needs variability in the dependent variable for each value of the control variable, we must use a simpler specification.

[30]When examining the impact heterogeneity for all five development outcomes by the child's gender, we

Table 5 presents the reduced-form RDD results (based on OLS estimation with full controls) regarding ECD indicators for the two subsamples discussed earlier. The motivation for this analysis is the stronger estimated effect on mothers' education for these subsamples than the full sample, as shown in Table 2. Panel (I) of Table 5 displays the estimates for the sample of mothers who speak Turkish as their mother tongue. As shown in panel (I-A), there is strong statistical evidence indicating a positive impact of mothers' policy exposure on their children's readiness to learn. The statistical significance level is at 5% for all bandwidths, except for one which shows significance at the 10% level. Furthermore, the coefficients remain consistent across different bandwidths, with mothers' policy exposure increasing children's readiness to learn by 7.2 to 9.1 pp. On the other hand, there is no evidence of an effect on other child development outcomes for this subsample, similar to the results observed in the full sample. The stronger effects on children's readiness to learn estimated for the sample of mothers whose mother tongue is Turkish are consistent with a stronger effect on their educational attainment.

Panel (II) of Table 5 demonstrates the estimated effects on child development outcomes for mothers whose mothers have at least some education. As shown in panel (II-A), mothers' policy exposure raises their children's readiness to learn by 6.9 to 9.6 pp, which is higher than the effect for the full sample in Table 4. The estimates' precision level is similar to that in Table 4 for the full sample despite a smaller sample size. Additionally, panel (II) of Table 5 indicates no evidence of an impact on other child development outcomes.

In essence, in families for which we observe a more substantial policy impact on mothers' middle school completion (where the mother's mother tongue is Turkish and the grandmother has some education), we find a larger effect of mothers' policy exposure on their children's readiness to learn. The readiness to learn effect is also more precisely estimated in the sample of children whose mothers' mother tongue is Turkish.

6.4 Understanding the Mechanisms

This section explores the potential mechanisms of the positive impact of mothers' exposure to the reform on their children's readiness to learn. Here, we discuss the results for the full sample. The results for the sample of mothers whose mother tongue is Turkish and the sample of mothers whose mothers have at least some education, provided in Online

find no significant differences between boys and girls.

Appendix B, are highly similar.

Women's exposure to the policy and the resulting increase in school attainment could impact child development in two ways. First, it could alter the human capital production inputs—including parental involvement with children, learning materials at home, and the type of child supervision (the person(s) in charge). In addition, the household environment could change due to the impact of increased women's education on mothers' and fathers' characteristics and marital matching. Second, even when no change occurs in these production inputs, women's schooling attainment could increase the productivity of the existing inputs. Here, we essentially examine the first mechanism.

6.4.1 Mechanisms via Parental Support for Learning (Parental Involvement)

First, we examine how mothers' exposure to the reform changes parental support for learning. We specifically investigate how parental activities such as reading books, telling stories, singing songs, taking children outside the home, playing with children, spending time with children, and engaging in naming, counting, or drawing activities with children—all of which promote learning, school readiness, and social-emotional development—are affected by the mother's exposure to the reform. This analysis is based on the sample of mothers with 24- to 59-month-old children, as the questions on parental support are directed to this sample. Although the results on ECD indicators in the previous section are drawn from the sample of mothers with 36- to 59-month-old children, we choose the larger sample primarily because parental involvement with children aged 24 to 35 months could influence their development levels in later months. Moreover, it provides us with a larger sample size.[31]

Figure 3 provides the RDD graphs for several indicators of parental involvement. Overall, jumps at the cutoff are more prominent for indicators of father involvement. For instance, a clear jump is visible in panel (B) for fathers' total number of activities. The point where the fitted line on the left-hand side of the cutoff lies at the cutoff is not covered by the 95% confidence interval on the right-hand side of the cutoff. The jumps at the cutoff for fathers engaging in four or more activities in panel (G) and in any activity in panel (I) are also large.

Table 6 shows the reduced-form estimates for outcomes regarding parental involvement

[31]The results for the sample of 36- to 59-month-old children are similar. However, the coefficients are generally less precisely estimated, which is expected given the smaller sample size.

with children. The number of total activities that fathers engage in with their children increases. The statistical evidence for this finding holds for all bandwidths. Quantitatively, fathers engage in 0.5 to 0.6 more activities due to mothers' exposure to the compulsory schooling reform. This change amounts to about a 30% increase, given that fathers, on average, engage in 1.77 activities. The effect on the number of activities mothers engage in is also positive and notable in magnitude (0.17 to 0.34); however, it is statistically insignificant at conventional levels. This might be expected as mothers already engage in, on average, twice as many activities as fathers do. In addition, the number of activities that either parent engages in also increases. This means that the additional activities that fathers engage in are not all the same activities that mothers already do with their children. (In this case, the number of activities that either parent is involved with their child would not change.) This finding also implies that the diversity of parents' activities with their children rises. This increase in the number of activities could come at the expense of the other family members being involved with children. However, Table 6 shows that the number of activities that all adults in the households engage in rises as much or more than that for parents. Moreover, the coefficients for non-parent adult household members are positive but statistically insignificant. These two facts indicate that the increase in the number of activities parents do with their children does not come at the expense of other family members' involvement with the child.

An indicator frequently used to measure adequate early stimulation and responsive care is engaging in "four or more activities" with children. Table 6 shows that while mothers' probability of involvement in four or more activities with the child increases, this is not statistically significant at conventional levels. In contrast, there is evidence of an increase in fathers' likelihood of engaging in four or more activities with their children. In addition, Table 6 also shows that the policy increases fathers' engagement with their children at the extensive margin. The probability that fathers are engaged in any activity with their children increases by 12 to 15 pp. Since the mean value of this variable is about 66 percent, the increase amounts to about a 20% increase.

In order to better understand fathers' and mothers' involvement with their children, we next examine the reduced-form effects on mothers' and fathers' involvement in six separate activities with children: reading books, telling stories, singing songs, taking children out, playing with children, and counting and drawing with children. Figure 4 illustrates the RDD

graphs for these activities. We observe jumps at the cutoff for several activities, particularly for those conducted by fathers. These include mothers reading books, fathers reading books, fathers taking the child out, fathers playing with the child, and mothers playing with the child. The jump in the probability of fathers playing with their children is particularly visible. As can be seen from the estimates in Table 7, the policy increases the probability of mothers reading books to their children by 9 to 14.5 pp. (Statistical significance at conventional levels exists for 2 of the 5 bandwidths; the coefficients with the other 3 bandwidths are marginally statistically insignificant.) Similarly, 2 of the 5 bandwidths provide evidence that the policy raises the probability that mothers play with their children.[32]

The effects on fathers' involvement in these activities are, on average, stronger. However, this is not the case for reading books. Although the effect on fathers reading books is positive and large in magnitude, particularly with narrow bandwidths, it is not as large as the effect for mothers reading books and is not statistically significant. In contrast, there is strong evidence that fathers are more likely to take their children outside the home and play with them. Quantitatively, fathers are 11.6 to 15.9 pp more likely to take children outside the home and 12.5 to 19.4 pp more likely to play with their children. At the end of this section, we explore the potential reasons for the larger increase in fathers' involvement with children than mothers' by examining the changes in fathers' characteristics and differences between mothers and fathers in education and age.

6.4.2 Mechanisms via Learning Materials and Inadequate Supervision

This section explores whether changes in learning materials and supervision play a role in the estimated positive impact on readiness to learn. First, we examine the RDD graphs given in Figure 5. The first row of the figure on outcomes about the existence of books suggests an increase. The jump at the cutoff in Panel (C) plot about the existence of any books is particularly visible. In addition, panel (G) suggests a drop at the cutoff for inadequate supervision.

Table 7 shows that the reduced-form impacts regarding whether there are three or more books, ten or more books, and any books at home are positive across all bandwidths and large. However, the impacts on three or more books and ten or more books are statistically

[32]For the other 3 bandwidths, however, the coefficients are markedly smaller but not small in absolute magnitude.

insignificant. In contrast, the estimated positive impact on having any books in the house is statistically significant for 7-year and 8-year bandwidths and large in magnitude across all specifications—as suggested by the RDD graph in panel (C) of Figure 5. In essence, there is suggestive evidence that women's exposure to the reform increases the presence of books in the household.

We also examine the impact on the presence of toys in the house, which might help children's thinking, learning, and social interaction (Trawick-Smith et al., 2011). Table 8 shows that no evidence exists of an effect of women's reform exposure on the presence of homemade toys or toys from a shop or toys as house objects. Finally, Table 7 illustrates the impact on inadequate supervision of children. Inadequate supervision comprises leaving children alone or under the supervision of other young children, as this raises the probability of accidents, neglect, and abuse. The results indicate no evidence of an effect on inadequate supervision.

6.4.3 Mechanisms via Father Schooling, Mother and Father Employment, Formal Day-Care Use, and Mother-Father Gaps in Schooling and Age

The schooling reform increases mothers' schooling, which promotes their children's early learning and school readiness. However, women's exposure to the schooling reform could affect children's outcomes also via changes in their husbands' characteristics. In the context of intimate partner violence, Akyol and Kırdar (2022) find that the same schooling reform's effects on intimate partner violence outcomes in Turkey are partially due to changes in partner characteristics resulting from the reform. Hence, we also investigate several outcomes related to fathers' and marital match characteristics. In addition, prior studies on the impact of the 1997 reform have shown that the labor market outcomes of exposed cohorts are affected (Aydemir and Kirdar, 2017). Moreover, an increase in employment could increase childcare use, which is known to influence ECD (Havnes and Mogstad, 2011; Akgunduz and Plantenga, 2018; Felfe and Lalive, 2018).[33] Therefore, we also examine how parental labor market outcomes and formal childcare use change.

Figure 6 presents the RDD graphs for the father's middle school completion status, the mother's and father's employment status in the last 12 months, the child's enrollment in

[33]The literature on the effects of childcare on child development suggests that whether the effects are positive or negative is context-specific, and the quality of childcare and the parents' socioeconomic background matter. See van Huizen and Plantenga (2018) for a review and discussion of the literature.

formal daycare, the age gap between parents, and the probability that the mother has an education level at least as high as that of the father. Panel (A) of Figure 6 suggests a jump at the cutoff in the probability of the father completing at least middle school. Panels (B) and (C) show no visible jumps in the employment status of either the mother or the father. In contrast, panel (E) suggests a drop in the parental age gap, and panel (F) shows a jump in the probability of the mother having an education level as high as or higher than the father's.

The RDD estimates in Table 9 show that the husbands of women exposed to the policy are, on average, 4.6 to 7.5 pp more likely to have at least a middle school degree than the husbands of women not exposed to the policy; however, this is not statistically significant at conventional levels. We also examine the effects of the mother's policy exposure on the mother's and father's employment status within the last year because such effects would mean that parents have less (or more) potential time to spend with their children. However, Table 9 shows no evidence of effects on mother or father employment. In addition, we explore whether mothers' exposure to the policy changes the likelihood of using formal daycare for their children. As shown in Table 9, no evidence of such an effect exists, consistent with the lack of evidence for parental employment outcomes.

The results in Table 9 imply that we cannot rule out an impact on the father's schooling attainment. Although the statistical evidence is weak, the magnitude of the estimated impact is large. This impact is important because an increase in the father's schooling would be consistent with our findings regarding the rise in the father's support for the child's learning, as shown in Tables 6 and 7. However, even without more schooling for fathers, we might expect a more educated mother to facilitate other household members' contribution to children's care and education. For instance, a more educated mother might be more likely to remind her husband to spend more time with their children. Such a change would be more likely to occur if women's bargaining power in the household increases. Hence, we also examine the reduced-form impacts on the schooling and age gaps between mothers and fathers in Table 9.

The last two rows of Table 9 show the reduced-form impact on two key determinants of women's bargaining power: the age gap and the schooling gap with their partners. The impact on the age gap is negative and large for all bandwidths but the narrowest one, indicating a narrowing of the age gap by 0.2 to 0.3 years. However, this impact is not

statistically significant at conventional levels. We also explore the impact on the probability of mothers having educational attainment as high as or higher than their husbands. In fact, the impact on this incidence is positive and statistically significant; the probability of the mother having an education level at least as high as the father increases by 10 to 20 pp. These findings suggest that the education reform increases women's bargaining power vis-à-vis their husbands, which would increase women's ability to facilitate their husbands' involvement with their children.[34]

6.5 Robustness Checks

6.5.1 Nonparametric Results

Here, we provide our nonparametric RDD results based on the CCFT and IK optimal bandwidths for all outcomes of interest. We provide nonparametric results only as a robustness check primarily because our first-stage estimates of the policy impact on mothers' middle school completion status with the state-of-art CCFT approach are statistically insignificant (marginally with sample A) albeit large in magnitude. The lack of statistical significance primarily results from the fact that the CCFT approach typically chooses narrow bandwidths, and the optimal bandwidths for the middle school completion outcome are particularly narrow.[35]

Panel (A) of Table 10 presents the reduced-form nonparametric estimates for potential sample selection and our key outcomes of middle school completion and readiness to learn. The estimates about the policy effect on sample selection are positive but statistically insignificant, as are the parametric estimates. At the same time, the nonparametric coefficients are smaller in magnitude than the parametric estimates. Second, we examine the policy impact on mothers' middle school attainment. The policy increases middle schooling completion by 11 pp for sample A and 9.7 pp for sample B. The bandwidths on the left and right-hand sides are 34 and 33 months with sample A and 33 and 43 months with sample B.

[34]Wages are not observed in TDHS. But, using labor force surveys, Aydemir and Kirdar (2017) find significant effects of the compulsory school reform on women's wages but much smaller effects on men's wages in Turkey. This finding is also consistent with the increased bargaining power of women as women's share of household income may increase due to the reform.

[35]Narrow bandwidths could be particularly problematic in our setting due to the imperfect compliance among the 1986 and 1987 birth cohorts (two year-of-birth cohorts immediately around the cutoff). Imperfect compliance of these birth cohorts generates much curvature around the cutoff; hence, it is likely to force a narrow bandwidth in the tradeoff between bias and precision.

