

Working Paper Series 812
(ISSN 2788-0443)

**The Effect of Longer Maternal Care
on Children's Occupation Choices**

Sofiana Sinani

CERGE-EI
Prague, January 2026

The Effect of Longer Maternal Care on Children’s Occupation Choices*

Sofiana Sinani[†]

January, 2026

Abstract

This paper investigates whether a mother’s extended provision of full-time child-care shapes her children’s preferences for occupation choices. I analyze a natural experiment in the Czech Republic that extended parental allowances by one year. This induced many mothers to remain out of the workplace and caused them to face a higher likelihood of long-term employment. This shift reinforced a more traditional, mother-as-homemaker dynamic within households. Using a regression discontinuity design, I measure their children’s later occupational preferences via their university applications. I find that boys who were exposed to the reform during early childhood were 20% less likely to apply to stereotypically feminine fields in adulthood, with no corresponding effect observed for girls. I examine potential channels and find no evidence that the reform altered children’s academic ability (proxied by high school track) or their preferences for research- and mathematics-oriented tracks. The results are therefore consistent with the interpretation that longer exposure to a stay-at-home mother, which may accentuate traditional gender roles, can reduce boys openness to nurturing- and care-oriented careers. This study provides the first causal evidence that the duration of maternal care can influence the gender-specific occupational choices.

Keywords: maternal care, field-of-study choice, occupation, RDD.

*This project is supported by the Charles University Grant Agency no. 151123. I would like to thank Andreas Menzel (University of Padova), Nikolas Mittag, Daniel Munich, Clara Sievert (CERGE-EI), Simon Wiederhold (IWH), Miriam Wüst, Jakob Søgaard (CEBI), Libertad González (UPF), and the participants of the RViE, NSE, PhD seminars at CERGE-EI & KU, SAEe, iFLAME, and RES for their helpful comments to improve my paper.

[†]CERGE-EI, Politických vežnů 7, 111 21, Praha 1, Czech Republic, Sofiana.Sinani@cerge-ei.cz

1 Introduction and Motivation

Occupation segregation lies at the heart of the gender gaps in wage, job quality, and employment (World Bank, 2023) and appears to be persistent in both developed and developing countries. While many factors contribute to this segregation - including discrimination, the motherhood penalty, and unequal access to education - a growing literature emphasizes the role of deeply rooted gender stereotypes. These stereotypes, which associate traits like nurturing and communication with women and technical aptitude with men, can shape career aspirations from an early age (Liben et al., 2002). When occupations acquire strong gendered reputations - such as the overrepresentation of women in care and education fields and men in STEM and skilled trades (Bertrand et al., 2010; Kleven et al., 2019) - they can lead to a misallocation of talent and aggregate productivity losses (Ashraf et al., 2022). Understanding how such preferences form is therefore a key focus of economic research.

This paper investigates one specific channel: the influence of maternal employment behavior on children's gender-stereotyped occupational choices. Parents serve as primary role models, and empirical evidence suggests that they transmit labor market preferences to their children (Farré and Vella, 2012). To identify a causal effect, I exploit a 1995 reform in the Czech Republic that extended the duration of paid maternity leave allowances from three to four years. A critical feature of this policy was that eligibility for the extended benefits required mothers to quit any paid job and to provide full-time child care, as the period of employment protection was not similarly extended. As a result, the reform induced a significant number of mothers to exit the labor force. Research indicates that this often led to prolonged spells of unemployment (Bičáková and Kalíšková, 2022). This choice to trade employment for extended childcare may have acted as a powerful norm-setting signal within households, reinforcing a traditional male-breadwinner model.

I examine whether this shift affected children's later occupational preferences by analyzing their university applications - a consequential choice that reflects willingness to pursue an occupation. I use the student undergraduate applications dataset (MŠMT, 2024a) and employ a regression discontinuity design (RDD) to compare the application behavior of the children born just before and just after the policy's eligibility cutoff of October 1992. I define stereotypically female (male) programs if they are in the top (bottom) 20th percentile of the female graduation ratio distribution. The main finding is that boys exposed to the reform during early childhood became significantly less likely to apply to stereotypically female fields of study in adolescence. Among the first affected cohort of children from the 1995 reform, boys are 0.9 percentage points (or 20 percent from the pre-treatment mean of 4.7%) less likely to apply to programs with a high female

graduation rate. In contrast, I find no analogous effect for exposed girls.

The stereotypically female programs are those in healthcare and education that tend to be: (i) less research- and mathematics-oriented, and (ii) professions in caring, nurturing, and well-being, which are stereotypically considered to be female traits. I look at potential drivers to explain which of these channels drives the drop in male enrollment in these educational programs. First, I find that boys were 0.053 percent less likely to attend an academic track in high school. However, my mediation analysis (as developed by Heckman and Pinto (2013)) suggests that this only explains 3.9 percent of the treatment effect. Secondly, I find no effects on preferences for STEM, suggesting no change in attitudes towards competitiveness and math-intensity of occupations. Therefore, my results hint that longer periods of maternal care, by strengthening the mother's role as a homemaker in the household, reduced boys' willingness to pursue careers typically associated with women. My findings are consistent with previous literature finding that boys' gender norms (Fontenay and González, 2024) and preferences (Fernández and Fogli, 2006) respond to a change in their parents' behavior. Additionally, (Osikominu et al., 2019) report that conservative environments are more likely to affect boys than girls, and that the father's stronger "breadwinner" role is transmitted only to male children (Mavrokonstantis, 2015; Halpern and Perry-Jenkins, 2015).

My paper contributes to two large branches in the literature. First, I contribute to the literature on how family leave policies influence gender norms. Recent research has focused on paternity leave, which has been introduced in many Western countries over the last few decades. Evidence shows that paternity leave can weaken traditional gender norms by encouraging fathers to contribute more to childcare and housework — a finding documented in the US (Petts et al., 2020); Canada (Patnaik, 2019; Dunatchik and Berkay, 2020); Germany (Tamm, 2019); Norway (Kotsadam and Finseraas, 2011; Rege and Solli, 2013); and Spain (Farré and González, 2019; González and Zoabi, 2021). While this shift toward a more gender-neutral division of household labor is linked to more gender-equal norms among children (Bertrand, 2020), the impact of policies extending maternal care is less understood. Kleven et al. (2019) find that the child penalty is transmitted intergenerationally from mother to daughter, indicating that nurture shapes women's family-career preferences. I contribute to this literature by investigating how an extension of parental allowances, which pushed more women into unemployment by requiring them to quit their jobs, affected children's gendered preferences. The 1995 Czech reform incentivized mothers to choose between returning to work or providing extended full-time care, making their behavior a potential norm-setting signal about the gendered division of household roles. I proxy children's preferences through their university applications, a revealing measure because (i) applicants typically still live with

their parents, meaning choices likely reflect household norms; (ii) applications capture a “raw” willingness to pursue an occupation, distinct from later outcomes like graduation; and (iii) field-of-study choice reflects preferences over family-career trade-offs given known gendered distinctions across fields. My analysis thus provides causal evidence on how a maternity leave extension that prompted maternal job separation can alter the next generation’s gendered career preferences.

Secondly, my paper contributes to the literature on the formation of gender-specific occupation preferences. Many factors drive this segregation, including school gender structure (Tidball, 1985; Billger, 2002), role models (Schier, 2020; Akerlof and Kranton, 2000; Guiso et al., 2008), gender differences in preferences and attitudes (Bertrand, 2011; Schneeweis and Zweimüller, 2009), culture (Riegler-Crumb, 2005; Guiso et al., 2008; Nollenberger et al., 2016), and parents (Farré and Vella, 2012; Black and Devereux, 2010; Fernández et al., 2004). My research lies at the intersection of parental influence and the gender norms they transmit. Parents’ gendered behavior - particularly the division of labor market work versus home production - is a key channel through which children learn about social roles (Cunningham, 2001; Fulcher et al., 2007). However, existing evidence has largely established correlations rather than causal effects. I advance this literature by using the Czech reform as an exogenous instrument that shifted maternal behavior toward extended care and unemployment, thereby applying a plausibly causal lens to view how a mother’s labor market absence from the labor market influences her children’s occupational choices. The results are therefore interpreted as a causal effect of prolonged maternal withdrawal from the labor market on the gendering of children’s career aspirations.

In a broader context, my paper contributes to the literature on the intergenerational spillover effects of public policies (Dahl et al., 2014, 2016; Aksoy et al., 2020; Farré et al., 2022). Specifically, it provides novel evidence of how a family leave policy can affect the gender norms and occupational preferences of the next generation. I focus on a reform that, by design, incentivized women to leave the labor market and embrace a prolonged homemaker role. The results demonstrate a clear intergenerational transmission of gender norms from parents to children. This finding adds a new dimension to the extensive literature evaluating family leave policies, which has primarily examined effects on parental employment (Kleven et al., 2019; Bičáková and Kalíšková, 2022; Albrecht et al., 1999; Sundström and Duvander, 2002), child development outcomes (Felfe et al., 2012; Havnes and Mogstad, 2011; Gupta and Simonsen, 2010; Danzer et al., 2017; Waldfogel, 2007; Fort et al., 2016), and the types of non-parental care that are crowded out (Felfe et al., 2012; Cascio, 2009). That literature posits three main channels through which extended maternal care operates: (i) reduced early formal education, affecting cognitive and non-

cognitive skills (Dustmann and Schönberg, 2012; Fabel, 2021; Havnes and Mogstad, 2011); (ii) shifts in intra-household gender norms; and (iii) changes in household income (Dustmann and Schönberg, 2012; Fabel, 2021; Dahl et al., 2016; Carneiro et al., 2015). My analysis speaks directly to the second, norm-based channel, offering causal evidence that a policy-induced change in maternal behavior can alter children’s gendered aspirations decades later.

I discuss the institutional setting and previous evidence in section 2. In section 3 I lay out my identification strategy and descriptive statistics, while in section 4 I present my results and provide an in-depth exploration of the potential mechanisms. Section 5 concludes.

2 Previous Evidence and Institutional Setting

The 1990s were referred to as the period of “refamilization” of the Czech family policies and society (Saxonberg and Sirovátka, 2006). First, numbers of pre-school nurseries were substantially reduced in the early 1990s¹, while kindergarten places were affected much less by conservative policies². Kindergartens were more accessible and affordable by the majority of the parents (Bičáková and Kalíšková, 2022)³. Fewer opportunities for formal early childcare was seen as an “anti-feminist” tool because it discouraged female labor force participation. The institutional objective was to encourage more mothers to stay at home⁴ (Saxonberg and Sirovátka, 2006). Further, the government extended the maternal care for mothers on October 1, 1995. Family policies in the Czech Republic included a job protection period, maternity leave benefits, and parental allowance⁵. Job protection was introduced in 1990 and it lasted from child birth to the child’s 3rd birthday. Maternity benefits were granted to mothers who were employed at least 270 days in the 2 years prior to the child’s birth and amounted to 70% of the mother’s average wage from the last 12 months prior to childbirth. Parental allowances were a universal, non-means tested benefit beginning immediately upon the birth of a child. The 1995 reform *extended the*

¹15% of children aged 1-2 years attended nurseries in 1990, while only 2% attended nurseries in 1992 (Bičáková and Kalíšková, 2022).

²Places for 3-year-old children were reduced and available places were mainly reserved for 4- and 5-year-olds.

³There was also a drop in the availability of kindergartens, but this was offset by a drop in fertility rates, a phenomenon which occurred in all transition economies.

⁴The explicit reason behind this is unknown. On the one hand, there is anecdotal evidence that the government did not want children to attend nurseries because they were concerned that the communist propaganda was being taught there. On the other hand, Saxonberg and Sirovátka (2006) argue that the government encouraged this because female employment was “too high” (which could have been the government’s way of handling the expectation of a rise in unemployment due to economic restructuring).

⁵There was no paternity leave. Fathers were eligible to receive the parental allowances instead of mothers, but that is still very rare (1.8% in 2015, Bičáková and Kalíšková (2019))

duration of parental allowances, while the job protection period remained at 3 years, implying that mothers who chose to receive an extra year of parental allowances left their jobs. Parental allowances were approximately one-fourth of the average wage of that time (1,740 CZK/month) and were conditional on (i) the parent not working, (ii) the child being less than three years old at and not attending kindergarten, and (iii) the parent stating that they give full-time personal care to the child (Muellerova, 2017).

In the Czech Republic, private childcare arrangements were relatively inaccessible and unpopular among parents⁶. Bičáková and Kalíšková (2022) find that the 30-40 percent increase in the share of inactive mothers with 3 year-olds (a proxy for the take-up of the extension) was accompanied by a 23 percent drop in 3 year-olds' kindergarten attendance, suggesting that the reform crowded out formal kindergarten childcare. Additionally, given the lack and inaccessibility of other formal childcare arrangements, it is plausible to assume that the primary counterfactual form of care to maternal care were kindergartens, which were of similar quality throughout the country (Bičáková and Kalíšková, 2022).

Bičáková and Kalíšková (2019) find little heterogeneity in the take-up of the maternal leave extension regarding the mother's educational background. Take-up was surprisingly high for employed highly-educated mothers, which contradicts previous evidence (Lalive and Zweimüller, 2009). Bičáková and Kalíšková (2019) provide two possible explanations as to why highly-educated mothers were incentivized to stay at home: (i) job protection laws were ineffective in the Czech Republic⁷, and/or (ii) the mothers simply preferred to stay at home⁸. Muellerova (2017) uses the European Values Study and the Generations and Gender Programme panel data and finds that over time, Czech men and women (especially the younger cohorts) became more conservative and more likely to favor gendered division of household responsibilities. Additionally, Bičáková and Kalíšková (2022) find that children at age 21-22 were less likely to complete tertiary education (driven by girls with low socio-economic status), more likely to be unemployed and not engaged in education or training, driven by boys with low socio-economic status, and find a little increase in time devoted to housework (driven by girls).

My paper complements the previous evidence in various aspects. First, there are various reasons students drop out of tertiary education that could be unrelated to their norms or ability. During the last year of high school, children are less likely to be af-

⁶In 2002 there were only 3 private kindergartens, 8 childcare agencies, and 4 self-help child organizations in 497 municipalities (Kuchařová, 2009), and in 2005 only 2% of parents said they use babysitters (Ettlerova, 2006). This implies that private childcare arrangements were even fewer during the 1990s.

⁷In some cases, the 3 years job protection law failed due to an unstable business environment in which many new companies shut down and many companies canceled individual branches and/or work positions (Kantorová, 2004; Cermakova, 1997)

⁸There is anecdotal evidence that the one-year extension was accompanied by a media campaign that depicts and “ideal” mother as a homemaker.

fected by external sources (as opposed to at the ages of 21-22) and their household norms tend to be more salient at that age. Therefore, college applications capture how strongly the students identify with the traits and characteristics of a certain occupation with less influence by possible confounders that are more salient once a student is enrolled in university. Second, my dataset allows me to flexibly define my outcome variables to identify the mechanisms at play. As I explain in section 3.1, looking at preferences over gender-typical fields-of-study, I am able to capture changes in gender norms and preferences over career and family. Third, Bičáková and Kalíšková (2022) use few observations for their regressions (400-2,000 observations) which implies that their estimates may not be statistically efficient. My dataset is significantly larger (see section 3.1) and my findings have more statistical power. Fourth, the dataset provides the year- and month-of-birth of each high school student and allows me to identify the first affected cohort of students, which is advantageous for my identification framework.

3 Identification Strategy

3.1 Data

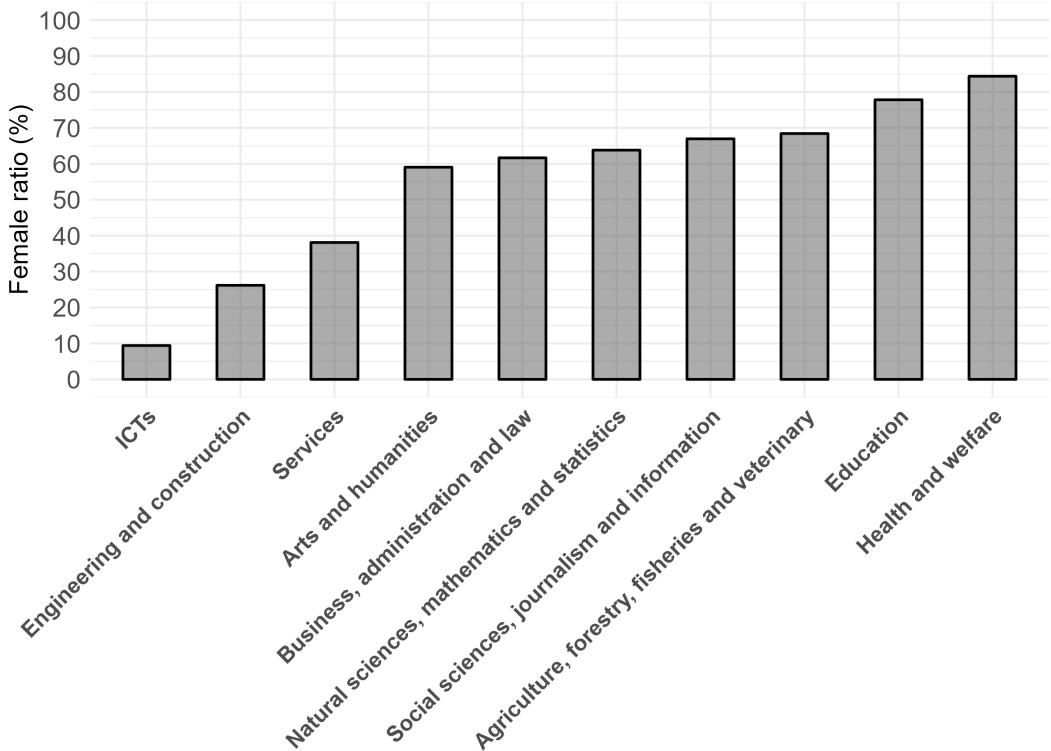
I use administrative data on all university applicants in the Czech Republic (MŠMT, 2024a). The dataset contains the full sample of all students, born from 1991-1993 and would be around 19-20 years old when applying, who submitted at least one application to a Czech university in 2011-2013. An applicant is identified through their birth number⁹ and each applicant could submit as many applications as they wished during the application round, which typically takes place during March. Applications are on the university - faculty - program level and the order in which the applications appear in the dataset does not indicate the order of preferences. I convert each educational program to the International Standard Classification of Education (henceforth ISCED) (OECD, 2015b). In the most disaggregated classification, there are 61 programs (ISCED 4-digit), while there are 10 major program classifications (ISCED 2-digit).