It is perhaps unsurprising that the precision is low with these small samples. Nonetheless, the policy impacts on middle school completion with both samples are large in magnitude, albeit not as large as the parametric estimates in Table 2. Finally, panel (A) of Table 10 shows that mothers' exposure to the reform increases children's readiness to learn by 4.7 pp. This magnitude is similar to the parametric estimates with narrow bandwidths in Table 4. Also, as in parametric estimates, the coefficient for social-emotional development is positive and large but statistically insignificant.

Investigating the mechanisms regarding parental involvement with children in Table 10, we see that nonparametric estimates indicate evidence of a positive effect of mothers' reform exposure on the number of total father activities, fathers engaging in four or more activities, fathers engaging in any activity, fathers taking out their children, and mothers reading books to their children—consistent with our parametric estimates. As in parametric estimates, the nonparametric estimates about the number of total mother activities and the incidence of mothers playing with their children are positive and large but statistically insignificant. However, unlike the parametric estimates, the nonparametric estimates reveal statistical evidence of a positive impact on mothers' engagement in any activity, fathers reading books, fathers counting, drawing, and naming with their children, and the availability of homemade toys. Moreover, unlike the parametric estimates, the effect on the availability of ten or more books at home is positive and large but marginally statistically insignificant. Overall, the nonparametric estimates with the CCFT optimal bandwidths regarding parental involvement with children are highly consistent with the parametric estimates.

The nonparametric RDD estimates with the IK optimal bandwidths are provided in Online Appendix Table A2. Overall, the results are highly similar to those with the CCFT optimal bandwidths and the parametric approach. Compared to the CCFT optimal bandwidths, the effect on middle school completion is more precisely estimated, and the effect on readiness to learn is less precisely estimated, although statistical evidence also emerges for readiness to learn with 1.5 optimal bandwidths. In terms of mechanisms, statistically significant positive impacts exist for the total number of father activities, total adult activities, father conducting four or more activities, and father conducting any activity. Regarding specific activities, evidence of a positive effect exists for the father reading books, the father taking out the child, the mother reading books, and the mother playing with the child. In addition, there is evidence of a rise in the probability of the mother having an education

level that is at least as high as the father.

6.5.2 Multiple Hypotheses Testing

Since we test a family of hypotheses regarding the ECD indicators (Table 4), as well as the potential mechanisms (Tables 6–9), we calculate Romano and Wolf (2005a,b) step-down adjusted p-values robust to multiple hypothesis testing. Table 11 shows the results of this multiple hypothesis testing for the full sample, using a bandwidth of 96 months on each side of the cutoff.[36] The statistical evidence for readiness to learn remains at the 5% level. Regarding the mechanisms, the statistical evidence for total father activities and father engaging in any activity remains at the 5% level, and the evidence for father engaging in 4 or more activities is significant at the 10% level. Regarding detailed parental activities, statistical evidence exists for the father taking his child out (at the 10% level) and for the father playing with his child (at the 1% level). At the same time, the evidence for the rise in the incidence of any books and the increase in the probability of women having an education level equal to or higher than their husbands becomes marginally statistically insignificant (p-value is 0.112 for each case).

6.5.3 Alternative Samples

Some mothers have more than one child aged 24 to 59 months in sample A or 36 to 59 months in sample B. In order to have one child for each mother, we restrict the sample to the last-born children of each mother in our main analysis. Here, we remove this restriction and allow the sample to include siblings. The reduced-form parametric RDD estimates with this larger sample are provided in Online Appendix Table A3 (for 8-year bandwidths on each cutoff side). Overall, the results are highly consistent with those in the main tables. The reduced-form impact on readiness to learn is smaller (4.5 pp compared to 7.4 pp in Table 3) but remains statistically significant at the 10% level. The evidence for the rise in parental involvement with children remains; the estimated coefficients for the total number of activities of mothers, fathers, and both parents are as large as those in Table 6. Moreover, the effects for fathers and both parents are statistically significant. The statistical evidence for the rise in the incidence of specific activities conducted by fathers and mothers exists for

[36] We use the Stata rwolf2 command written by Clarke et al. (2020).

fewer activities. Similarly, the statistical evidence on the impact of the existence of books at home is weaker.

6.5.4 Alternative Specifications

Our parametric RDD analysis started with 8-year bandwidths on each side of the cutoff and gradually zoomed in around the cutoff incrementally by one year at each step until we had 4-year bandwidths on each side. This analysis used linear polynomials on each side of the cutoff. In this robustness check, we replicate our main results using quadratic trends in Online Appendix Tables C1 to C5. Here, we use bandwidths ranging from 10 years on each side to 6 years, as wider bandwidths are apt with higher-order polynomials for trends. Overall, the results are quite robust. First, evidence of a positive policy impact on women's middle school completion remains, although the precision with the smaller sample (B) is lower. The magnitude of the impact on readiness to learn is similar but overall less precisely estimated. Statistical evidence at the 5 percent level exists only for the two of the five widest bandwidths. In contrast, statistical evidence persists regarding the changes in parental involvement (such as the total number of activities the father engages in and whether or not the father engages in any activity), regardless of the bandwidth. So does the evidence suggesting a rise in women's bargaining power, such as the woman having an education level that is at least as high as her husband.

7 Conclusions

This paper examines the intergenerational effects of the 1997 compulsory schooling reform in Turkey—which affected a large group of students and led to a substantial increase in their education level—on the ECD outcomes of their 24- to 59-month-old children. In addition, it explores the potential mechanisms through which the reform affects ECD.

The reform significantly increased mothers' schooling attainment and improved their children's readiness to learn. We also estimate a large positive impact on children's social-emotional development; however, this is statistically insignificant at conventional levels. We find no evidence of an effect on children's literacy-numeracy or physical development, which is presumably expected because the literacy-numeracy index includes measures quite advanced for 3–4-year-olds (and measures that are different from those in other tests with the

same purpose), as evidenced by the very low mean level of literacy-numeracy in the data. In contrast, the physical development index includes one item whose absence indicates severe developmental setbacks, while the other item measures health status rather than developmental abilities.

In addition, we find that in subpopulations with a stronger impact of the compulsory schooling policy on mothers' middle school completion, the improvement in children's readiness to learn is larger and more precisely estimated. We examine the potential mechanisms using the unique feature of our data that provides detailed information on parental activities with children and a rich set of family environment characteristics during early childhood. The results show that parents, particularly fathers, spend more time with their children, and the variety of activities parents engage with their children rises.

Our findings highlight the increasing paternal involvement with children in response to being married to more educated women as a potential mechanism to improve ECD. The higher paternal time investment may be driven by the increased bargaining power of women or a selection effect where more educated mothers match with fathers who are more prone to making such investments. In fact, exploring father outcomes, we find evidence of a reduction in the schooling gap between partners and suggestive evidence of a reduction in the age gap, implying an increase in women's bargaining power. We also find suggestive evidence of a rise in fathers' schooling consistent with assortative mating.

Our findings suggest that increased parental investment in children and enhanced maternal agency are mechanisms of the positive impact of the compulsory education reform on ECD. These mechanisms align with the findings of RCTs on the effects of programs involving home visits and parent training on ECD, as documented in various studies (for example, see Araujo et al. (2021); Attanasio et al. (2022), Carneiro et al. (2019), Justino et al. (2023), Hernández-Agramonte et al. (2024)). Despite the common focus on mothers in both intervention programs aimed at bolstering ECD and research on the intergenerational impact of parental education, our findings suggest a pronounced advancement for fathers. This is particularly significant since fathers generally have less interaction with their children. Our study reveals a noteworthy increase in both the extent and variety of paternal involvement with children, which is novel in the literature.

Our analysis of mechanisms at play indicates a significant rise in parental inputs in children's human capital production function—which aligns with the increase in children's

readiness to learn. However, it is important to note that even when parental inputs do not increase, we could still expect an improvement in child development indicators because the quality of existing inputs could increase due to the higher educational attainment of parents. An important and difficult mechanism to test is a potential increase in parenting skills and, therefore, the quality of time spent with children. This remains as another potential mechanism driving children's development.

We must also acknowledge that other mechanisms could also contribute to our findings regarding children's readiness to learn. Parental education could impact child outcomes through increased parental investment before the child reaches 24 months of age and enhanced child health. A study by Usta (2020) supports this, showing that mothers affected by the same reform increased their prenatal and postnatal investment and spent more time with their children both at home and outside. However, Akar et al. (2021) do not find any significant effect of the education reform on the amount of time mothers with children aged 0 to 2 years spent reading, playing, or talking with them. Several papers have previously analyzed the relationship between mothers' education and children's health outcomes over the life cycle, but the evidence for a causal effect is mixed (Desai and Alva, 1998; Chen and Li, 2009; Arendt et al., 2021). Similarly, research in the Turkish context has yielded mixed results regarding the influence of maternal education on child health following the 1997 compulsory schooling reform (Güneş, 2015; Baltagi et al., 2019).

Readiness to learn and social-emotional development reflect general skills and behaviors strongly related to later life outcomes. Our results show that maternal education affects the formation of these pre-academic skills among children as young as 36 to 59 months. Thus, intergenerational correlation in skills and education outcomes begins with divergence in skill formation in the early years. Our findings highlight the role of parental involvement in explaining this divergence and point to policies such as counseling and at-home interventions to improve parenting skills as a potentially efficient way to improve skill formation and reduce skill gaps.

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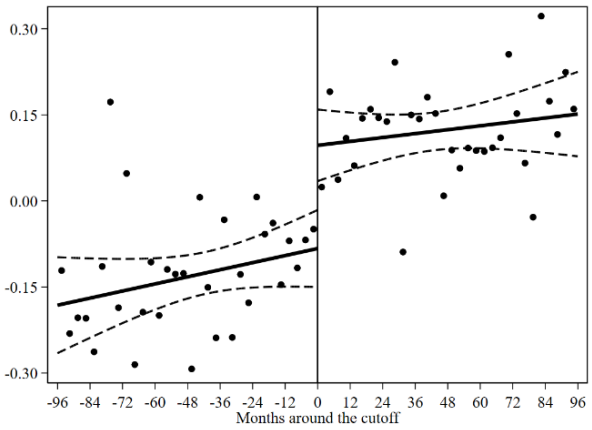
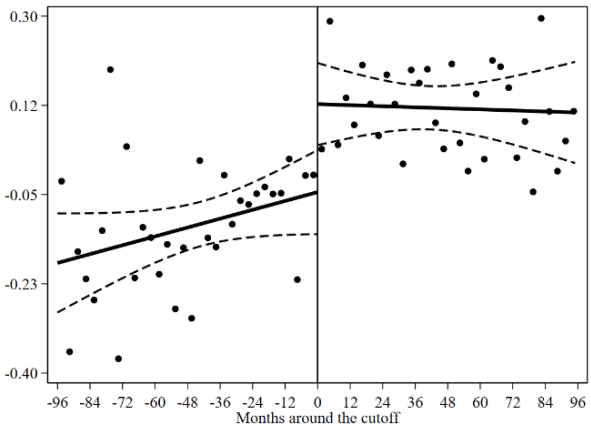
Figures

Figure 1. RDD Graphs for Middle School Completion

(a) Sample A: Women with 24- to 59-month-old children



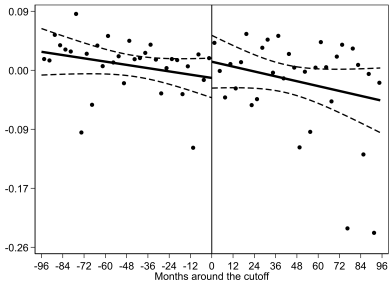
(b) Sample B: Women with 36- to 59-month-old children



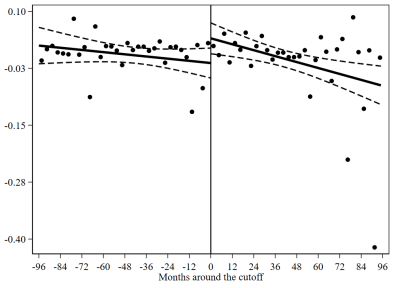
Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes women with at least one child aged 24-59 months in panel (A) and women with at least one child aged 36-59 months in panel (B). The cutoff point is January 1987, and the running variable is the month-year of birth. The plots present the residuals of women's middle school completion status after regressing it on the following set of control variables: birth-month dummies, dummies for whether the childhood region was a village, district center, or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, and dummies for the grandmother's schooling levels. Linear time trends are fit on either side of the cutoff.