I first obtain the share of females graduating in the years prior to my sample as a measure of “femaleness” for each program (MŠMT, 2024a). Figure 1 shows that programs in Information and Communication Technologies (ICTs) are the most male-dominated, while those in Health and Welfare are historically characterized by a large share of female graduates. For visualization purposes, I show the female graduation rate on the more aggregate classification of programs (10 altogether) rather than showing each of the 61

⁹The birth number is an identifier used in the Czech Republic for social security purposes. It contains the birthday and gender of the citizen. Date of birth was hidden for anonymity purposes, and I can therefore only identify the month and year of birth.

individual programs. I therefore define all programs as highly female (male) that are on the 80th (20th) percentile of the female graduation rate distribution (for a more detailed outlook on all 61 programs, see A1). Secondly, I assign a research-intensity score according to the FORD classification (OECD, 2015a). The FORD classification assigns scores 5 to 1 in the following order, with 5 being the most research intensive: Natural Sciences, Engineering and Technology, Medical and Health Sciences, Agricultural and Veterinary Sciences, Social Sciences, Humanities and Arts. I define programs that fall within the scope of natural sciences, engineering, and technology as STEM (for individual score rating, refer to table A1). Lastly, I obtain the applicant's secondary school information (MŠMT, 2024b), including the school's mathematics and Czech language average percentile placement (CERMAT, 2024) and categorize secondary schools tracks from the most to least academic. I explain details of the academic rating section 4.2.

Figure 1: Ratio of female graduates for each major program classification



3.2 Regression Discontinuity Design

The 1995 reform was enacted on October 1st, implying that all mothers whose children turned 3 years old on or after October 1995 would be eligible for the extension of parental allowances (see figure 2). I therefore exploit the variation in the applicant's month of birth

and use an RDD, with the month of birth as the running variable, to establish causality.

I address various potential threats to my identification. First, manipulation of the child's month of birth seems highly unlikely given that the reform was only announced a few months prior to its introduction (Bičáková and Kalíšková, 2022). Figure 3 shows the frequency of each month of birth for those born 12 months around the cutoff. While there is a gradual drop in the number of applicants born after the cutoff (particularly in November), the plot shows that (i) this drop begins 5 months prior to the cutoff; (ii) the change does not appear to be discontinuous or questionable, and (iii) there is a seasonality in birth patterns that is persistent in the prior and past years. There are generally more births around spring and less births during winter in the Czech Republic (see figure A2). I therefore conclude that there is no density manipulation of the running variable. Second, my sample is representative of people who choose to pursue higher education and I therefore cannot account for those who choose alternative labor market paths (i.e., those who do not appear in my sample). Thus, there may be concern that the reform changed (i) the number and (ii) the type of people that appear in my sample.

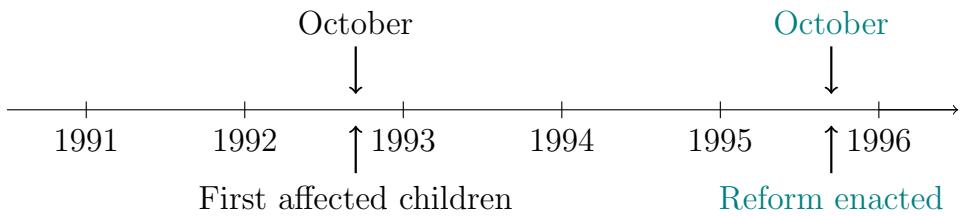
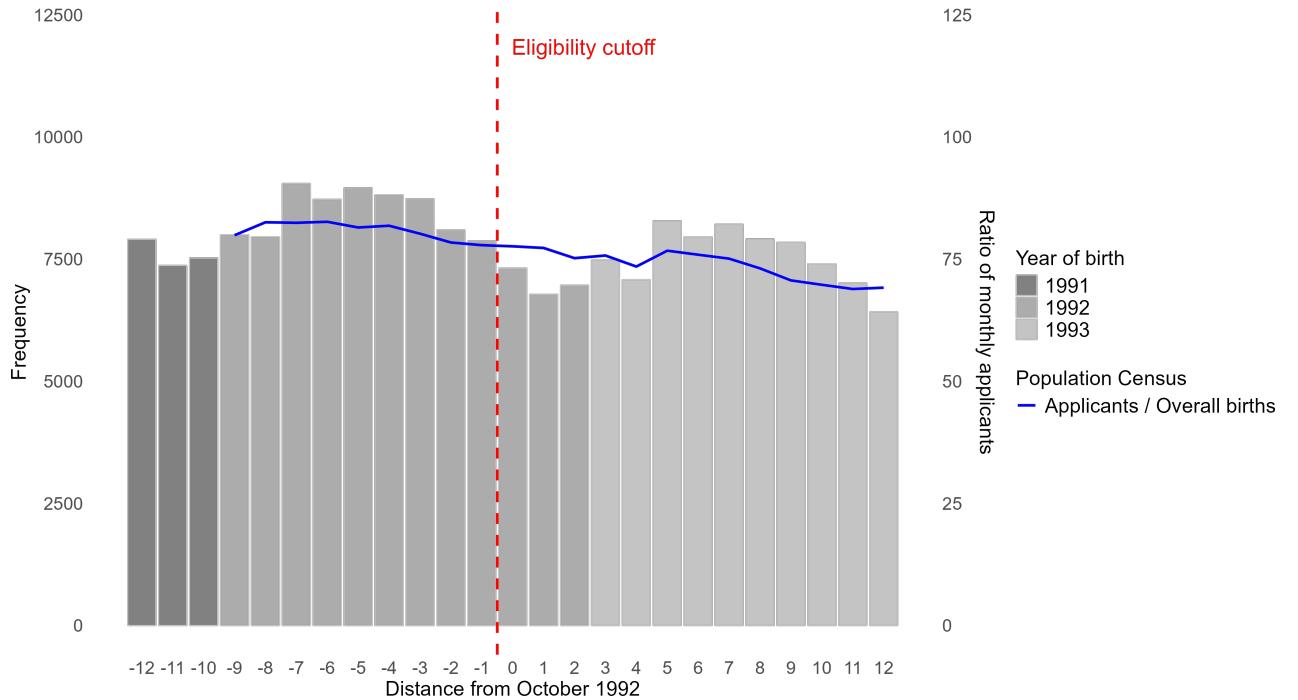


Figure 2: Timeline of the 1995 Reform

I address both sample selection concerns through (i) looking at the likelihood of appearing in my sample for each month of birth, and (ii) conducting a balance check. First, the blue line in figure 3 shows the applicants born each month as a share of overall births in the Czech Republic (Czech Statistical Office, 2024). The probability of appearing in my sample is smooth across the distribution of the running variable without any evidence of discontinuous jumps (or drops) around the cutoff. This suggests that the reform did not induce more or fewer people to apply to higher education (and hence appear in my sample). Second, I check whether the characteristics of applicants (gender and region of residence) are balanced around the cutoff. Table A2 suggests that the reform did not influence the proportion of boys or girls applying to university; however, there seems to be a slight increase in the proportion of Prague-based applicants. While this is not the perfect balance, I control for the region of residence in my main regressions. The results do not change irrespective of whether I control of region of residence, suggesting that the effect is not mediated by this slight disbalance.

I estimate an RDD by fitting triangular kernel-weighted local linear regressions on both sides of the cutoff (Hahn et al., 2001; Imbens and Lemieux, 2008). Triangular

Figure 3: Distribution of applicant's month of birth



weighting is a standard method in the RDD literature and has displayed excellent properties in estimating conditional functions. I use the method by Calonico et al. (2015) to generate data-driven bandwidths and set a polynomial of order 1 as it is not recommended to use high-order polynomials in RDD (Calonico et al., 2015).

I estimate equation 1

$$Y_{i,p} = \beta_0 + \beta_1^{ITT} \mathbf{1}(m \geq \bar{c}) + \beta_2 f(m) + \beta_3 \mathbf{1}(m \geq \bar{c}) * f(m) + \beta_4 \text{Region}_i + \epsilon_{i,p} \quad (1)$$

where i is an applicant born in year-month m and p captures the aggregated outcome of all programs applied to¹⁰. β_1^{ITT} is the coefficient of interest that captures the effect of being eligible for the 1995 reform (synonymous to being born after the eligibility cutoff $\bar{c} = \text{October 1992}$).

I check the consistency of my results through a series of robustness checks. Possibly, the largest concern that my paper faces is that the eligibility cutoff is close to the school entry cutoff, which is September 1st. While I pool all application years together and

¹⁰For example, an applicant has submitted 3 applications to different programs. For each program, I obtain the ratio of female graduates in the years prior to their application, and collapse the data such that the applicant has an aggregated “femaleness” measure. I then categorize this measure to highly male or female, STEM or Non-STEM based on the classifications in section 3.1.

look at all applicants born around October 1992 irrespective of when they graduate, this may not fully eliminate the school entry cutoff effect. Therefore, in my first robustness check, I change the cutoff from October to September 1992 and check whether there are any pseudo treatment effects. Additionally, there are numerous papers in social and natural sciences that document month- and quarter-of-birth effects on health, education, and earnings (dating back to one of the most influential papers in economics by Angrist and Keueger (1991), see Buckles and Hungerman (2013) for a good review). To address this concern, in my second robustness check I change the cutoff to a year prior (October 1991). Lastly, I check whether my results are consistent with respect to the polynomial order. While in many economic applications results are sensitive to the polynomial order (Pei et al., 2021), there is no direct approach to determine which polynomial order fits best (although the order that produces the lowest MSE is a good measure). Therefore, for transparency reasons, I report my estimates using a quadratic fit too.

4 Results

4.1 Intent-To-Treat Estimates on Applied Field

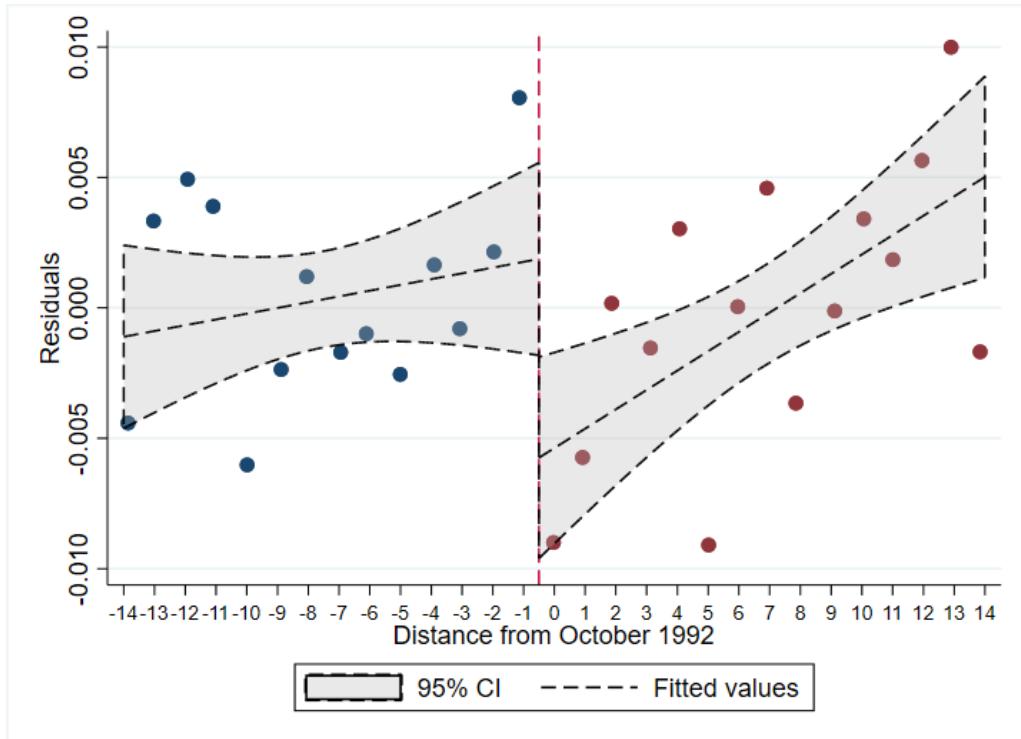
In this section I lay out the core results of this paper. I report the estimates of the probability of applicants to submit applications in highly female (male) programs, which are defined as programs with 80 (20) percent female graduation ratio.

Figures 4 and 5 show the plots for highly female and male programs for boys and girls separately. The graphs depict the residuals from equation 1 when I control for region of residence¹¹ and the 95 percent confidence interval from fitting a linear regression on both sides of the cutoff using the data-driven bandwidth (Calonico et al., 2015). There is a noticeable drop in the probability for boys applying to highly female programs, while I do not observe any changes in the girls applications.

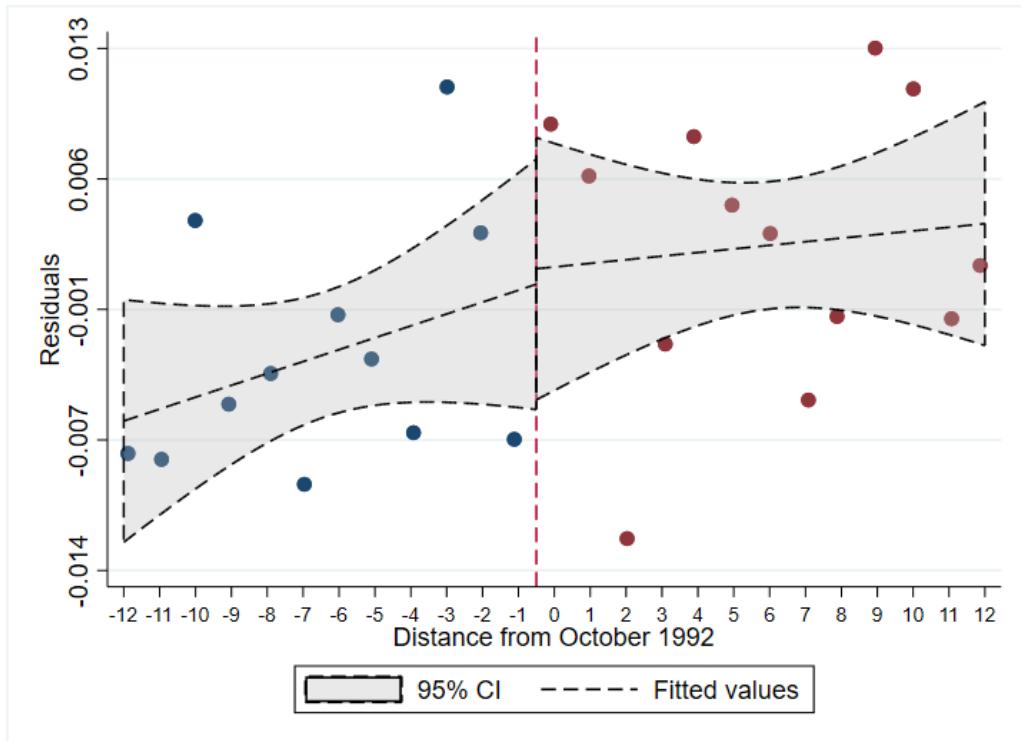
I quantify the ITT estimates in table 1. There is a drop of 0.9 percentage points (on a scale from 0-100) in the likelihood that boys apply to highly female programs indicates a 20 percent drop relative to the pre-treatment mean of 4.7 percent. Table 1 suggests that extension of maternal care, which should reinforce intra-household gender norms and support the male breadwinner household model, did not transmit more occupationally-feminine preferences to the affected daughters. However, boys display more traditional preferences by applying 20 percent less to programs that are typically considered a “woman’s” occupation. Such programs typically attract people who have

¹¹The graphs are produced using *cmogram* in Stata. To plot the mean of residuals, I added region of residence in the option *controls()*.

Figure 4: Applications to highly female programs

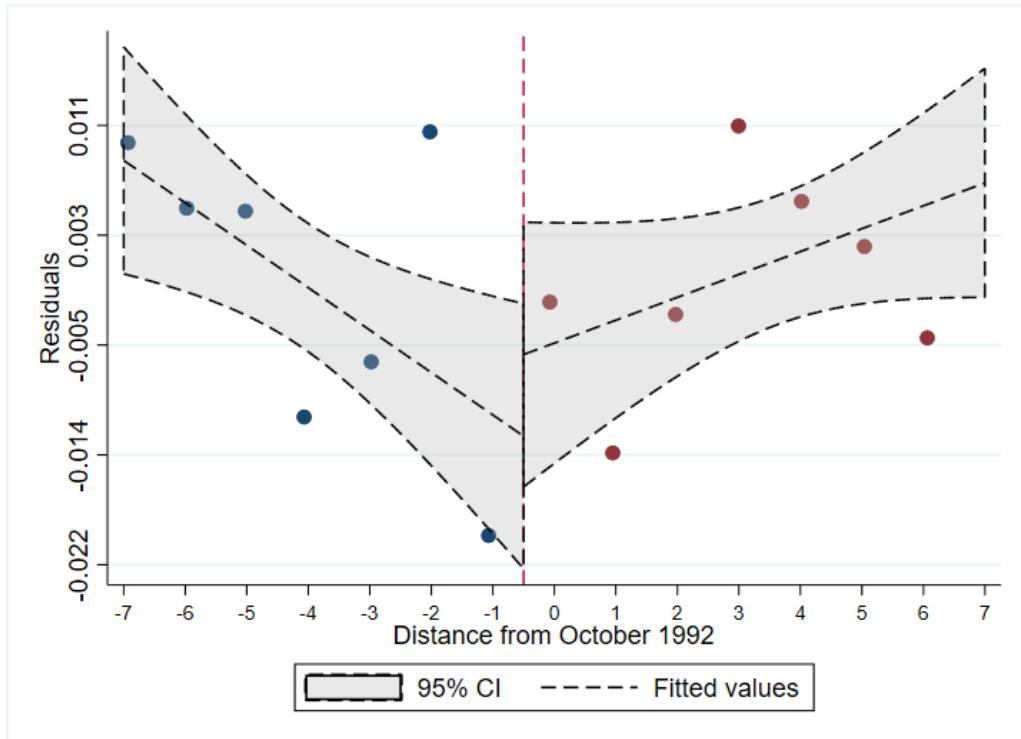


(a) Boys

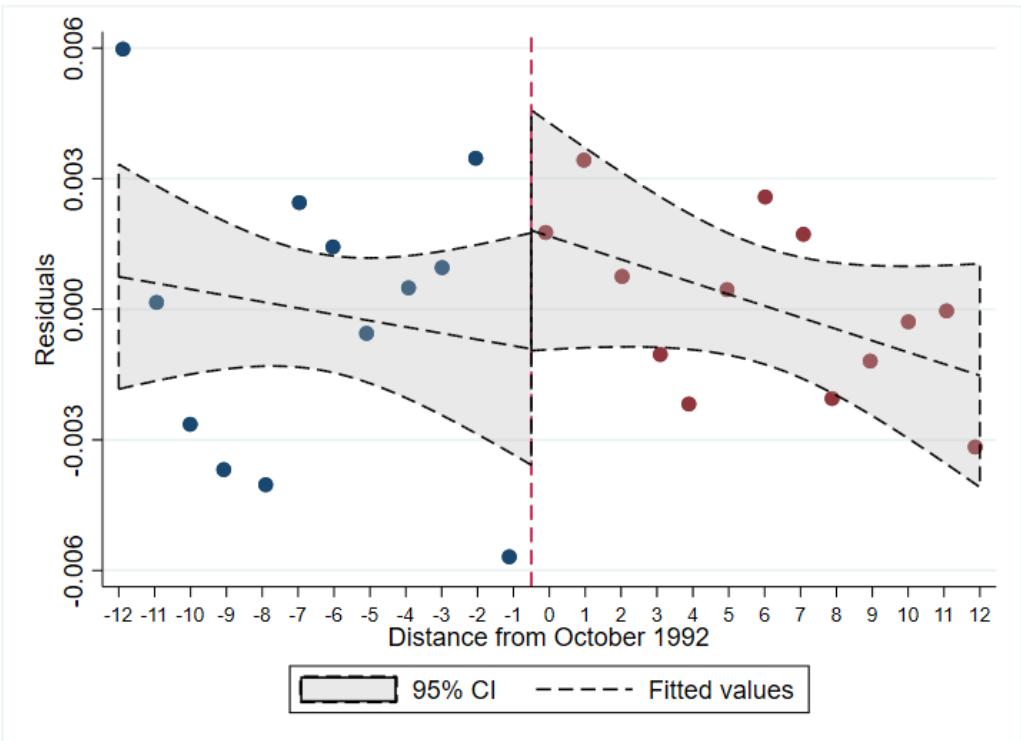


(b) Girls

Figure 5: Applications to highly male programs



(a) Boys



(b) Girls

preferences for caring, nurturing, and well-being¹². This could potentially be explained by the fact that boys were influenced by their fathers displaying more gendered behavior in the household. I dig deeper into the mechanisms in section 4.2.