Figure 2. RDD Graphs for Early Child Development Indicators

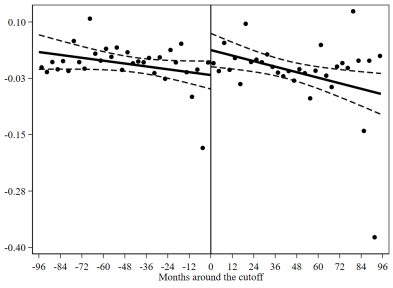
(a) Readiness to Learn, Full Sample



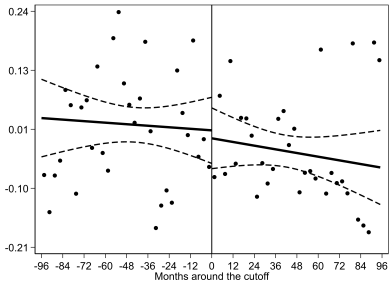
(b) Readiness to Learn, Subsample 1



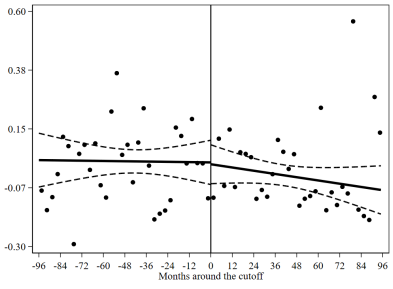
(c) Readiness to Learn, Subsample 2



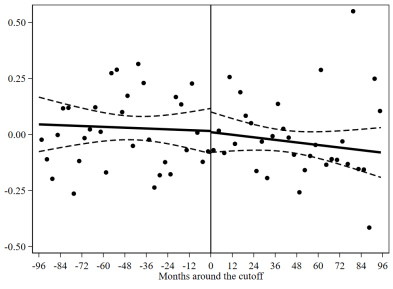
(d) Literacy, Full Sample



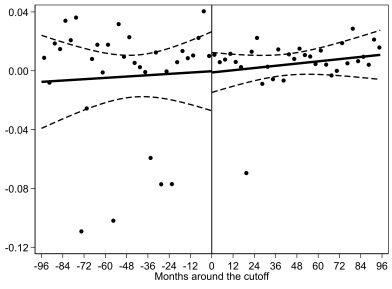
(e) Literacy Subsample 1



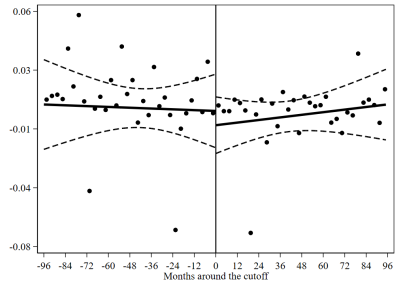
(f) Literacy, Subsample 2



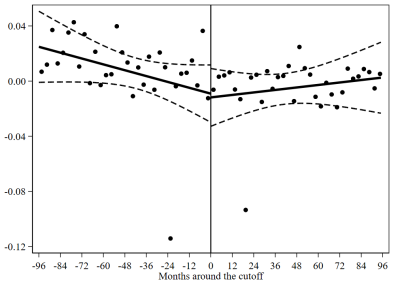
(g) Physical Dev., Full Sample



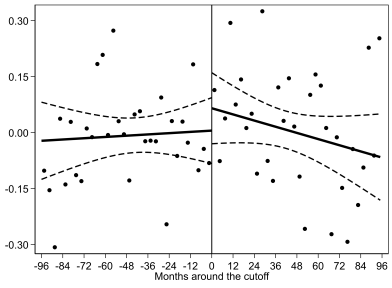
(h) Physical Dev. Subsample 1



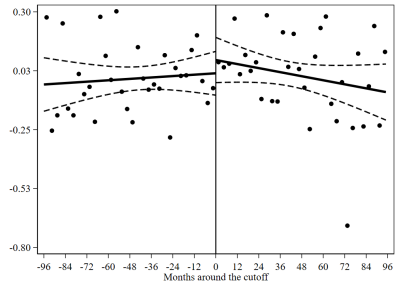
(i) Physical Dev., Subsample 2



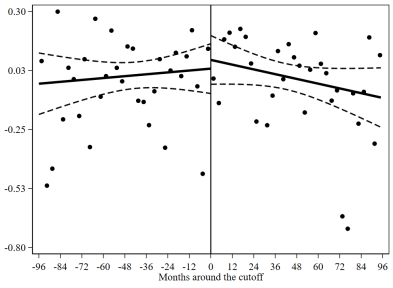
(j) Social-Emotional Dev., Full Sample



(k) Social-Emotional Dev., Subsample 1

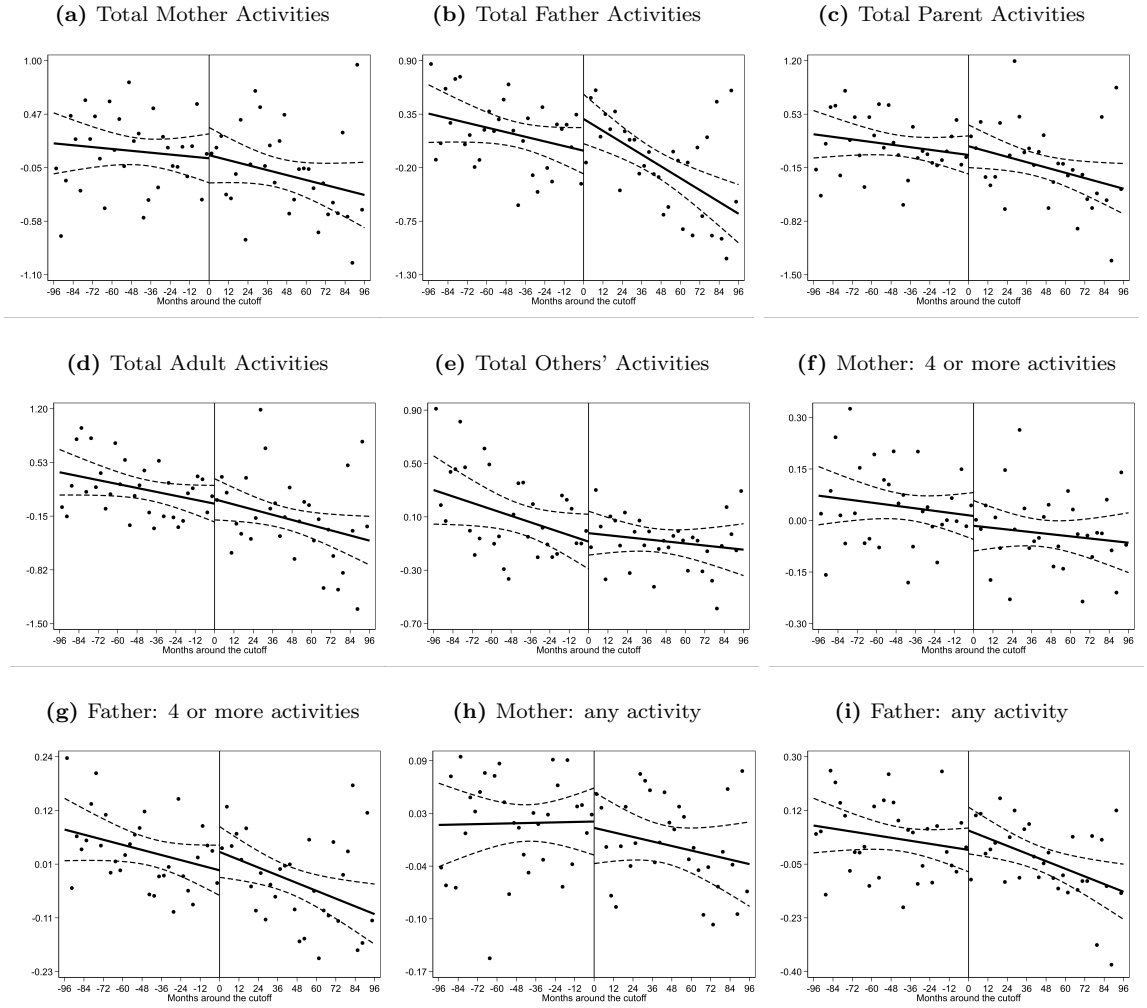


(l) Social-Emotional Dev., Subsample 2



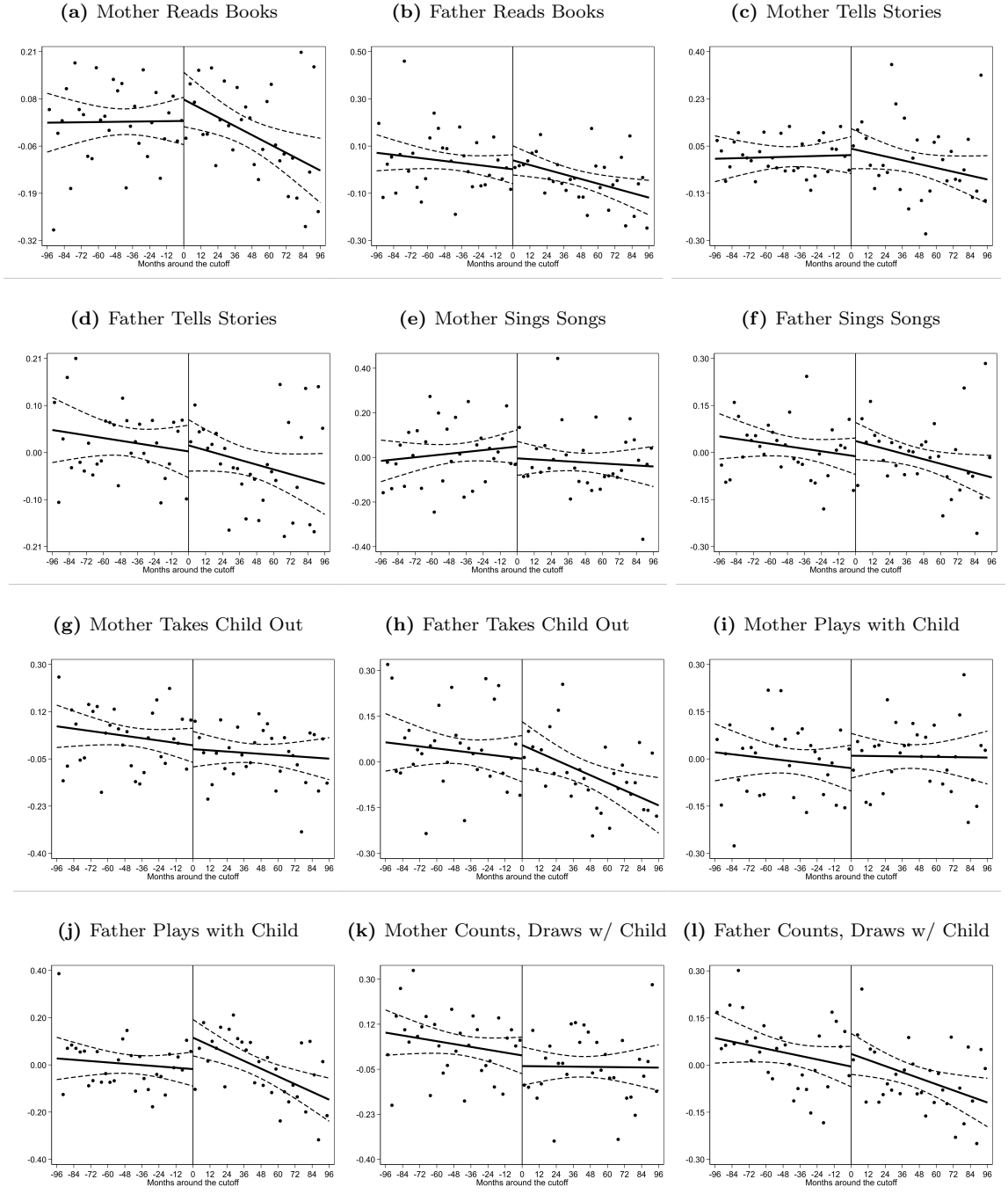
Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 36-59 months. Only the last born is taken if a woman has more than one child in this age group. Subsample 1 indicates the sample of children whose mother's native language is Turkish, and subsample 2 is the sample of children whose mother's mother has at least some education. The cutoff point is January 1987, and the running variable is the month-year of birth. The plots present the residuals of the specified variables after regressing it on the following set of control variables: birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. Linear time trends are fit on either side of the cutoff, and 95% confidence intervals are displayed.

Figure 3. RDD Graphs for Parental Involvement with Children



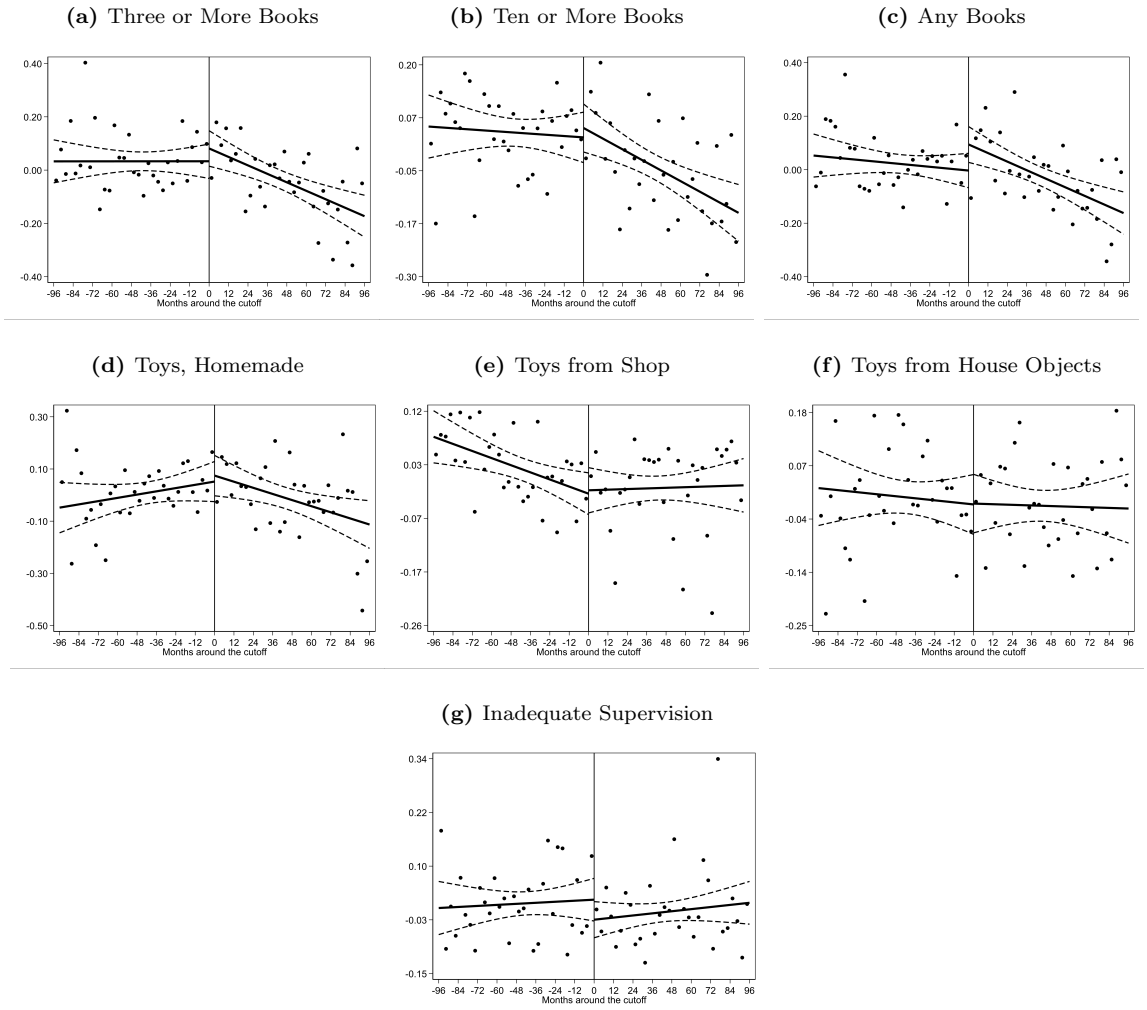
Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 24-59 months. Only the last born is taken if a woman has more than one child in this age group. The cutoff point is January 1987, and the running variable is the month-year of birth. The plots the residuals of the specified variables after regressing it on the following set of control variables: birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. Linear time trends are fit on either side of the cutoff, and 95% confidence intervals are displayed.