Table 1: Probability to apply to highly female or male programs

	Highly female programs		Highly male programs	
	(1) Boys	(2) Girls	(3) Boys	(4) Girls
	-0.009 (0.003)***	0.003 (0.005)	0.008 (0.008)	0.002 (0.002)
Pre-treatment mean	0.047	0.177	0.181	0.027
Bandwidth (months)	14.0	12.0	7.5	12.1
Poly. order	1	1	1	1
Obs.	91702	104222	49370	104222

Signif. codes: 0.01 '***' 0.05 '**' 0.1 '***'.

Note: Triangular weights are used. Robust standard errors are reported. I use data-driven bandwidth from Calonico et al. (2015)

Tables A3, A4, and A5 suggest that the results for boys are highly robust with respect to the cutoff, suggesting that the 20 percent drop in applications to highly female programs is not driven by seasonal effects or school entry cutoff. However, table A5 indicates that there is a decrease in the probability of boys applying to highly male programs. In figure 5, August seems to be an extreme outlier, and possibly the effects in table A5 are registering the drop from August to September. It therefore seems that this significant result is not indicative of any discontinuous behavior.

I set the order of the polynomial to 2, the effect becomes slightly larger for boys (34 percent drop). Switching to the graphical evidence in figure 4a, it seems that the quadratic specification gives a greater weight to the September vs October difference and thus producing larger estimates. Regression discontinuity designs with the month of birth as a running variable have typically chosen lower order polynomials due to the presence of overfitting (Dustmann and Schönberg, 2012). I therefore prefer the local linear specification over the quadratic.

4.2 Potential Drivers

Table A1 suggests two things about female-dominated programs: (i) they have a lower research-intensity score and hence are less mathematically oriented, and (ii) they are predominantly in professions which require caring, well-being, and nurturing on a daily

¹²The most female programs were in the fields of health and welfare (see figure 1).

basis. The former may imply that those applying to highly female programs are less mathematically-inclined and competitive, while the latter may suggest higher preferences for family over career (stereo-typically feminine traits in the labor market). Therefore, there are three mechanisms through which longer maternal care likely reduced the boys preference for highly female programs.

First, extension of maternal allowances that postponed the age of children's kindergarten entry, may have affected their academic ability (Felfe et al., 2012; Havnes and Mogstad, 2011; Gupta and Simonsen, 2010; Danzer et al., 2017; Waldfogel, 2007; Fort et al., 2016). Given that most programs with high female graduation ratio are less mathematically oriented, it may be that the effect runs through academic ability. I test for this driver in section 4.2.1. Second, the low research-intensity of these programs may also suggest that boys have lower preferences for STEM programs overall and hence higher for female programs. I look into this mechanism in 4.2.2. Third, the extension may have reinforced intra-household gender norms and potentially transmitted more occupationally “masculine” attitudes to the boys, pushing them to prefer female occupations less. I attribute the share of the treatment effect that is not explained by academic ability or STEM preferences to the shift in gender norms through a mediation analysis (Heckman and Pinto, 2013).

4.2.1 Impact on academic ability

One of the requirements for a mother to be eligible for the fourth year of parental allowances was for her child not to be enrolled in kindergarten. Bičáková and Kalíšková (2022) find that, after the introduction of the reform, the share of 3-year-olds in kindergarten dropped by approximately 23 percentage points (see figure A1). Attending fewer years of formal education can affect the child's ability, socio-motor skills, and emotional development (Dustmann and Schönberg, 2012; Fabel, 2021; Havnes and Mogstad, 2011). Kindergartens offer a safe environment for children to socialize and learn mathematical and reading skills through simple games. Additionally, they provide stimulation for growth and brain development and guide children to learn at their own pace. It is therefore possible that a change in academic ability could be driving the results.

I proxy academic ability via the type of high school that the applicant attended (Buser et al., 2022). In the Czech Republic there are four main high school tracks (European Commission, 2009). Gymnasiums are the most popular choice among Czech students and are considered the most academic track. They are typically 4 or 8 years long, and aim to prepare students for higher education. Vocational-Nontechanical and Vocational-Technical are the second most popular choices among Czech students. They generally offer specialization in certain fields like Health Care, Business and Tourism, Economics,

Arts and Pedagogy, and Technology. Lastly, Lyceums are a mixture of gymnasiums (because two-thirds of subjects are oriented towards general academic formation) and vocational (one-third is field-specific) and are the least popular choice. Table 2 shows the marginal effects of each high school track on the probability of applying to each major university program. Gymnasiums and Vocational-Nontechical are the most popular choices among students that apply to highly female programs (health and education) while Vocational-Technical tracks are most popular among those applying to highly male programs (ICTs and engineering).

Table 2: Marginal effects of secondary school type on university programs in the pre-treatment period

	(1) Health	(2) Education	(3) Engineering	(4) ICTs	(5) Natural Sciences	(6) Humanities	(7) Social Sciences	(8) Services	(9) Agriculture	(10) Business & Economics
Gymnasium	0.109*** (125.83)	0.325*** (149.32)	0.188*** (176.96)	0.134*** (84.73)	0.177*** (210.44)	0.241*** (231.15)	0.282*** (260.64)	0.0828*** (98.09)	0.0510*** (78.93)	0.274*** (222.73)
Lyceum	0.125*** (66.32)	0.372*** (78.91)	0.247*** (107.68)	0.158*** (46.22)	0.107*** (58.89)	0.138*** (61.24)	0.180*** (76.98)	0.0969*** (53.06)	0.0479*** (34.21)	0.294*** (110.78)
Voc.-Technical	0.0232*** (18.57)	0.0965*** (30.72)	0.498*** (325.02)	0.361*** (158.52)	0.0495*** (40.87)	0.0634*** (42.13)	0.0546*** (34.92)	0.138*** (113.64)	0.0414*** (44.43)	0.141*** (79.49)
Voc.-Nontechical	0.160*** (171.87)	0.358*** (153.30)	0.0738*** (64.71)	0.0675*** (39.87)	0.0533*** (59.16)	0.168*** (150.25)	0.179*** (154.18)	0.107*** (117.96)	0.0755*** (108.75)	0.345*** (261.46)
Observations	329608	329608	329608	329608	329608	329608	329608	329608	329608	329608

Note: This table presents the average likelihood (marginal effects) of students from each of the four secondary school types applying to a given university program in the pre-treatment period. For example, a student from a Gymnasium has a 10.9% probability of applying to a Health program. Values in parentheses are t-statistics. *** p<0.01.

It is possible that, if entering kindergarten a year later than 3 years old (which potentially lowers academic ability) pushes children into choosing less academic high school tracks, then the 20 percent drop in the probability of applying to highly female programs may be mediated through high school track. Using information on the high school's average Maturita score¹³ percentile placement¹⁴ I rank high school tracks from the most to the least academic (MŠMT, 2024b). Table 3 confirms that gymnasiums outperform other tracks by almost 20 percentile placements. I therefore check whether there is a change in academic ability by estimating the RDD effects on the probability that applicants attended the most academic track.

Table 4 suggests that there is a slight drop in boys' attendance in an academic track in high school. The effect is weakly significant and small in magnitude (0.053 percent). The results are robust to changing the cutoff to the previous year (table A7); however, they are not robust to changing the cutoff to one month prior (table A8). It seems that more September-born applicants are choosing academic tracks. Therefore, I cannot conclude

¹³ *Maturita* are the school-leaving exams that every student applying to university must have successfully passed.

¹⁴ This is the average value of the percentile placement of students who successfully passed their exams. The percentile placement of an individual student provides an indication of what percent of students achieved the same or worse result.

Table 3: Marginal effects of secondary school type on test scores average percentile placement in the pre-treatment period

	(1) Mathematics	(2) Czech language
Gymnasium	73.98***	71.01***
Lyceum	49.36***	49.96***
Vocational-Technical	52.01***	44.26***
Vocational-Nontechnical	37.95***	44.12***
Observations	123711	128903

with confidence whether the effects are truly driven by the 1995 reform. However, what I am primarily interested in is whether the drop in academic-track attendance drives the treatment effect. To check whether this mediator is a significant driver of the 20 percent drop in boys' preference for highly female programs, I conduct a mediation analysis in section 4.2.3.