Figure 4. RDD Graphs for Specific Parental Activities with Children



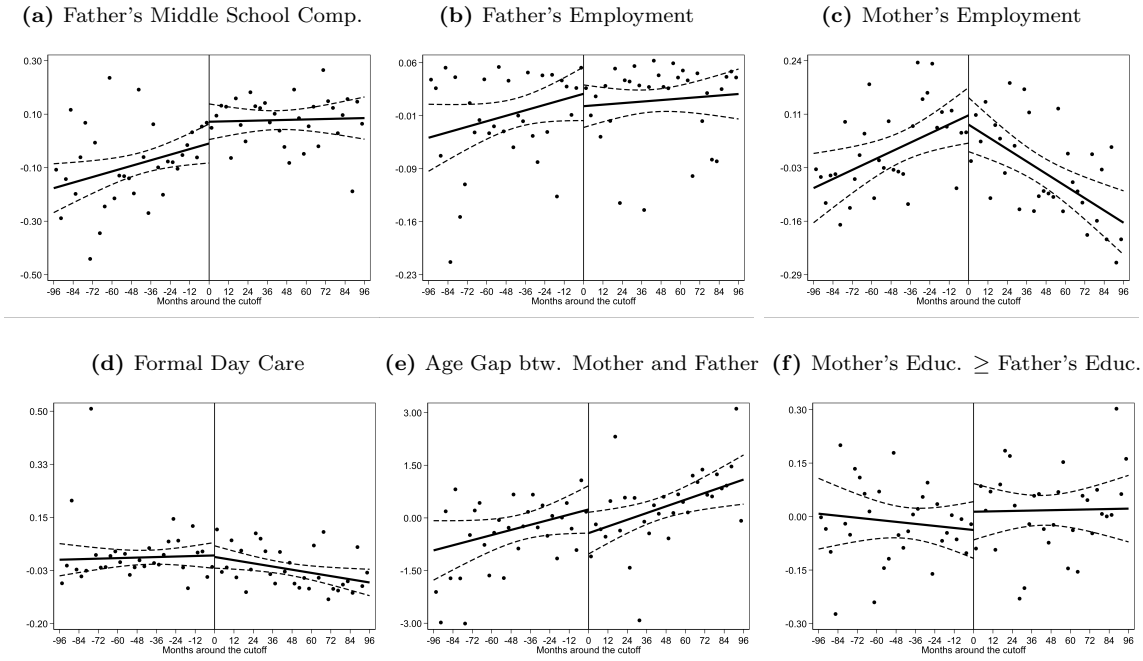
Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 24-59 months. Only the last born is taken if a woman has more than one child in this age group. The cutoff point is January 1987, and the running variable is the month-year of birth. The plots the residuals of the specified variables after regressing them on the following set of control variables: birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. Linear time trends are fit on either side of the cutoff, and 95% confidence intervals are displayed.

Figure 5. RDD Graphs for Learning Materials and Inadequate Supervision



Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 24-59 months. Only the last born is taken if a woman has more than one child in this age group. The cutoff point is January 1987, and the running variable is the month-year of birth. The plots the residuals of the specified variables after regressing them on the following set of control variables: birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. Linear time trends are fit on either side of the cutoff, and 95% confidence intervals are displayed.

Figure 6. RDD Graphs for Father Schooling, Mother and Father Employment, Formal Day-Care Use, and Mother-Father Gaps in Schooling and Age



Notes: The data come from the 2018 Turkish Demographic Health Survey. Employment refers to employment in the last 12 months. The sample includes women who have at least one child aged 24-59 months. Only the last born is taken if a woman has more than one child in this age group. The cutoff point is January 1987, and the running variable is the month-year of birth. The plots the residuals of the specified variables after regressing them on the following set of control variables: birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. Linear time trends are fit on either side of the cutoff, and 95% confidence intervals are displayed.

Tables

Table 1. Descriptive Statistics

Child Development Indicators (36-59 months)	Mean	*The number of activities conducted by*	Mean	S.D.
Readiness to learn	0.967	Mother	3.583	(1.901)
Literacy and numeracy	0.137	Father	1.770	(1.820)
Social-emotional development	0.739	Parents	3.824	(1.908)
Physical development	0.987	Adults in the household	4.268	(1.732)
Ownership of Learning Materials and Supervision		*Activity Status of Parents*	*Mother*	*Father*
Three or more books	0.474		Mean	Mean
Ten or more books	0.264	Any activity conducted	0.926	0.656
Any book	0.596	At least four activities conducted	0.551	0.188
Home-made toys	0.652	Reading books or looking at picture books	0.457	0.232
Toys from shop	0.942	Telling stories	0.434	0.198
Toys from house objects	0.843	Singing songs	0.637	0.176
Inadequate care	0.085	Taking the kid outside of home	0.825	0.465
Day care	0.092	Playing with the kid	0.689	0.456
		Naming, counting, or drawing things	0.605	0.275
Parental Education and Employment				
Mother graduated from middle school	0.595	*Differences in Spousal Characteristics*	Mean	S.D.
Mother employed in the last 12 months	0.273	Age gap (father - mother)	4.267	(3.854)
Father graduated from middle school	0.688	Mother has same or more education	0.554	(0.497)
Father employed in the last 12 months	0.968			

Notes: The 2018 Turkey Demographic and Health Survey. The sample includes the children of mothers born in the eight-year window around January 1987 (the cutoff date to be eligible for the extension of compulsory schooling). Also, for each mother, our sample is restricted to her youngest child in the specific age group. The statistics display the mean of the specified outcome, while the standard deviations for the number of activities are reported in the parenthesis. While the statistics for early child development are for 36–59-month-old kids (N=606), the other statistics are for those aged 24–59-month-olds (N=966). The number of observations is slightly smaller for some outcomes because of missing data.

Table 2. Policy Effect on Mothers' Middle School Completion Status

	Bandwidth (years) around the cutoff				
	8	7	6	5	4
I) Full Sample					
A) Sample A (Women with 24- to 59-month-old children)					
Policy	0.190***	0.199***	0.187***	0.168**	0.139*
	[0.055]	[0.057]	[0.062]	[0.066]	[0.072]
Observations	966	901	811	693	578
B) Sample B (Women with 36- to 59-month-old children)					
Policy	0.152**	0.150**	0.133*	0.092	0.109
	[0.069]	[0.073]	[0.075]	[0.080]	[0.090]
Observations	614	576	523	436	367
II) Sample of Mothers whose Mother-Tongue is Turkish					
A) Sample A					
Policy	0.210***	0.216***	0.226***	0.220***	0.193**
	[0.062]	[0.064]	[0.068]	[0.077]	[0.086]
Observations	681	636	576	503	420
B) Sample B					
Policy	0.155*	0.162*	0.175*	0.152	0.164
	[0.086]	[0.091]	[0.093]	[0.103]	[0.117]
Observations	441	411	377	319	269
III) Sample of Mothers whose Mothers Have Some Education					
A) Sample A					
Policy	0.224***	0.245***	0.241***	0.242***	0.213**
	[0.067]	[0.070]	[0.075]	[0.083]	[0.101]
Observations	516	480	429	374	313
B) Sample B					
Policy	0.167*	0.210**	0.202**	0.178*	0.197
	[0.089]	[0.095]	[0.097]	[0.107]	[0.129]
Observations	335	312	286	245	209

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes women who have at least one child aged 24-59 months or 36-59 months, as shown in each panel. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy and split linear time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center, or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, and dummies for the grandmother's schooling levels. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Table 3. Potential Sample Selection

	Bandwidth (years) around the cutoff				
	8	7	6	5	4
I) Full Sample					
A) Selection 1 (Having at least one kid aged between 24-59 months)					
Policy	0.030	0.045	0.050	0.049	0.031
	[0.036]	[0.039]	[0.042]	[0.045]	[0.048]
No. Obs.	3,498	3,099	2,649	2,188	1,752
B) Selection 2 (Having at least one kid aged between 36-59 months)					
Policy	0.020	0.041	0.040	0.038	0.038
	[0.027]	[0.029]	[0.032]	[0.033]	[0.035]
No. Obs.	3,498	3,099	2,649	2,188	1,752
II) Sample of Mothers whose Mother-Tongue is Turkish					
A) Selection 1					
Policy	0.040	0.054	0.062	0.059	0.048
	[0.041]	[0.045]	[0.049]	[0.054]	[0.060]
No. Obs.	2,644	2,343	2,016	1,680	1,339
B) Selection 2					
Policy	0.020	0.045	0.043	0.044	0.050
	[0.031]	[0.033]	[0.036]	[0.038]	[0.042]
No. Obs.	2,644	2,343	2,016	1,680	1,339
III) Sample of Mothers whose Mothers Have Some Education					
A) Selection 1					
Policy	0.031	0.054	0.036	0.047	0.037
	[0.043]	[0.047]	[0.051]	[0.054]	[0.058]
No. Obs.	1,931	1,714	1,490	1,252	988
B) Selection 2					
Policy	0.022	0.054	0.028	0.046	0.051
	[0.036]	[0.039]	[0.043]	[0.046]	[0.049]
No. Obs.	1,931	1,714	1,490	1,252	988

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes all 15- to 49-year-old women in the TDHS. The dependent variable takes the value of one if the woman has at least one child aged 24-59 and zero otherwise in panel (A)s. Similarly, the dependent variable in panel (B)s is one if the woman has at least one child aged 36-59 and zero otherwise. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy and split linear time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center, or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, and dummies for the grandmother's schooling levels. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Table 4. Reduced-Form Effects on Early Child Development Indicators, Full Sample

	Bandwidth (years) around the cutoff				
	8	7	6	5	4
A) Readiness to Learn					
OLS, Full Controls	0.074**	0.057*	0.058*	0.051*	0.041
	[0.031]	[0.029]	[0.033]	[0.031]	[0.031]
OLS, Baseline Controls	0.077**	0.066**	0.067*	0.074**	0.063*
	[0.033]	[0.033]	[0.036]	[0.036]	[0.036]
Probit Marginal Effects, Baseline Controls	0.041*	0.040*	0.040*	0.051*	0.045
	[0.022]	[0.022]	[0.024]	[0.030]	[0.034]
Observations	606	568	515	429	362
B) Literacy and Numeracy					
OLS, Full Controls	-0.049	-0.016	0.003	0.012	-0.047
	[0.066]	[0.068]	[0.075]	[0.085]	[0.093]
OLS, Baseline Controls	-0.033	-0.007	0.024	0.058	0.002
	[0.066]	[0.067]	[0.073]	[0.085]	[0.091]
Probit Marginal Effects, Baseline Controls	-0.051	-0.021	-0.007	0.029	-0.022
	[0.058]	[0.062]	[0.058]	[0.067]	[0.072]
Observations	594	558	506	421	354
C) Physical Development					
OLS, Full Controls	-0.003	-0.002	-0.016	-0.012	-0.024
	[0.020]	[0.019]	[0.020]	[0.020]	[0.023]
OLS, Baseline Controls	0.000	-0.001	-0.005	0.004	-0.002
	[0.028]	[0.028]	[0.029]	[0.028]	[0.024]
Probit Marginal Effects, Baseline Controls	-0.001	-0.002	-0.003	0.004	0.002
	[0.017]	[0.016]	[0.015]	[0.010]	[0.007]
Observations	604	566	513	428	362
D) Social-emotional Development					
OLS, Full Controls	0.034	0.074	0.067	0.088	0.077
	[0.088]	[0.091]	[0.094]	[0.101]	[0.115]
OLS, Baseline Controls	0.013	0.051	0.049	0.077	0.065
	[0.087]	[0.090]	[0.093]	[0.099]	[0.111]
Probit Marginal Effects, Baseline Controls	0.014	0.047	0.037	0.041	0.029
	[0.085]	[0.089]	[0.097]	[0.108]	[0.116]
Observations	590	553	501	416	349

Notes: Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 36-59 months. Only the last born is taken if a woman has more than one child in this age group. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. Panel (A) provides OLS estimates and panel (B) gives probit estimates. The specifications in both panels include the mother's policy exposure dummy and split linear time trends on either side of the cutoff, where the running variable is the month of birth. In addition, panel (A) specifications also account for birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. The probit estimates in panel (B) only use child characteristics—dummies for birth order and gender interaction and dummies for six-month intervals of child's age, not mothers' characteristics. In the estimation of marginal effects for the mother's policy exposure variable in panel (B), all other variables are set at their mean values. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Table 5. Reduced-Form Effects on Early Child Development Indicators, Subsamples

	Bandwidth (years) around the cutoff				
	8	7	6	5	4
I) Sample of Mothers whose Mother-Tongue is Turkish					
A) Readiness to Learn					
Mother's Policy Exposure	0.091**	0.077**	0.085**	0.072*	0.078**
	[0.035]	[0.034]	[0.038]	[0.037]	[0.038]
Observations	437	407	373	316	267
B) Literacy and Numeracy					
Mother's Policy Exposure	-0.069	-0.037	-0.020	-0.040	-0.103
	[0.088]	[0.090]	[0.102]	[0.113]	[0.126]
Observations	429	401	367	311	261
C) Physical Development					
Mother's Policy Exposure	-0.022	-0.020	-0.029	-0.028	-0.040
	[0.021]	[0.021]	[0.025]	[0.024]	[0.029]
Observations	436	406	372	316	267
D) Social-emotional Development					
Mother's Policy Exposure	0.036	0.059	0.038	0.024	0.025
	[0.098]	[0.102]	[0.105]	[0.114]	[0.121]
Observations	427	398	365	309	260
II) Sample of Mothers whose Mothers Have Some Education					
A) Readiness to Learn					
Mother's Policy Exposure	0.089**	0.069*	0.096*	0.089	0.088
	[0.044]	[0.041]	[0.049]	[0.058]	[0.062]
No Obs.	332	309	283	242	207
B) Literacy and Numeracy					
Mother's Policy Exposure	-0.046	-0.005	0.037	0.086	-0.008
	[0.097]	[0.102]	[0.116]	[0.128]	[0.147]
No Obs.	327	305	279	238	202
C) Physical Development					
Mother's Policy Exposure	-0.021	-0.017	-0.019	-0.039	-0.052
	[0.022]	[0.022]	[0.025]	[0.028]	[0.032]
No Obs.	331	308	282	242	207
D) Social-emotional Development					
Mother's Policy Exposure	0.064	0.086	0.039	0.074	0.074
	[0.118]	[0.119]	[0.125]	[0.140]	[0.157]
No Obs.	321	299	274	234	199

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 36-59 months. Only the last born is taken if a woman has more than one child in this age group. The estimates in each column come from a separate OLS regression using the sample defined according to the bandwidths specified in the column headings. In the regressions, the mother's middle school completion status is instrumented by the mother's policy exposure status. The regressions include split linear time trends on either side of the cutoff where the running variable is the month-year of birth. The specification also includes birth-month dummies, dummies for whether the childhood region was a village, district center, or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Table 6. Reduced-Form Effects on Parental Activities with Children, Full Sample

	Bandwidth (years) around the cutoff				
	8	*7*	*6*	*5*	*4*
	Total Mother Activities				
Mother's Policy Exposure	0.170	0.277	0.336	0.323	0.171
	[0.202]	[0.209]	[0.230]	[0.240]	[0.271]
No Obs.	966	901	811	693	578
	Total Father Activities				
Mother's Policy Exposure	0.566***	0.607***	0.633***	0.581**	0.495*
	[0.202]	[0.220]	[0.228]	[0.244]	[0.259]
No Obs.	966	901	811	693	578
	Total Parent Activities				
Mother's Policy Exposure	0.263	0.389*	0.418*	0.377*	0.149
	[0.190]	[0.199]	[0.220]	[0.224]	[0.254]
No Obs.	966	901	811	693	578
	Total Adult Activities				
Mother's Policy Exposure	0.291	0.445**	0.441**	0.394*	0.310
	[0.192]	[0.195]	[0.215]	[0.221]	[0.248]
No Obs.	966	901	811	693	578
	Total Others' Activities				
Mother's Policy Exposure	0.177	0.216	0.153	0.150	0.297
	[0.134]	[0.140]	[0.151]	[0.161]	[0.183]
No Obs.	966	901	811	693	578
	Mother: 4 or more activities				
Mother's Policy Exposure	-0.026	-0.004	0.019	0.038	0.017
	[0.060]	[0.065]	[0.071]	[0.072]	[0.081]
No Obs.	951	887	799	683	569
	Father: 4 or more activities				
Mother's Policy Exposure	0.088**	0.081*	0.092*	0.065	0.024
	[0.043]	[0.045]	[0.047]	[0.050]	[0.051]
No Obs.	951	887	799	683	569
	Mother: Any activity				
Mother's Policy Exposure	0.024	0.041	0.037	0.025	0.023
	[0.034]	[0.034]	[0.036]	[0.037]	[0.041]
No Obs.	966	901	811	693	578
	Father: Any activity				
Mother's Policy Exposure	0.125**	0.151***	0.136**	0.123**	0.141**
	[0.052]	[0.054]	[0.055]	[0.061]	[0.061]
No Obs.	966	901	811	693	578

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 24-59 months. Only the last born is taken if a woman has more than one child in this age group. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy (mother's policy exposure status) and split linear time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Table 7. Reduced-Form Effects on Specific Parental Activities with Children, Full Sample

	Bandwidth (years) around the cutoff					*Bandwidth (years) around the cutoff*				
	8	*7*	*6*	*5*	*4*	*8*	*7*	*6*	*5*	*4*
	Father Reads Books					**Mother Reads Books**				
Mother's Policy Exposure	0.035	0.025	0.050	0.080	0.070	0.089	0.101*	0.102	0.145**	0.133
	[0.056]	[0.059]	[0.063]	[0.067]	[0.073]	[0.058]	[0.060]	[0.063]	[0.071]	[0.080]
No Obs.	951	887	799	683	569	951	887	799	683	569
	Father Tells Stories					**Mother Tells Stories**				
Mother's Policy Exposure	0.016	0.015	0.011	0.021	0.005	0.023	0.019	0.036	0.064	0.047
	[0.056]	[0.060]	[0.066]	[0.072]	[0.078]	[0.061]	[0.066]	[0.069]	[0.075]	[0.081]
No Obs.	951	887	799	683	569	951	887	799	683	569
	Father Sings Songs					**Mother Sings Songs**				
Mother's Policy Exposure	0.083	0.089	0.101*	0.072	0.073	-0.038	-0.020	-0.003	-0.031	-0.045
	[0.055]	[0.058]	[0.061]	[0.066]	[0.070]	[0.062]	[0.066]	[0.072]	[0.073]	[0.076]
No Obs.	951	887	799	683	569	951	887	799	683	569
	Father Takes Child Out					**Mother Takes Child Out**				
Mother's Policy Exposure	0.124**	0.116*	0.140**	0.147**	0.159**	0.002	-0.001	-0.010	-0.024	-0.022
	[0.059]	[0.062]	[0.064]	[0.071]	[0.072]	[0.052]	[0.050]	[0.056]	[0.060]	[0.063]
No Obs.	951	887	799	683	569	951	887	799	683	569
	Father Plays with Child					**Mother Plays with Child**				
Mother's Policy Exposure	0.194***	0.192***	0.186***	0.151**	0.125*	0.054	0.039	0.100*	0.115*	0.061
	[0.053]	[0.055]	[0.059]	[0.065]	[0.068]	[0.056]	[0.059]	[0.057]	[0.060]	[0.066]
No Obs.	951	887	799	683	569	951	887	799	683	569
	Father Counts, Draws with Child					**Mother Counts, Draws with Child**				
Mother's Policy Exposure	0.076	0.093	0.069	0.048	-0.004	-0.015	0.020	0.003	-0.051	-0.102
	[0.061]	[0.066]	[0.068]	[0.075]	[0.081]	[0.065]	[0.067]	[0.074]	[0.080]	[0.086]
No Obs.	951	887	799	683	569	951	887	799	683	569

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 24-59 months. Only the last born is taken if a woman has more than one child in this age group.The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy (mother's policy exposure status) and split linear time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Table 8. Reduced-Form Effects on Learning Materials and Inadequate Supervision, Full Sample

	Bandwidth (years) around the cutoff				
	8	***7***	***6***	***5***	***4***
	Three or More Books				
Mother's Policy Exposure	0.056	0.064	0.060	0.050	0.024
	[0.048]	[0.051]	[0.053]	[0.057]	[0.061]
No. Obs.	965	901	811	693	578
	Ten or More Books				
Mother's Policy Exposure	0.054	0.055	0.044	0.037	0.019
	[0.050]	[0.052]	[0.056]	[0.061]	[0.068]
No. Obs.	965	901	811	693	578
	Any Books				
Mother's Policy Exposure	0.098*	0.111**	0.076	0.065	0.047
	[0.051]	[0.053]	[0.056]	[0.061]	[0.067]
No. Obs.	965	901	811	693	578
	Toys, Homemade				
Mother's Policy Exposure	-0.002	-0.031	-0.002	0.021	0.080
	[0.057]	[0.060]	[0.063]	[0.065]	[0.069]
No. Obs.	954	892	803	685	573
	Toys from Shop				
Mother's Policy Exposure	0.009	0.020	0.006	-0.000	-0.021
	[0.027]	[0.029]	[0.032]	[0.036]	[0.039]
No. Obs.	965	901	811	693	578
	Toys from House Objects				
Mother's Policy Exposure	-0.024	-0.015	0.006	0.033	0.051
	[0.053]	[0.055]	[0.057]	[0.064]	[0.073]
No. Obs.	965	901	811	693	578
	Inadequate Supervision				
Mother's Policy Exposure	0.016	0.008	0.016	0.031	0.032
	[0.036]	[0.039]	[0.043]	[0.049]	[0.052]
No. Obs.	966	901	811	693	578

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 24-59 months. Only the last born is taken if a woman has more than one child in this age group. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy and split linear time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Table 9. Reduced-Form Effects on Father Schooling, Mother and Father Employment, Formal Day-Care Use, and Mother-Father Gaps in Schooling and Age (Full Sample)

	Bandwidth (years) around the cutoff				
	8	*7*	*6*	*5*	*4*
	Partner's Middle School Completion				
Mother's Policy Exposure	0.072	0.061	0.046	0.075	0.062
	[0.059]	[0.062]	[0.067]	[0.072]	[0.078]
No. Obs.	946	882	796	680	567
	Partner's Employment in the Last 12 Months				
Mother's Policy Exposure	-0.014	-0.022	-0.029	-0.039	-0.039
	[0.022]	[0.022]	[0.024]	[0.026]	[0.026]
No. Obs.	942	880	791	677	563
	Mother's Employment in the Last 12 Months				
Mother's Policy Exposure	0.001	0.004	-0.012	-0.008	-0.001
	[0.059]	[0.062]	[0.064]	[0.070]	[0.079]
No. Obs.	966	901	811	693	578
	Formal Day Care				
Mother's Policy Exposure	-0.016	-0.017	-0.031	-0.018	-0.025
	[0.041]	[0.043]	[0.045]	[0.047]	[0.052]
No. Obs.	964	900	810	692	577
	Age Gap between Mother and Father				
Mother's Policy Exposure	-0.361	-0.219	-0.192	-0.234	0.111
	[0.486]	[0.495]	[0.514]	[0.515]	[0.525]
No. Obs.	943	881	792	679	565
	Mother's Education $\geq$ Father's Education				
Mother's Policy Exposure	0.114*	0.142**	0.159**	0.146*	0.172**
	[0.064]	[0.067]	[0.069]	[0.078]	[0.079]
No. Obs.	963	898	808	691	577

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes women who have at least one child aged 24-59 months. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy and split linear time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center, or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth and dummies for the grandmother's schooling levels. For the Formal Day Care variable, dummies for birth order and gender interaction and dummies for six-month intervals of the child's age are also included. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Table 10. Nonparametric Reduced Form Estimates, CCFT Optimal Bandwidths (Full Sample)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Robust Estimate	S.E.	No Obs.	BW loc. poly. left of cutoff	BW loc. poly. right of cutoff	BW bias left of cutoff	BW bias left of cutoff
A) Main Outcomes							
Selection 1 (has 24-59-month-old child)	0.026	(0.047)	7,260	85.73	78.75	116.8	128.8
Selection 2 (has 36-59-month-old child)	0.026	(0.030)	7,260	57.21	55.12	90.11	100.2
Middle School Completion 1 (sample A)	0.110	(0.084)	1,179	34.00	33.44	62.39	50.44
Middle School Completion 2 (sample B)	0.097	(0.102)	750	32.96	42.64	68.16	63.24
Readiness to Learn	0.047*	(0.028)	737	41.94	25.14	70.89	35.32
Social-emotional Development	0.122	(0.104)	719	35.81	39.21	57.94	66.27
B) Parental Involvement							
Total mother activities	0.378	(0.350)	1,179	36.37	33.62	68.48	53.99
Total father activities	0.559**	(0.233)	1,179	43.94	44.64	83.48	74.46
Total parent activities	0.405	(0.325)	1,179	33.36	29.80	66.48	50.01
Total adult activities	0.391	(0.322)	1,179	28.36	36.67	53.98	61.12
Total others' activities	0.266	(0.177)	1,179	29.11	36.59	58.93	56.26
Mother four or more activities	0.032	(0.107)	1,163	37.87	40.22	72.40	68.74
Father four or more activities	0.130***	(0.049)	1,163	36.36	35.39	57.82	76.78
Mother any activity	0.137***	(0.035)	1,179	44.67	19.41	77.41	35.86
Father any activity	0.196***	(0.061)	1,179	32.07	37.25	59.96	56.13
C) Details of Parental Involvement							
Father read books	0.146**	(0.064)	1,163	40.89	34.73	72.37	55.31
Father told stories	0.007	(0.077)	1,163	47.13	51.04	78.81	84.68
Father sang songs with child	0.009	(0.064)	1,163	47.36	27.95	91.09	45.28
Father took out	0.256***	(0.069)	1,163	23.40	43.39	71.30	49.45
Father played with child	0.059	(0.069)	1,163	34.34	37.28	67.90	60.03
Father counted, drew with child	0.206**	(0.103)	1,163	29.99	26.36	56.90	47.21
Mother read books	0.246***	(0.079)	1,163	31.98	40.71	59.54	73.74
Mother told stories	0.080	(0.089)	1,163	43.75	31.06	83.37	50.47
Mother sang songs with child	-0.251***	(0.082)	1,163	28.67	35.98	63.92	63.21
Mother took out	0.056	(0.076)	1,163	37.76	26.70	67.89	42.36
Mother played with child	0.102	(0.073)	1,163	35.70	36.05	55.60	58.71
Mother counted, drew with child	-0.044	(0.123)	1,163	32.05	38.53	60.54	66.14
D) Learning Materials and Inadequate Supervision							
Three or more books	-0.028	(0.074)	1,178	28.77	30.76	61.98	51.77
Ten or more books	0.104	(0.070)	1,178	39.76	48.75	81.00	70.87
Any books	0.038	(0.073)	1,178	42.76	44.96	82.67	76.09
Homemade toys	0.187***	(0.066)	1,164	32.44	30.64	60.15	51.75
Toys from store	-0.023	(0.039)	1,177	26.04	25.68	48.28	48.45
House objects as toys	-0.050	(0.073)	1,177	33.72	26.33	41.45	55.43
Inadequate care	0.080	(0.061)	1,179	31.33	32.30	67.46	52.26
E) Father Schooling, Mother and Father Employment, Formal Daycare Use, and Mother-Father Gaps in Schooling and Age							
Father's middle school graduation	-0.012	(0.082)	1,154	42.00	42.30	90.39	70.84
Father employed (last 12 months)	-0.035*	(0.019)	1,151	35.77	23.05	39.91	71.23
Mother employed (last 12 months)	0.100	(0.084)	1,179	24.60	30.59	50.82	51.97
Formal day care	0.044	(0.058)	1,174	26.77	41.48	68.29	52.38
Age Gap between Mother and Father	0.252	(0.673)	1,152	37.06	37.17	65.05	56.85
Mother's Educ. $\geq$ Father's Educ.	0.136	(0.089)	1,175	28.87	32.24	51.23	60.27