Table 4: Attending an academic track

	(1) Boys	(2) Girls
	-0.020 (0.011)*	-0.005 (0.009)
Pre-treatment mean	0.376	0.418
Bandwidth (months)	6.2	7.1
Poly. order	1	1
Obs.	41032	61708

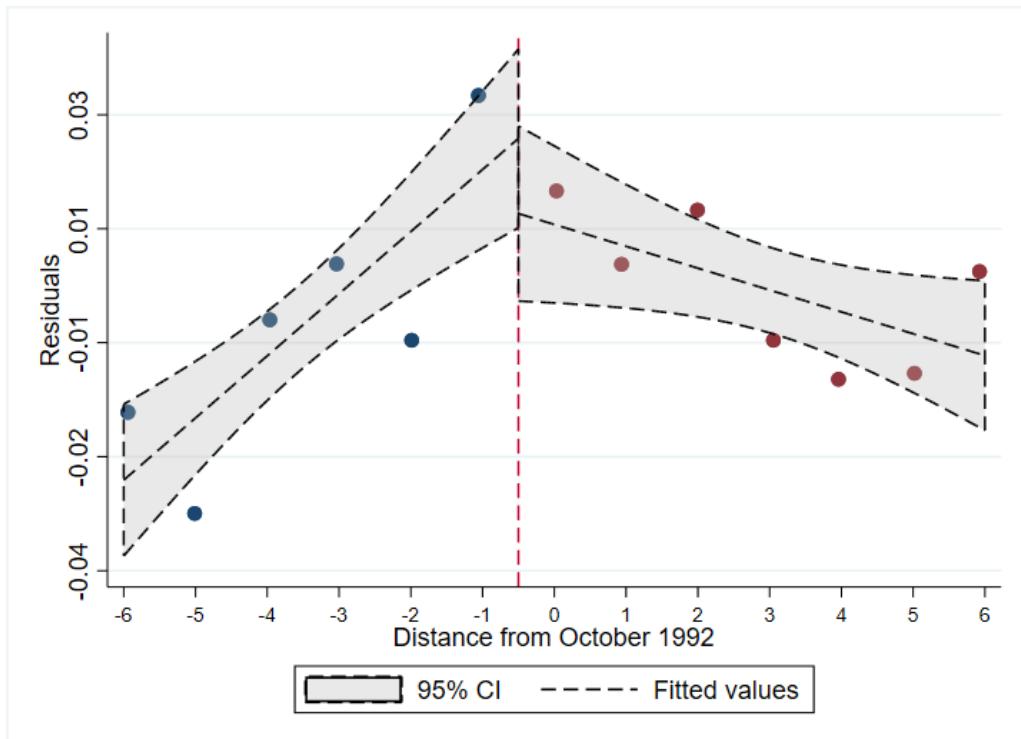
Signif. codes: 0.01 '***', 0.05 '**', 0.1 *'.

Note: Triangular weights are used. Robust standard errors are reported. I use data-driven bandwidth from Calonico et al. (2015)

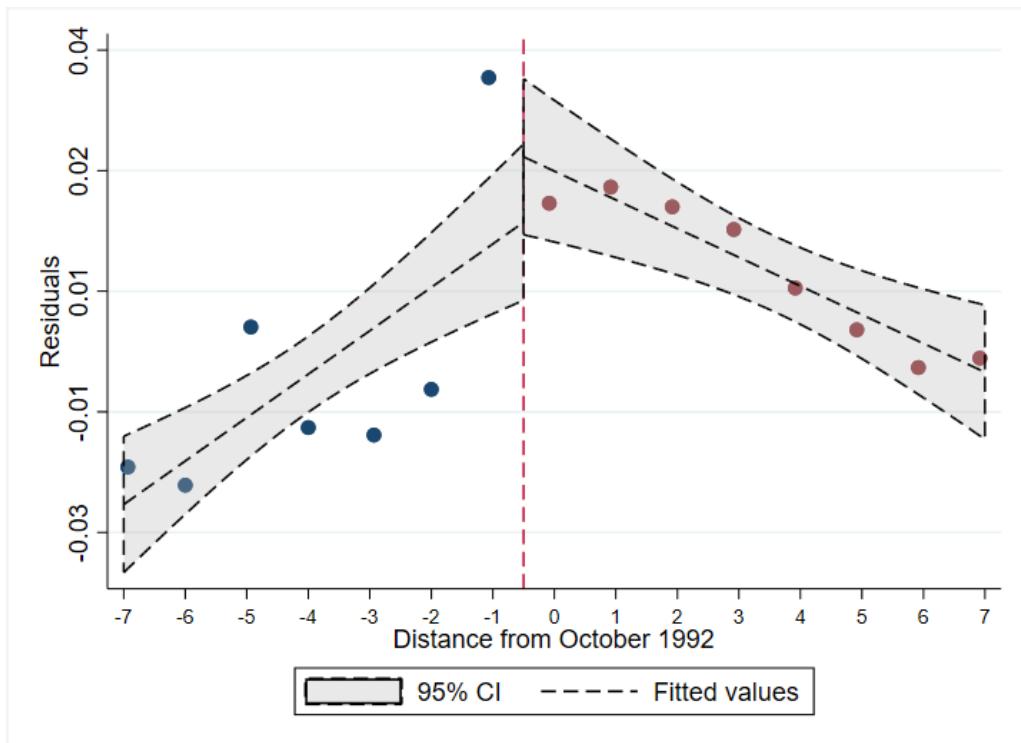
4.2.2 Impact on STEM preferences

Another potential driver could be a change in preferences for STEM programs given that the most female programs do not have a high research-intensity score. Figure 7 suggests there is no change in the probability of boys applying to STEM programs; however, there seems to be an increase for girls. The graph indicates that the plotted residuals are almost identical from September-born to October-born girls to apply to STEM programs. The effect could therefore be driven purely by between-month differences and not by the reform. Tables 5 and 6 do indeed indicate that the effects are driven by September-

Figure 6: Attending academic track in high school



(a) Boys



(b) Girls

born girls. A *t-test* (p-value = 0.133) confirms that these two estimates are statistically indistinguishable. Additionally, I check the results for those born one year prior (table A9) and it seems that the results remain robust to the change of the cutoff. Therefore, I conclude that the 1995 reform did not induce any differential preferences for STEM programs for girls or boys.

Table 5: Applying to a STEM program

	(1) Boys	(2) Girls
	0.014 (0.009)	0.013 (0.006)**
Pre-treatment mean	0.504	0.220
Bandwidth (months)	8.0	11.5
Poly. order	1	1
Obs.	55690	104222

Signif. codes: 0.01 '***', 0.05 '**', 0.1 *'.

Note: Triangular weights are used. Robust standard errors are reported. I use data-driven bandwidth from Calonico et al. (2015)

Table 6: Applying to a STEM program, September as cutoff

	(1) Boys	(2) Girls
	0.003 (0.009)	0.018 (0.006)***
Pre-treatment mean	0.509	0.217
Bandwidth (months)	8.3	9.5
Poly. order	1	1
Obs.	55913	80423

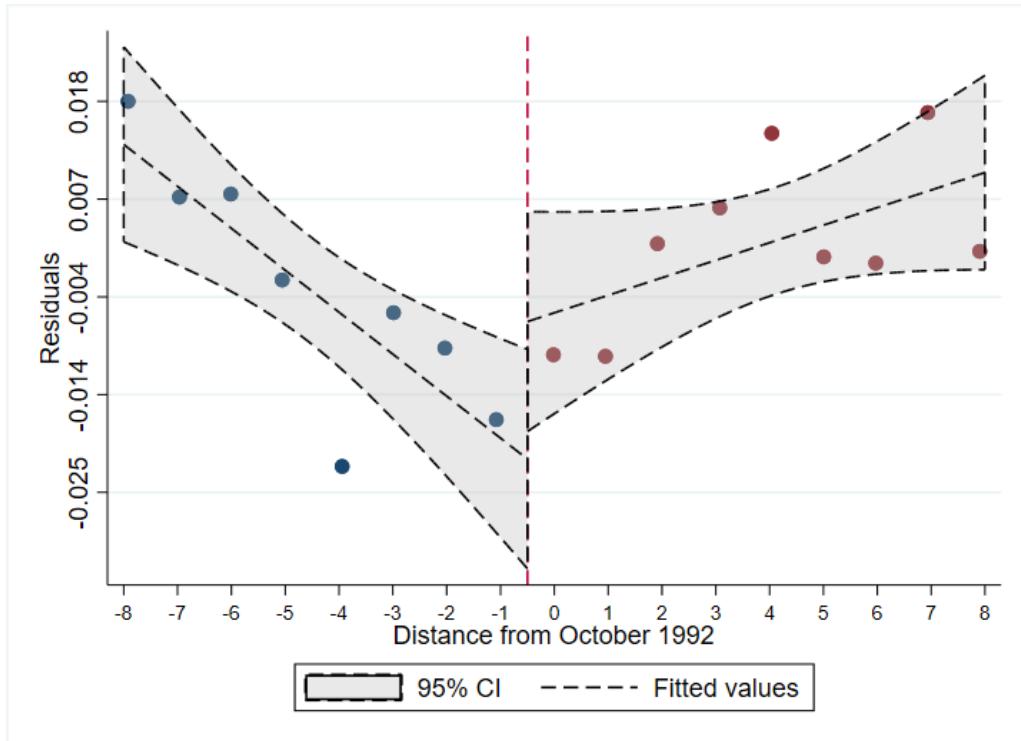
Signif. codes: 0.01 '***', 0.05 '**', 0.1 *'.

Note: Triangular weights are used. Robust standard errors are reported. I use data-driven bandwidth from Calonico et al. (2015)

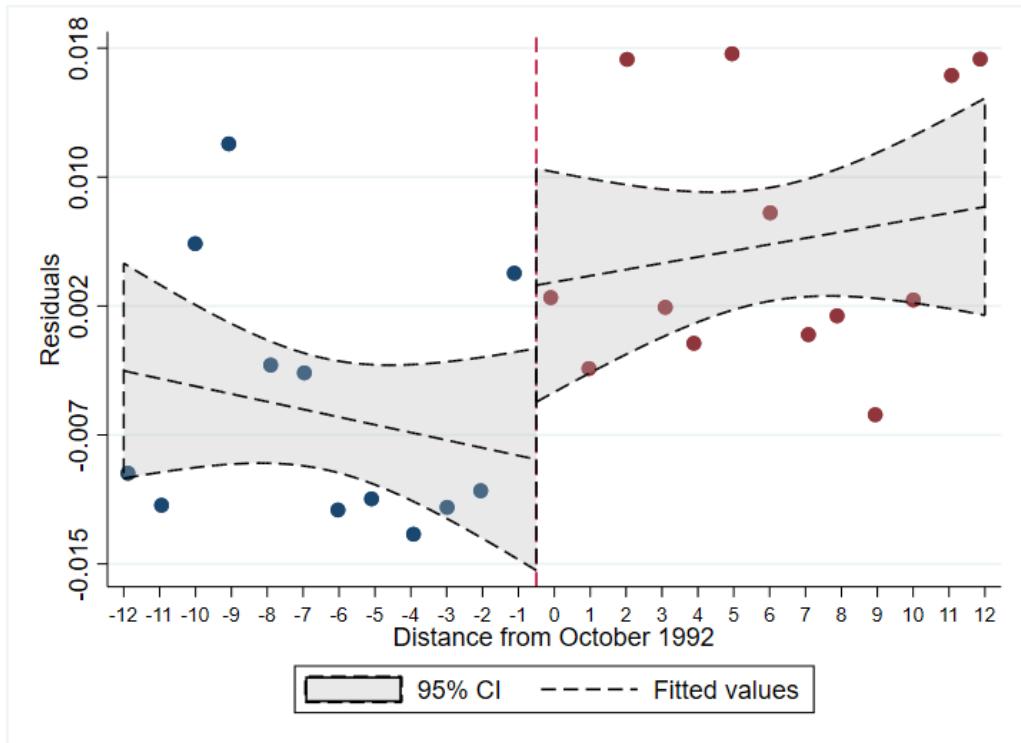
4.2.3 Mediation analysis

The core results of this paper suggest that boys display more traditional preferences towards the labor market, being 20 percent less likely to apply to highly female programs. In section 4.2.1 I find that boys were 0.053 percent less likely to attend academic tracks,

Figure 7: Applying to STEM programs



(a) Boys



(b) Girls

which may imply a slight loss in academic ability. Because the results are not robust to changing the cutoff to a month prior, I cannot conclude with confidence whether the effect is there. Therefore, I choose to take the RDD effect on high school track as a given, and investigate whether the 20 percent drop in boys' preference for highly female programs is mediated through their high school track choice.

My mediation analysis follows the approach developed by Heckman and Pinto (2013), which provides a decomposition of the overall treatment effect into shares attributed to different mediators¹⁵. This framework does not produce causal mediation effects and it is used purely as an exploratory data analysis that aims to provide an explanation of how longer maternal care can affect field-of-study choice.

I consider only choice of high school track as a potential mediator given that there were no significant effects on STEM preferences for boys. The analysis begins by running the baseline regression only for boys within the specified bandwidth.

$$Y_{i,p} = \beta_0 + \beta_1^{ITT} 1(m \geq \bar{c}) + \beta_2 f(m) + \beta_3 1(m \geq \bar{c}) * f(m) + \beta_4 \text{Region}_i + \epsilon_{i,p} \quad (2)$$

The mediation analysis assumes that the outcome can be expressed linearly in terms of mediators. Therefore, in the second step I add high school track choice in the equation

$$Y_{i,p} = \alpha_0 + \alpha_1^{residual} 1(m \geq \bar{c}) + \alpha_2 f(m) + \alpha_3 1(m \geq \bar{c}) * f(m) + \alpha_3 \text{Track}_i + \alpha_4 \text{Region}_i + \eta_{i,p} \quad (3)$$

The coefficient $\alpha_1^{residual}$ denotes the effect of the reform eligibility that is not explained by changes in the high school track choice. The third step involves assessing the relative effect of the 1995 reform on the mediator, shown in section 4.2.1.

$$\text{Track}_i = \gamma_0 + \gamma_1 1(m \geq \bar{c}) + \gamma_2 f(m) + \gamma_3 1(m \geq \bar{c}) * f(m) + \gamma_4 \text{Region}_i + \delta_i \quad (4)$$

Therefore, the share of the overall treatment effect that can be attributed to high school track choice is calculated by multiplying the treatment effect on the mediator γ_1 with the effect of the mediator on the outcome α_3 as a share of the main ITT estimate of the reform on the outcome β_1^{ITT} .

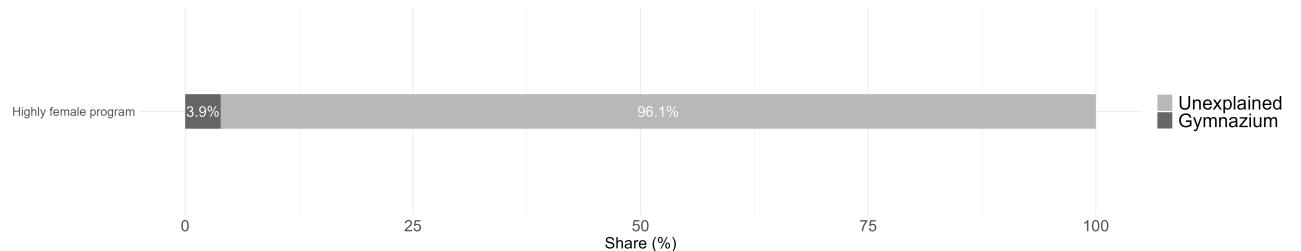
$$\text{Share of TE explained by high school track} = \frac{\gamma_1 * \alpha_3}{\beta_1^{ITT}}$$

¹⁵Recent applications include Resnjanskij et al. (2024); Oreopoulos et al. (2017); Kosse et al. (2020).

The exogenous variation in the applicant's month of birth ensures the identification of β_1^{ITT} and γ_1 . However, the validity of this framework relies heavily on the identification of α_3 . The coefficient α_3 is only identified if there are no other mediators or unobserved characteristics (captured by $\eta_{i,p}$) that could affect high school track choice. Given that there are no significant effects on STEM orientation, the only other potential mediator could be a shift in intra-household gender norms. If gender norms are positively correlated with high school track choice, then α_3 would be biased. Therefore, the estimated share of the treatment effect attributed to track choice should be interpreted as an upper bound.

Figure 8 indicates that only 3.9 percent of the overall ITT effect on highly female programs (20 percent for boys) is attributed to a decline in academic-track attendance. Additionally, table 7 confirms that, adding track choice to the main equation (corresponds to equation 3) does not change the main treatment effect ($\beta_1^{ITT} = \alpha_1^{residual}$). Therefore, it seems that high school track is not driving the 20 percent drop in boys' preferences for highly female programs. Arguably, this is not a perfect measure of individual academic ability and I cannot conclude with confidence that the effect of entering kindergarten one year later does not drive my main treatment effect. Nevertheless, high school choice remains a valid channel and does capture a large portion of academic ability (see table 3).

Figure 8: Decomposition of treatment effect on highly female programs for boys



My results are consistent with the hypothesis that there was a change in boys' gender-specific attitudes towards the labor market. While the 1995 reform shifted more mothers outside of the labor market, the roles of the mother as a homemaker and the father as a breadwinner were likely strengthened in households. It is plausible to assume that the fathers, assuming a more traditional role, transmitted their "masculine" values to their sons. Nevertheless, it is uncertain why these preferences were not transmitted to daughters. Some previous evidence (see Osikominu et al. (2019)) finds that conservative environments influence boys more than girls. In my setting, it is possible that an extension of maternal care was not influential enough to transmit more traditional behavior to the girls. Given that in the pre-reform period mothers were already taking long 3-year leaves, the reform did not signal significantly different behavior to girls. However, with mothers

Table 7: Probability to apply to highly female or male program

	Highly female program		Highly male program	
	(1) Boys	(2) Girls	(3) Boys	(4) Girls
	-0.009 (0.003)***	0.000 (0.005)	0.004 (0.008)	0.003 (0.002)
Pre-treatment mean	0.047	0.177	0.181	0.027
Bandwidth (months)	14.0	12.0	7.5	12.1
Poly. order	1	1	1	1
Obs.	94919	107669	50886	107669

Signif. codes: 0.01 '***', 0.05 '**', 0.1 *'.

Note: Triangular weights are used. Robust standard errors are reported. I use data-driven bandwidth from Calonico et al. (2015). **High school choice is added.**

leaving their previous employment, fathers assumed the sole role of the breadwinner, along with potentially higher bargaining power. It is therefore possible that fathers had more authority over the children's educational investments and thus transmitted more traditional values to their sons.

5 Conclusion

In this paper, I use a 1995 reform in the Czech Republic that extended parental allowances as a natural experiment to study how prolonged maternal care shapes gender-segregated occupational preferences. The reform extended maternal leave allowances from three to four years, but required mothers to quit their jobs to qualify. This induced many women to leave employment and to effectively enter unemployment to provide full-time child care. The decision may have acted as a norm-setting signal within households, reinforcing a traditional male-breadwinner model and potentially influencing children's gender norms and labor market preferences.