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes women with children aged 36-59 months for the following outcomes: selection 2, middle school completion 2, and readiness to learn. For all other outcomes, the sample includes women with children aged 24-59 months. If a woman has more than one child in this age group, only the last born is taken; hence, one child corresponds to each woman. We use CCFT optimal bandwidths given in columns (5) and (6). These optimal bandwidths are calculated conditional on covariates and sampling weights. CCFT bandwidths are MSE-optimal, and the degree of local polynomials is one (two for bias correction, for which optimal bandwidths are given in columns (7) and (8)). Covariates include birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. The covariates in the optimal bandwidth selection for the mother's middle school completion, selection, father characteristics, and marriage characteristics do not include dummies for birth order and gender interaction and dummies for six-month intervals of the child's age. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Table 11. Results of Romano-Wolf Multiple Hypotheses Tests (p-values), Full Sample

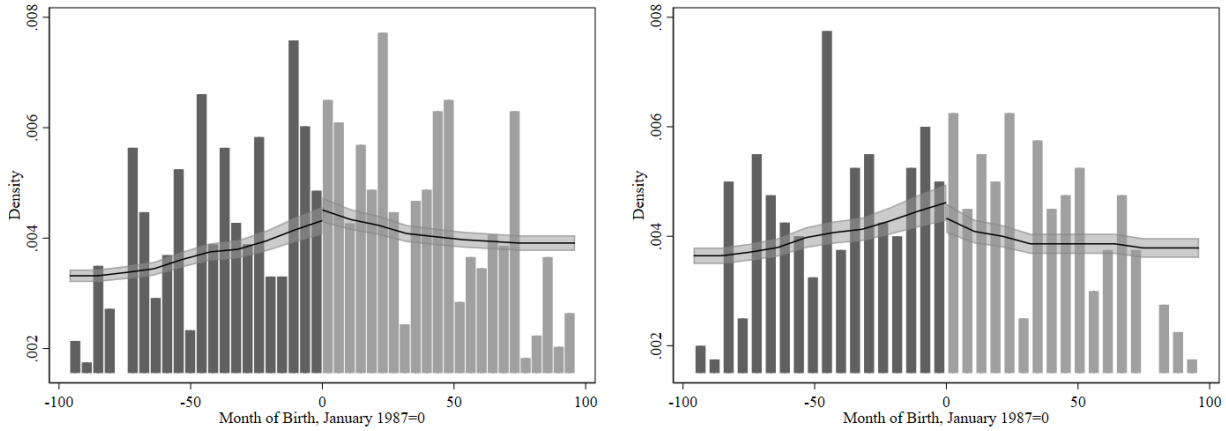
Table 4: Child Development Indicators	
Readiness to Learn	0.026
Literacy and Numeracy	0.818
Physical Development	0.908
Social-emotional Development	0.908
Table 6: Parental Involvement	
Total Mother Activities	0.541
Total Father Activities	0.010
Total Parent Activities	0.258
Total Adult Activities	0.321
Total Others' Activities	0.337
Mother: 4 or more activities	0.651
Father: 4 or more activities	0.086
Mother: Any activity	0.651
Father: Any activity	0.028
Table 7: Specific Parental Activities with Children	
Father Reads Books	0.948
Father Tells Stories	0.976
Father Sings Songs	0.367
Father Takes Child out	0.086
Father Plays with Child	0.002
Father Counts, Draws with Child	0.597
Mother Reads Books	0.367
Mother Tells Stories	0.976
Mother Sings Songs	0.948
Mother Takes Child out	0.976
Mother Plays with Child	0.792
Mother Counts, Draws with Child	0.976
Table 8: Learning Materials	
Three or More Books	0.601
Ten or More Books	0.595
Any Books	0.112
Toys, Homemade	0.964
Toys from Shop	0.950
Toys from House Objects	0.950
Inadequate Supervision	0.950
Table 9	
Partner's Middle School Completion	0.978
Partner's Employment in the Last 12 Months	0.467
Mother's Employment in the Last 12 Months	0.810
Formal Day Care	0.810
Age Gap between Mother and Father	0.810
Mother's Education Equal to or Higher than Father's Education	0.112

Notes: This table shows the p-values for Romano-Wolf multiple hypothesis testing for the results based on the full sample in the main text. The data come from the 2018 Turkish Demographic Health Survey. The samples and specifications are as defined in Table 4 and Tables 6-9. The bandwidth is 96 months on each side of the cutoff, the widest bandwidth used in the tables. The number of bootstrap replications is 500.

Online Appendix A

Figure A1. Estimated Density of the Running Variable and the Cattaneo-Jansson-Ma Tests

(a) Mothers with at least one kid aged between 24-59 months **(b)** Mothers with at least one kid aged between 36-59 months



Notes: Test results Figure A: T=0.6824, p-value: 0.4950. Test results Figure B: T=-0.3864, p-value: 0.6992

Table A1. Check of Discontinuity at the Cutoff for Other Covariates

	Bandwidth = 96			
	A) 24-59-month-olds		B) 36-59-month-olds	
	RD Effect	p-value	RD Effect	p-value
Mother Tongue: Turkish	0.020	0.743	-0.029	0.685
Mother Tongue: Kurdish	-0.005	0.928	0.011	0.875
Mother Tongue: Arabic	0.029	0.105	0.026	0.314
Mother Tongue: Other	-0.044	0.062	-0.008	0.750
Childhood Region: Village	0.107	0.075	0.090	0.276
Childhood Region: District	0.055	0.274	0.048	0.566
Childhood Region: Province	-0.151	0.012	-0.148	0.045
Istanbul Region (TR1)	-0.022	0.600	-0.018	0.753
West Marmara Region (TR2)	-0.030	0.137	-0.015	0.578
Aegean Region (TR3)	-0.045	0.422	-0.084	0.170
East Marmara Region (TR4)	-0.022	0.528	-0.003	0.951
West Anatolia Region (TR5)	0.004	0.911	-0.034	0.434
Mediterranean Region (TR6)	0.032	0.341	0.024	0.638
Central Anatolia Region (TR7)	0.024	0.471	-0.017	0.696
West Black Sea Region (TR8)	0.078	0.028	0.116	0.017
East Black Sea Region (TR9)	0.044	0.068	0.035	0.232
Northeast Anatolia Region (TRA)	0.008	0.820	0.038	0.368
Central East Anatolia Region (TRB)	-0.016	0.670	-0.024	0.642
Southeast Anatolia Region (TRC)	-0.045	0.341	-0.027	0.688
Region Missing	-0.012	0.431	0.010	0.537
Grandma Educ: No Educ	0.001	0.989	0.013	0.875
Grandma Educ: Prim. Incomplete	-0.037	0.330	-0.049	0.394
Grandma Educ: Prim. Complete	0.134	0.032	0.123	0.185
Grandma Educ: Secondary Complete	-0.035	0.168	-0.010	0.702
Grandma Educ: High School Complete	-0.037	0.178	-0.077	0.016
Grandma Educ: University	-0.031	0.269	-0.004	0.870
Grandma Educ: Missing	0.004	0.769	0.005	0.841
Mother Birth Month: January	0.096	0.340	0.152	0.184
Mother Birth Month: February	0.041	0.672	0.049	0.600
Mother Birth Month: March	0.005	0.955	0.015	0.886
Mother Birth Month: April	0.012	0.870	0.037	0.664
Mother Birth Month: May	0.038	0.670	0.007	0.945
Mother Birth Month: June	-0.019	0.834	-0.086	0.292
Mother Birth Month: July	0.004	0.951	-0.065	0.404
Mother Birth Month: August	-0.044	0.664	-0.022	0.831
Mother Birth Month: September	0.027	0.766	0.020	0.831
Mother Birth Month: October	-0.060	0.499	-0.041	0.602
Mother Birth Month: November	-0.033	0.647	-0.054	0.500
Mother Birth Month: December	-0.068	0.350	-0.013	0.833
Age of the Kid (in months)	0.419	0.773	-0.179	0.894
Boy, First Kid	-0.065	0.137	-0.067	0.242
Boy, Second Kid	-0.074	0.167	-0.065	0.407
Boy, Third Kid	0.101	0.015	0.105	0.083
Boy, Forth Kid	0.072	0.023	0.075	0.096
Boy, Fifth Kid	0.017	0.399	-0.003	0.880
Girl, First Kid	-0.019	0.713	-0.042	0.485
Girl, Second Kid	-0.028	0.563	-0.061	0.273
Girl, Third Kid	0.001	0.978	0.021	0.698
Girl, Forth Kid	-0.009	0.766	0.028	0.215
Girl, Fifth Kid	0.005	0.757	0.008	0.700

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes women who have at least one child aged 24-59 months in panel (A) and 36-59 months in panel (B). The estimates in each column come from a separate regression using the sample defined for 8-year bandwidths. In addition to the policy dummy, the regressions include split linear time trends on either side of the cutoff, where the running variable is the month-year of birth. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Table A2. Nonparametric Reduced Form Estimates, IK Optimal Bandwidths

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	BW	S.E.	0.5 BW	S.E.	1.5 BW	S.E.	No Obs.	BW
A) Main Outcomes								
Selection 1 (has 24-59-month-old child)	0.048	(0.032)	0.031	(0.041)	0.046*	(0.026)	7,260	144.1
Selection 2 (has 36-59-month-old child)	0.028	(0.023)	0.033	(0.029)	0.008	(0.019)	7,260	151.4
Middle School Completion 1 (sample A)	0.171***	(0.060)	0.111	(0.076)	0.192***	(0.053)	1,179	86.31
Middle School Completion 2 (sample B)	0.101	(0.093)	0.077	(0.153)	0.093	(0.080)	750	41.43
Readiness to Learn	0.044	(0.029)	0.060	(0.074)	0.051*	(0.028)	737	50.79
Social-emotional Development	0.061	(0.085)	0.082	(0.101)	0.048	(0.077)	719	105.6
B) Parental Involvement								
Total mother activities	0.262	(0.219)	0.313	(0.286)	0.245	(0.191)	1,179	76.48
Total father activities	0.547**	(0.234)	0.732**	(0.301)	0.591***	(0.218)	1,179	47.27
Total parent activities	0.278	(0.220)	0.377	(0.308)	0.336*	(0.191)	1,179	64.00
Total adult activities	0.392**	(0.190)	0.301	(0.238)	0.277	(0.169)	1,179	97.54
Total others' activities	0.262	(0.172)	0.165	(0.244)	0.226	(0.145)	1,179	52.84
Mother four or more activities	0.037	(0.073)	0.017	(0.094)	0.014	(0.064)	1,163	57.08
Father four or more activities	0.077*	(0.043)	0.138**	(0.063)	0.083**	(0.040)	1,163	66.52
Mother any activity	0.047	(0.040)	0.054	(0.065)	0.020	(0.035)	1,179	44.03
Father any activity	0.135**	(0.058)	0.193**	(0.089)	0.135**	(0.053)	1,179	44.60
C) Details of Parental Involvement								
Father read books	0.115*	(0.065)	0.166*	(0.096)	0.091	(0.060)	1,163	45.64
Father told stories	0.017	(0.070)	-0.002	(0.088)	0.017	(0.063)	1,163	53.37
Father sang songs with child	0.062	(0.060)	0.018	(0.077)	0.088	(0.057)	1,163	51.56
Father took out	0.156***	(0.058)	0.200***	(0.068)	0.135**	(0.054)	1,163	72.11
Father played with child	0.083	(0.085)	0.173	(0.155)	0.084	(0.064)	1,163	33.94
Father counted, drew with child	0.065	(0.067)	0.075	(0.089)	0.065	(0.055)	1,163	85.22
Mother read books	0.128**	(0.061)	0.188**	(0.075)	0.106*	(0.055)	1,163	77.38
Mother told stories	0.031	(0.066)	0.050	(0.083)	0.054	(0.057)	1,163	83.02
Mother sang songs with child	-0.139*	(0.077)	-0.262**	(0.110)	-0.056	(0.067)	1,163	41.75
Mother took out	-0.027	(0.059)	0.020	(0.078)	-0.014	(0.051)	1,163	61.15
Mother played with child	0.093*	(0.053)	0.095	(0.061)	0.078	(0.050)	1,163	78.08
Mother counted, drew with child	-0.063	(0.092)	-0.003	(0.133)	-0.040	(0.076)	1,163	48.95
D) Learning Materials and Inadequate Supervision								
Three or more books	0.043	(0.051)	0.011	(0.080)	0.053	(0.045)	1,178	75.78
Ten or more books	0.045	(0.054)	0.113	(0.069)	0.054	(0.048)	1,178	78.58
Any books	0.059	(0.059)	0.034	(0.086)	0.085*	(0.050)	1,178	78.07
Homemade toys	0.030	(0.056)	0.142**	(0.063)	0.010	(0.053)	1,164	79.31
Toys from store	0.004	(0.030)	-0.033	(0.033)	-0.002	(0.026)	1,177	98.41
House objects as toys	0.003	(0.072)	-0.050	(0.108)	0.008	(0.059)	1,177	52.82
Inadequate care	0.046	(0.052)	0.047	(0.059)	0.031	(0.047)	1,179	39.30
E) Father Schooling, Mother and Father Employment, Formal Daycare Use, and Mother-Father Gaps in Schooling and Age								
Partner's middle school graduation	0.030	(0.079)	0.036	(0.109)	0.048	(0.066)	1,154	50.18
Partner employed (last 12 months)	-0.020	(0.020)	-0.038*	(0.021)	-0.005	(0.020)	1,151	111.90
Mother employed (last 12 months)	0.005	(0.071)	0.076	(0.087)	0.003	(0.061)	1,179	59.43
Formal day care	-0.008	(0.053)	0.061	(0.078)	-0.018	(0.045)	1,174	47.76
Age Gap between Mother and Father	0.061	(0.468)	0.132	(0.706)	-0.123	(0.443)	1,152	52.46
Mother's Educ. ¿= Father's Educ.	0.159**	(0.072)	0.113	(0.091)	0.151**	(0.066)	1,175	54.06

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes women with children aged 36-59 months for the following outcomes: selection 2, middle school completion 2, and readiness to learn. For all other outcomes, the sample includes women with children aged 24-59 months. If a woman has more than one child in this age group, only the last born is taken; hence, one child corresponds to each woman. We use IK optimal bandwidths given in columns (9). Covariates and sample weights are used in the regressions. Covariates include birth-month dummies, dummies for whether the childhood region was a village, district center, or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. The covariates in optimal bandwidth selection for the mother's middle school completion, selection, father characteristics, and marriage characteristics do not include dummies for birth order and gender interaction and dummies for six-month intervals of the child's age. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Table A3. Reduced-Form Estimates without a Restriction to Last-Born Children

	Coef.	S.E.	No Obs.
A) Main Outcomes			
Readiness to Learn	0.045*	[0.023]	927
Literacy and Numeracy	-0.029	[0.053]	911
Physical Development	-0.013	[0.018]	925
Social-emotional Development	0.005	[0.073]	903
B) Parental Involvement			
Total mother activities	0.316	[0.197]	1,359
Total father activities	0.415**	[0.184]	1,359
Total parent activities	0.338*	[0.194]	1,359
Total adult activities	0.287	[0.195]	1,359
Total others' activities	0.024	[0.136]	1,359
Mother four or more activities	0.020	[0.052]	1,340
Father four or more activities	0.048	[0.040]	1,340
Mother any activity	0.034	[0.034]	1,359
Father any activity	0.070	[0.049]	1,359
C) Details of Parental Involvement			
Father read books	0.003	[0.046]	1,340
Father told stories	0.002	[0.050]	1,340
Father sang songs with child	0.078*	[0.046]	1,340
Father took out	0.070	[0.056]	1,340
Father played with child	0.151***	[0.055]	1,340
Father counted, drew with child	0.082	[0.055]	1,340
Mother read books	0.058	[0.051]	1,340
Mother told stories	0.029	[0.060]	1,340
Mother sang songs with child	0.028	[0.053]	1,340
Mother took out	0.019	[0.046]	1,340
Mother played with child	0.086	[0.054]	1,340
Mother counted, drew with child	0.063	[0.062]	1,340
D) Learning Materials and Inadequate Supervision			
Three or more books	0.032	[0.044]	1,358
Ten or more books	0.055	[0.048]	1,358
Any books	0.032	[0.049]	1,358
Homemade toys	0.031	[0.058]	1,346
Toys from store	0.004	[0.032]	1,357
House objects as toys	-0.016	[0.050]	1,357
Inadequate care	0.006	[0.029]	1,359

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 36-59 months in panel (A) and children aged 24-59 months in all other panels. The estimates in each column come from a separate regression using 8-year bandwidths around the cutoff. In addition to the policy dummy and split linear time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Online Appendix B - Mechanisms by Family Characteristics

Table B1. Reduced-Form Effects on Parental Activities with Children by Family Characteristics

	Sample (1): Mothers' Mother-Tongue is Turkish					Sample (2): Grandmother has some education				
	Bandwidth (years) on each side of the cutoff					Bandwidth (years) on each side of the cutoff				
	8	7	6	5	4	8	7	6	5	4
	Total Mother Activities									
Mother's Policy Exposure	0.140	0.263	0.349	0.302	0.178	0.249	0.264	0.347	0.306	0.164
	[0.240]	[0.252]	[0.274]	[0.298]	[0.333]	[0.284]	[0.302]	[0.323]	[0.349]	[0.375]
No Obs.	681	636	576	503	420	516	480	429	374	313
	Total Father Activities									
Mother's Policy Exposure	0.577**	0.619**	0.735**	0.636*	0.463	0.659*	0.682*	0.843**	0.777*	0.502
	[0.277]	[0.297]	[0.316]	[0.331]	[0.357]	[0.351]	[0.378]	[0.410]	[0.448]	[0.503]
No Obs.	681	636	576	503	420	516	480	429	374	313
	Total Parent Activities									
Mother's Policy Exposure	0.156	0.305	0.368	0.349	0.157	0.398	0.441	0.516*	0.529	0.315
	[0.229]	[0.242]	[0.262]	[0.278]	[0.313]	[0.262]	[0.283]	[0.310]	[0.327]	[0.370]
No Obs.	681	636	576	503	420	516	480	429	374	313
	Total Adult Activities									
Mother's Policy Exposure	0.183	0.398*	0.369	0.417	0.361	0.448*	0.551**	0.574*	0.647**	0.543
	[0.234]	[0.239]	[0.258]	[0.277]	[0.306]	[0.257]	[0.272]	[0.297]	[0.312]	[0.343]
No Obs.	681	636	576	503	420	516	480	429	374	313
	Total Others' Activities									
Mother's Policy Exposure	0.202	0.272*	0.138	0.220	0.317	0.238	0.327	0.253	0.295	0.401
	[0.153]	[0.160]	[0.174]	[0.187]	[0.213]	[0.190]	[0.205]	[0.220]	[0.230]	[0.284]
No Obs.	681	636	576	503	420	516	480	429	374	313
	Mother: 4 or more activities									
Mother's Policy Exposure	-0.033	-0.01	0.033	0.027	0.01	0.001	0.022	0.062	0.075	0.012
	[0.069]	[0.075]	[0.082]	[0.088]	[0.097]	[0.079]	[0.084]	[0.093]	[0.102]	[0.110]
No Obs.	670	626	567	495	413	508	472	422	368	308
	Father: 4 or more activities									
Mother's Policy Exposure	0.091	0.083	0.112*	0.090	0.036	0.105	0.093	0.123	0.100	0.007
	[0.057]	[0.059]	[0.063]	[0.064]	[0.071]	[0.078]	[0.081]	[0.088]	[0.094]	[0.108]
No Obs.	670	626	567	495	413	508	472	422	368	308
	Mother: Any activity									
Mother's Policy Exposure	0.029	0.058	0.050	0.042	0.044	0.020	0.023	0.016	0.009	0.049
	[0.038]	[0.037]	[0.037]	[0.042]	[0.044]	[0.038]	[0.039]	[0.037]	[0.042]	[0.046]
No Obs.	681	636	576	503	420	516	480	429	374	313
	Father: Any activity									
Mother's Policy Exposure	0.108*	0.122*	0.121*	0.123	0.108	0.114	0.131*	0.108	0.129	0.129
	[0.062]	[0.067]	[0.071]	[0.079]	[0.083]	[0.072]	[0.077]	[0.084]	[0.094]	[0.106]
No Obs.	681	636	576	503	420	516	480	429	374	313

Notes: The data come from the 2018 Turkish Demographic Health Survey. Sample (1) is restricted to 24-59-month-old children whose mothers' mother tongue is Turkish, and sample (2) is restricted to children whose grandmothers have some education (as opposed to having no education). Only the last born is taken if a woman has more than one child in this age group. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy (mother's policy exposure status) and split linear time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-month intervals of the child's age. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Table B2. Reduced-Form Effects on Learning Materials and Inadequate Supervision by Family Characteristics

	Sample (1): Mothers' Mother-Tongue is Turkish					Sample (2): Grandmother has some education				
	Bandwidth (years) on each side of the cutoff					Bandwidth (years) on each side of the cutoff				
	8	7	6	5	4	8	7	6	5	4
	Three or More Books									
Mother's Policy Exposure	0.036	0.043	0.032	0.035	0.013	0.098	0.101	0.109	0.135	0.057
	[0.063]	[0.067]	[0.068]	[0.075]	[0.076]	[0.068]	[0.073]	[0.078]	[0.085]	[0.091]
No. Obs.	680	636	576	503	420	516	480	429	374	313
	Ten or More Books									
Mother's Policy Exposure	0.063	0.066	0.06	0.063	0.037	0.072	0.076	0.067	0.078	0.024
	[0.065]	[0.068]	[0.072]	[0.076]	[0.082]	[0.072]	[0.076]	[0.082]	[0.088]	[0.103]
No. Obs.	680	636	576	503	420	516	480	429	374	313
	Any Books									
Mother's Policy Exposure	0.074	0.081	0.03	0.049	0.042	0.111*	0.110	0.069	0.098	0.051
	[0.062]	[0.064]	[0.066]	[0.072]	[0.079]	[0.066]	[0.069]	[0.071]	[0.076]	[0.081]
No. Obs.	680	636	576	503	420	516	480	429	374	313
	Toys, Homemade									
Mother's Policy Exposure	-0.065	-0.097	-0.072	-0.048	-0.002	-0.048	-0.085	-0.067	-0.021	-0.037
	[0.071]	[0.074]	[0.076]	[0.080]	[0.084]	[0.079]	[0.080]	[0.088]	[0.091]	[0.095]
No. Obs.	670	628	569	496	416	506	472	422	367	309
	Toys from Shop									
Mother's Policy Exposure	0.038	0.049*	0.03	0.044	0.034	0.025	0.036	0.022	0.021	0.021
	[0.028]	[0.030]	[0.032]	[0.037]	[0.037]	[0.029]	[0.032]	[0.034]	[0.043]	[0.042]
No. Obs.	680	636	576	503	420	516	480	429	374	313
	Toys from House Objects									
Mother's Policy Exposure	-0.03	-0.017	0.004	0.03	0.075	-0.051	-0.041	0.009	0.021	0.119
	[0.057]	[0.058]	[0.061]	[0.070]	[0.076]	[0.064]	[0.064]	[0.074]	[0.088]	[0.089]
No. Obs.	680	636	576	503	420	516	480	429	374	313
	Inadequate Supervision									
Mother's Policy Exposure	0.02	0.011	0.009	0.028	0.032	-0.002	0.007	0.012	0.038	0.026
	[0.037]	[0.037]	[0.043]	[0.052]	[0.055]	[0.039]	[0.041]	[0.049]	[0.059]	[0.070]
No. Obs.	681	636	576	503	420	516	480	429	374	313

Notes: The data come from the 2018 Turkish Demographic Health Survey. Sample (1) is restricted to 24-59-month-old children whose mothers' mother tongue is Turkish, and sample (2) is restricted to children whose grandmothers have some education (as opposed to having no education). Only the last born is taken if a woman has more than one child in this age group. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy and split linear time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction, and dummies for six-month intervals of the child's age. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Table B3. Reduced-Form Effects on Father Schooling, Mother and Father Employment, Formal Day-Care Use, and Mother-Father Gaps in Schooling and Age by Family Characteristics

	Sample (1): Mothers' Mother-Tongue is Turkish					Sample (2): Grandmother has some education				
	Bandwidth (years) on each side of the cutoff					Bandwidth (years) on each side of the cutoff				
	8	7	6	5	4	8	7	6	5	4
	Partner's Middle School Completion									
Mother's Policy Exposure	0.048	0.037	0.036	0.042	0.041	0.054	0.051	0.083	0.126	0.123
	[0.066]	[0.070]	[0.076]	[0.081]	[0.089]	[0.067]	[0.071]	[0.077]	[0.079]	[0.092]
No. Obs.	679	634	575	502	419	513	477	427	372	311
	Partner's Employment in the Last 12 Months									
Mother's Policy Exposure	0.003	-0.006	-0.005	-0.018	-0.004	-0.008	-0.017	-0.016	-0.031	-0.025
	[0.018]	[0.019]	[0.019]	[0.021]	[0.020]	[0.026]	[0.028]	[0.027]	[0.031]	[0.034]
No. Obs.	663	620	561	492	410	502	467	417	366	306
	Mother's Employment in the Last 12 Months									
Mother's Policy Exposure	-0.079	-0.075	-0.093	-0.090	-0.096	-0.031	-0.021	-0.053	0.002	-0.018
	[0.074]	[0.079]	[0.083]	[0.093]	[0.105]	[0.075]	[0.080]	[0.082]	[0.094]	[0.112]
No. Obs.	681	636	576	503	420	516	480	429	374	313
	Formal Day Care									
Mother's Policy Exposure	-0.019	-0.009	-0.023	-0.015	0.002	-0.018	-0.005	-0.002	-0.001	0.011
	[0.053]	[0.056]	[0.061]	[0.061]	[0.067]	[0.065]	[0.068]	[0.074]	[0.077]	[0.083]
No. Obs.	680	636	576	503	420	515	480	429	374	313
	Age Gap between Mother and Father									
Mother's Policy Exposure	-0.724	-0.755	-0.714	-0.716	-0.592	-1.107*	-0.897	-1.143*	-1.379**	-1.020
	[0.501]	[0.526]	[0.570]	[0.567]	[0.613]	[0.592]	[0.617]	[0.626]	[0.606]	[0.660]
No. Obs.	665	622	563	494	412	504	469	419	368	308
	Mother's Education Level $\geq$ Father's Education Level									
Mother's Policy Exposure	0.146**	0.174**	0.219***	0.200**	0.206**	0.109	0.123	0.105	0.101	0.106
	[0.068]	[0.071]	[0.073]	[0.080]	[0.087]	[0.078]	[0.083]	[0.084]	[0.096]	[0.111]
No. Obs.	681	636	576	503	420	515	479	428	373	312

Note: The data come from the 2018 Turkish Demographic Health Survey. Sample (1) is restricted to women who have at least one child aged 24-59 months and whose mother tongue is Turkish, and sample (2) is restricted to women who have at least one child aged 24-59 months and whose mothers have some education (as opposed to having no education). The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy and split linear time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center, or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth and dummies for the grandmother's schooling levels. For the Formal Day Care variable, dummies for birth order and gender interaction and dummies for six-month intervals of the child's age are also included. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1% level, ** at the 5% level, * at the 10% level.

Online Appendix C - Parametric Results with Quadratic Trends

Table C1. Policy Effect on Mothers' Middle School Completion Status

	Bandwidth (years) around the cutoff				
	10	9	8	7	6
I) Full Sample					
A) Sample A (Women with 24- to 59-month-old children)					
Policy	0.146*	0.194**	0.201**	0.172**	0.157*
	[0.076]	[0.076]	[0.080]	[0.082]	[0.090]
Observations	1,090	1,038	966	901	811
B) Sample B (Women with 36- to 59-month-old children)					
Policy	0.097	0.084	0.120	0.115	0.088
	[0.096]	[0.093]	[0.098]	[0.099]	[0.105]
Observations	692	660	614	576	523
II) Sample of Mothers whose mother tongue is Turkish					
A) Sample A (Women with 24- to 59-month-old children)					
Policy	0.174**	0.225***	0.248***	0.235**	0.184*
	[0.086]	[0.086]	[0.093]	[0.096]	[0.107]
Observations	776	733	681	636	576
B) Sample B (Women with 36- to 59-month-old children)					
Policy	0.118	0.126	0.200	0.215*	0.127
	[0.116]	[0.117]	[0.126]	[0.128]	[0.139]
Observations	503	476	441	411	377
III) Sample of Mothers whose Mothers have some education					
A) Sample A (Women with 24- to 59-month-old children)					
Policy	0.248***	0.237**	0.245**	0.214**	0.186
	[0.094]	[0.096]	[0.103]	[0.106]	[0.120]
Observations	572	550	516	480	429
B) Sample B (Women with 36- to 59-month-old children)					
Policy	0.176	0.156	0.198	0.162	0.071
	[0.124]	[0.128]	[0.140]	[0.141]	[0.150]
Observations	373	358	335	312	286

Notes: The data come from the 2018 Turkish Demographic Health Survey. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy and split quadratic time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1 percent level, ** at the 5 percent level, * at the 10 percent level.

Table C2. Reduced-Form Effects on Early Child Development Indicators, Full Sample

	Bandwidth (years) around the cutoff				
	10	9	8	7	6
	A) Readiness to Learn				
Mother's Policy Exposure	0.075**	0.083**	0.049	0.053	0.059
	[0.038]	[0.040]	[0.040]	[0.039]	[0.040]
Observations	682	650	606	568	515
	B) Literacy and Numeracy				
Mother's Policy Exposure	0.011	0.044	0.070	0.025	0.000
	[0.092]	[0.097]	[0.101]	[0.106]	[0.115]
Observations	670	638	594	558	506
	C) Physical Development				
Mother's Policy Exposure	-0.037	-0.012	-0.022	-0.028	-0.022
	[0.030]	[0.021]	[0.020]	[0.023]	[0.026]
Observations	680	648	604	566	513
	D) Social-emotional Development				
Mother's Policy Exposure	0.054	0.062	0.151	0.102	0.085
	[0.110]	[0.115]	[0.117]	[0.117]	[0.123]
Observations	665	634	590	553	501

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 36-59 months. If a woman has more than one child in this age group, only the last born is taken. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy and split quadratic time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1 percent level, ** at the 5 percent level, * at the 10 percent level.

Table C3. Reduced-Form Effects on Early Child Development Indicators, Subsamples

	Bandwidth (years) around the cutoff				
	10	9	8	7	6
I) Sample of Mothers whose mother tongue is Turkish					
	A) Readiness to Learn				
Mother's Policy Exposure	0.101**	0.098**	0.078	0.084	0.091
	[0.047]	[0.049]	[0.052]	[0.054]	[0.056]
Observations	498	471	437	407	373
	B) Literacy and Numeracy				
Mother's Policy Exposure	-0.073	-0.046	0.023	-0.045	-0.096
	[0.122]	[0.125]	[0.139]	[0.146]	[0.159]
Observations	490	463	429	401	367
	C) Physical Development				
Mother's Policy Exposure	-0.060*	-0.025	-0.030	-0.038	-0.032
	[0.035]	[0.023]	[0.025]	[0.029]	[0.027]
Observations	497	470	436	406	372
	D) Social-emotional Development				
Mother's Policy Exposure	0.015	0.004	0.025	0.002	-0.013
	[0.123]	[0.125]	[0.130]	[0.132]	[0.136]
Observations	487	461	427	398	365
II) Sample of Mothers whose Mothers have some education					
	A) Readiness to Learn				
Mother's Policy Exposure	0.105*	0.107*	0.084	0.104	0.088
	[0.063]	[0.061]	[0.068]	[0.074]	[0.084]
Observations	369	354	332	309	283
	B) Literacy and Numeracy				
Mother's Policy Exposure	0.047	0.016	0.127	0.086	0.049
	[0.133]	[0.137]	[0.147]	[0.159]	[0.174]
Observations	364	349	327	305	279
	C) Physical Development				
Mother's Policy Exposure	-0.059	-0.028	-0.031	-0.048	-0.054
	[0.043]	[0.028]	[0.027]	[0.034]	[0.035]
Observations	368	353	331	308	282
	D) Social-emotional Development				
Mother's Policy Exposure	0.070	0.090	0.123	0.078	0.091
	[0.148]	[0.151]	[0.160]	[0.169]	[0.190]
Observations	358	343	321	299	274

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 36-59 months. If a woman has more than one child in this age group, only the last born is taken. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy and split quadratic time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1 percent level, ** at the 5 percent level, * at the 10 percent level.

Table C4. Reduced-Form Effects on Parental Activities with Children, Full Sample

	Bandwidth (years) around the cutoff				
	10	9	8	7	6
	Total Mother Activities				
Mother's Policy Exposure	0.259	0.376	0.499*	0.345	0.283
	[0.264]	[0.281]	[0.289]	[0.313]	[0.334]
Observations	1,090	1,038	966	901	811
	Total Father Activities				
Mother's Policy Exposure	0.598**	0.611**	0.682**	0.594*	0.627*
	[0.278]	[0.268]	[0.281]	[0.303]	[0.340]
Observations	1,090	1,038	966	901	811
	Total Parent Activities				
Mother's Policy Exposure	0.324	0.426*	0.502*	0.272	0.192
	[0.239]	[0.253]	[0.266]	[0.283]	[0.304]
Observations	1,090	1,038	966	901	811
	Total Adult Activities				
Mother's Policy Exposure	0.479**	0.585**	0.592**	0.341	0.323
	[0.240]	[0.251]	[0.267]	[0.280]	[0.296]
Observations	1,090	1,038	966	901	811
	Total Others' Activities				
Mother's Policy Exposure	0.321*	0.312*	0.232	0.202	0.298
	[0.175]	[0.178]	[0.189]	[0.199]	[0.198]
Observations	1,090	1,038	966	901	811
	Mother: 4 or more activities				
Mother's Policy Exposure	-0.034	0.032	0.061	0.036	0.025
	[0.084]	[0.084]	[0.090]	[0.100]	[0.107]
Observations	1,075	1,023	951	887	799
	Father: 4 or more activities				
Mother's Policy Exposure	0.083	0.108**	0.098*	0.094	0.084
	[0.054]	[0.053]	[0.055]	[0.059]	[0.064]
Observations	1,075	1,023	951	887	799
	Mother: Any activity				
Mother's Policy Exposure	0.051	0.036	0.056	0.028	0.019
	[0.043]	[0.045]	[0.048]	[0.047]	[0.049]
Observations	1,090	1,038	966	901	811
	Father: Any activity				
Mother's Policy Exposure	0.122*	0.114*	0.158**	0.112	0.168**
	[0.066]	[0.069]	[0.070]	[0.075]	[0.078]
Observations	1,090	1,038	966	901	811

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 24-59 months. Only the last born is taken if a woman has more than one child in this age group. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy (mother's policy exposure status) and split quadratic time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1 percent level, ** at the 5 percent level, * at the 10 percent level.

Table C5. Reduced-Form Effects on Specific Parental Activities with Children, Full Sample

	Bandwidth (year) around the cutoff					Bandwidth (years) around the cutoff				
	10	9	8	7	6	10	9	8	7	6
	Father Reads Books					**Mother Reads Books**				
Mother's Policy Exposure	0.076	0.088	0.093	0.121	0.127	0.132*	0.133*	0.180**	0.181**	0.208**
	[0.067]	[0.066]	[0.072]	[0.075]	[0.080]	[0.073]	[0.078]	[0.080]	[0.088]	[0.092]
Observations	1,075	1,023	951	887	799	1,075	1,023	951	887	799
	Father Tells Stories					**Mother Tells Stories**				
Mother's Policy Exposure	0.006	0.037	0.033	0.003	0.010	0.005	0.026	0.064	0.083	0.081
	[0.079]	[0.080]	[0.090]	[0.097]	[0.108]	[0.082]	[0.087]	[0.088]	[0.094]	[0.101]
Observations	1,075	1,023	951	887	799	1,075	1,023	951	887	799
	Father Sings Songs					**Mother Sings Songs**				
Mother's Policy Exposure	0.088	0.089	0.095	0.076	0.031	-0.037	-0.038	-0.009	-0.050	-0.096
	[0.073]	[0.074]	[0.076]	[0.080]	[0.082]	[0.080]	[0.084]	[0.088]	[0.096]	[0.101]
Observations	1,075	1,023	951	887	799	1,075	1,023	951	887	799
	Father Takes Child Out					**Mother Takes Child Out**				
Mother's Policy Exposure	0.120	0.084	0.164**	0.196**	0.225***	0.004	0.007	-0.037	-0.039	-0.031
	[0.076]	[0.074]	[0.075]	[0.080]	[0.086]	[0.064]	[0.068]	[0.072]	[0.073]	[0.081]
Observations	1,075	1,023	951	887	799	1,075	1,023	951	887	799
	Father Plays with Child					**Mother Plays with Child**				
Mother's Policy Exposure	0.137*	0.117*	0.113	0.096	0.092	0.037	0.080	0.125*	0.146*	0.090
	[0.071]	[0.069]	[0.076]	[0.083]	[0.089]	[0.069]	[0.071]	[0.072]	[0.078]	[0.075]
Observations	1,075	1,023	951	887	799	1,075	1,023	951	887	799
	Father Counts, Draws with Child					**Mother Counts, Draws with Child**				
Mother's Policy Exposure	0.070	0.096	0.054	0.003	0.037	-0.048	-0.008	-0.032	-0.121	-0.125
	[0.081]	[0.085]	[0.090]	[0.096]	[0.102]	[0.085]	[0.087]	[0.095]	[0.098]	[0.106]
Observations	1,075	1,023	951	887	799	1,075	1,023	951	887	799

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 24-59 months. If a woman has more than one child in this age group, only the last born is taken. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy (mother's policy exposure status) and split quadratic time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1 percent level, ** at the 5 percent level, * at the 10 percent level.

Table C6. Reduced-Form Effects on Learning Materials and Inadequate Supervision, Full Sample

	Bandwidth (years) around the cutoff				
	10	9	8	7	6
	Three or More Books				
Mother's Policy Exposure	0.049	0.026	0.048	0.018	0.037
	[0.062]	[0.063]	[0.068]	[0.072]	[0.076]
Observations	1,089	1,037	965	901	811
	Ten or More Books				
Mother's Policy Exposure	0.033	0.021	0.033	0.011	0.026
	[0.063]	[0.067]	[0.070]	[0.076]	[0.079]
Observations	1,089	1,037	965	901	811
	Any Books				
Mother's Policy Exposure	0.063	0.062	0.063	0.023	0.066
	[0.065]	[0.070]	[0.074]	[0.077]	[0.085]
Observations	1,089	1,037	965	901	811
	Toys, Homemade				
Mother's Policy Exposure	-0.035	0.010	0.035	0.128	0.153*
	[0.074]	[0.076]	[0.081]	[0.082]	[0.087]
Observations	1,076	1,025	954	892	803
	Toys from Shop				
Mother's Policy Exposure	-0.002	0.002	-0.003	-0.023	-0.032
	[0.036]	[0.037]	[0.036]	[0.038]	[0.040]
Observations	1,088	1,036	965	901	811
	Toys from House Objects				
Mother's Policy Exposure	-0.030	-0.003	0.052	0.047	0.061
	[0.068]	[0.070]	[0.072]	[0.077]	[0.086]
Observations	1,088	1,036	965	901	811
	Inadequate Supervision				
Mother's Policy Exposure	0.037	0.039	0.036	0.065	0.076
	[0.051]	[0.055]	[0.060]	[0.066]	[0.067]
Observations	1,090	1,038	966	901	811

Notes: The data come from the 2018 Turkish Demographic Health Survey. The sample includes children aged 24-59 months. If a woman has more than one child in this age group, only the last born is taken. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy and split quadratic time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth, dummies for the grandmother's schooling levels, dummies for birth order and gender interaction and dummies for six-months interval of child's age. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1 percent level, ** at the 5 percent level, * at the 10 percent level.

Table C7. Reduced-Form Effects on Father Schooling, Mother and Father Employment, Formal Day-Care Use, and Mother-Father Gaps in Schooling and Age

	Bandwidth (years) around the cutoff				
	10	9	8	7	6
	Partner's Middle School Completion				
Mother's Policy Exposure	0.002	0.033	0.002	-0.006	0.018
	[0.078]	[0.080]	[0.083]	[0.090]	[0.097]
Observations	1,066	1,017	946	882	796
	Partner's Employment in the Last 12 Months				
Mother's Policy Exposure	-0.033	-0.043*	-0.045*	-0.045	-0.043
	[0.027]	[0.024]	[0.025]	[0.027]	[0.027]
Observations	1,063	1,011	942	880	791
	Mother's Employment in the Last 12 Months				
Mother's Policy Exposure	-0.023	-0.008	-0.018	-0.026	-0.001
	[0.076]	[0.075]	[0.080]	[0.087]	[0.089]
Observations	1,090	1,038	966	901	811
	Formal Day Care				
Mother's Policy Exposure	-0.015	-0.006	0.008	0.004	0.013
	[0.055]	[0.055]	[0.054]	[0.056]	[0.060]
Observations	1,085	1,035	964	900	810
	Age Gap between Mother and Father				
Mother's Policy Exposure	-0.119	0.133	0.407	0.323	0.383
	[0.579]	[0.593]	[0.612]	[0.637]	[0.658]
Observations	1,064	1,012	943	881	792
	Mother's Education Level $\geq$ Father's Education Level				
Mother's Policy Exposure	0.158*	0.181**	0.227**	0.202**	0.179*
	[0.083]	[0.087]	[0.090]	[0.099]	[0.103]
Observations	1,086	1,034	963	898	808

Note: The data come from the 2018 Turkish Demographic Health Survey. The sample includes women who have at least one child aged 24-59 months. The estimates in each column come from a separate regression using the sample defined according to the bandwidths specified in the column headings. In addition to the policy dummy and split quadratic time trends on either side of the cutoff where the running variable is month-year of birth, the regressions also control for birth-month dummies, dummies for whether the childhood region was a village, district center or province center, dummies for whether the mother tongue is Turkish, Kurdish, or Arabic, dummies for the NUTS-1 region of birth and dummies for the grandmother's schooling levels. For the Formal Day Care variable additional controls, dummies for birth order and gender interaction and dummies for six-months interval of child's age, are also included. The regressions are weighted using the sample weights. Standard errors are clustered at the month-year of birth level. Statistical significance *** at the 1 percent level, ** at the 5 percent level, * at the 10 percent level.