I measure occupational preferences through field-of-study choices in university applications and examine whether children exposed to the reform exhibit more stereotypically feminine or masculine preferences. My regression discontinuity estimates indicate that affected boys were approximately 20 percent less likely to apply to highly female-dominated programs, suggesting a strengthening of traditionally masculine preferences. In contrast, I find no corresponding effect for girls.

I explore several potential channels underlying these results. First, I examine whether the reform impacted children's academic ability, as captured by high school track selection. While I observe a small (0.053 percentage point) decline in academic-track attendance for boys, a mediation analysis indicates that this explains only 3.9 percent of the

treatment effect. Second, I investigate whether boys' preferences shifted towards STEM fields and find no significant change. Taken together, these results are consistent with the hypothesis that the reform shifted intra-household gender norms in a more conservative direction, particularly for sons. This suggests that gender-role socialization in the household is an important driver of occupational choices for men. Specifically, boys raised in households where parents exhibited a more traditional division of labor—with mothers as homemakers and fathers as breadwinners—developed weaker preferences for highly female occupations, which are often associated with nurturing, caring, and well-being. For girls, the extension of already-long maternal care did not appear to further amplify gendered preferences, possibly because baseline maternal care was already extensive prior to the reform.

This paper contributes to understanding how gender-specific occupational preferences are formed. The findings offer a nuanced perspective on the intergenerational transmission of gender attitudes. While prior work documents strong correlations between mothers' and daughters' gendered behaviors, my results suggest that extending an already lengthy period of maternal care does not intensify gender norms for daughters. At the same time, the results highlight the malleability of gender norms for boys, which appear responsive to parental role-modeling. Moving forward, more research is needed to examine whether policies promoting gender-egalitarian norms transmit differently to sons and daughters, and how the duration and context of parental leave design can mitigate or reinforce the intergenerational persistence of occupational segregation.

References

Akerlof, G. A. and Kranton, R. E. (2000). Economics and identity. *Quarterly Journal of Economics*, 115:715–753.

Aksoy, C. G., Carpenter, C. S., De Haas, R., and Tran, K. D. (2020). Do laws shape attitudes? evidence from same-sex relationship recognition policies in europe. *European Economic Review*, 124:103399.

Albrecht, J., Edin, P.-A., Sundström, M., and Vroman, S. (1999). Career interruptions and subsequent earnings: A reexamination using swedish data.

Angrist, J. D. and Keueger, A. B. (1991). Does compulsory school attendance affect schooling and earnings? *The Quarterly Journal of Economics*, 106:979–1014.

Ashraf, N., Bandiera, O., Minni, V., and Quintas-Martínez, V. (2022). Gender roles and the misallocation of labour across countries. *Working Paper*.

Bertrand, M. (2011). Chapter 17 - new perspectives on gender. *Handbook of Labor Economics*, page 1543–1590.

Bertrand, M. (2020). Gender in the twenty-first century.

Bertrand, M., Goldin, C., and Katz, L. F. (2010). Dynamics of the gender gap for young professionals in the financial and corporate sectors. *American Economic Journal: Applied Economics*, 2:228–255.

Billger, S. M. (2002). Admitting men into a women’s college: A natural experiment. *Applied Economics Letters*, 9(7), 479–483.

Bičáková, A. and Kalíšková, K. (2019). (un)intended effects of parental leave policies: Evidence from the czech republic. *Labour Economics*, 61.

Bičáková, A. and Kalíšková, K. (2022). Is longer maternal care always beneficial? the impact of a four-year paid parental leave. *CERGE-EI Working Paper Series ISSN 2788-0443*.

Black, S. E. and Devereux, P. J. (2010). Recent developments in intergenerational mobility. *National Bureau of Economic Research*, Working Paper 15889.

Buckles, K. S. and Hungerman, D. M. (2013). Season of birth and later outcomes: Old questions, new answers. *The Review of Economics and Statistics*, 95:711–724.

Buser, T., Peter, N., and Wolter, S. C. (2022). Willingness to compete, gender and career choices along the whole ability distribution. *Experimental Economics*.

Calonico, S., Cattaneo, Matias, D., and Titiunik, R. (2015). rdrobust: An r package for robust nonparametric inference in regression-discontinuity designs. *The R Journal*, 7:38.

Carneiro, P., Løken, K. V., and Salvanes, K. G. (2015). A flying start? maternity leave benefits and long-run outcomes of children. *Journal of Political Economy*, 123:365–412.

Cascio, E. U. (2009). Maternal labor supply and the introduction of kindergartens into american public schools. *The Journal of Human Resources*, 44:140–170.

Cermakova, M. (1997). Family and changing gender roles - social analysis of the czech family. *Institute of Sociology of the Academy of Sciences of the Czech Republic*.

CERMAT (2024). Aggregated matriculation exam results - an analytical view of the results by schools and groups of fields of education.

Cunningham, M. (2001). The influence of parental attitudes and behaviors on children's attitudes toward gender and household labor in early adulthood. *Journal of Marriage and Family*, 63:111–122.

Czech Statistical Office (2024). Population and population change of the czech republic – monthly data.

CZSO (2024). Population in the czech republic.

Dahl, G. B., Løken, K. V., and Mogstad, M. (2014). Peer effects in program participation. *American Economic Review*, 104:2049–2074.

Dahl, G. B., Løken, K. V., Mogstad, M., and Salvanes, K. V. (2016). What is the case for paid maternity leave? *The Review of Economics and Statistics*, 98:655–670.

Danzer, E., Hoffman, C., D'Agostino, J. A., Gerdes, M., Bernbaum, J., Antiel, R. M., Rintoul, N. E., Herkert, L. M., Flake, A. W., Adzick, N. S., and Hedrick, H. L. (2017). Neurodevelopmental outcomes at 5years of age in congenital diaphragmatic hernia. *Journal of Pediatric Surgery*, 52:437–443.

Dunatchik, A. and Berkay, (2020). Reducing mommy penalties with daddy quotas. *Journal of European Social Policy*.

Dustmann, C. and Schönberg, U. (2012). Expansions in maternity leave coverage and children's long-term outcomes. *American Economic Journal: Applied Economics*, 4:190–224.

Ettlerova, S. (2006). Postoje a zkušenosti s harmonizací rodiny a zaměstnání rodičů dětí předškolního a mladšího školního věku [attitudes and experiences with harmonisation of family and employment of parents with pre-school and school-age children].

European Commission (2009). Organisation of the education system in the czech republic.

Fabel, M. (2021). Maternity leave and children's health outcomes in the long-term. *Journal of Health Economics*, 76:102431.

Farré, L., Felfe, C., González, L., and Schneider, P. (2022). Changing gender norms across generations: Evidence from a paternity leave reform. *BSE Working Paper: 1310*.

Farré, L. and González, L. (2019). Does paternity leave reduce fertility? *Journal of Public Economics*, 172:52–66.

Farré, L. and Vella, F. (2012). The intergenerational transmission of gender role attitudes and its implications for female labour force participation. *Economica*, 80:219–247.

Felfe, C., Nollenberger, N., and Rodriguez-Planas, N. (2012). Can't buy mommy's love? universal childcare and children's long-term cognitive development. *IZA Discussion Papers, No 7053*.

Fernández, R. and Fogli, A. (2006). Fertility: The role of culture and family experience. *Journal of the European Economic Association*, 4:552–561.

Fernández, R., Fogli, A., and Olivetti, C. (2004). Mothers and sons: Preference formation and female labor force dynamics. *The Quarterly Journal of Economics*, 119:1249–1299.

Fontenay, S. and González, L. (2024). Can public policies break the gender mold? evidence from paternity leave reforms. *BSE Working Paper*.

Fort, M., Schneeweis, N., and Winter-Ebmer, R. (2016). Is education always reducing fertility? evidence from compulsory schooling reforms. *The Economic Journal*, 126:1823–1855.

Fulcher, M., Sutfin, E., and Patterson, C. (2007). Individual differences in gender development: Associations with parental sexual orientation, attitudes, and division of labor. *Sex Roles*.

González, L. and Zoabi, H. (2021). Does paternity leave promote gender equality within households? *CESifo WP No. 9430*.

Guiso, L., Monte, F., Sapienza, P., and Zingales, L. (2008). Diversity: Culture, gender, and math. *Science*, 320:1164–1165.

Gupta, N. D. and Simonsen, M. (2010). Non-cognitive child outcomes and universal high quality child care. *Journal of Public Economics*, 94:30–43.

Hahn, J., Todd, P., and Van der Klaauw, W. (2001). Identification and estimation of treatment effects with a regression-discontinuity design. *Econometrica*, 69:201–209.

Halpern, H. P. and Perry-Jenkins, M. (2015). Parents' gender ideology and gendered behavior as predictors of children's gender-role attitudes: a longitudinal exploration. *Sex Roles*, 74:527–542.

Havnes, T. and Mogstad, M. (2011). No child left behind: Subsidized child care and children's long-run outcomes. *American Economic Journal: Economic Policy*, 3:97–129.

Heckman, J. J. and Pinto, R. (2013). Econometric mediation analyses: Identifying the sources of treatment effects from experimentally estimated production technologies with unmeasured and mismeasured inputs.

Imbens, G. W. and Lemieux, T. (2008). Regression discontinuity designs: A guide to practice. *Journal of Econometrics*, 142:615–635.

Kantorová, V. (2004). Education and entry into motherhood: The czech republic during state socialism and the transition period (1970-1997). *Demographic Research*, Special 3:245–274.

Kleven, H., Landais, C., and Søgaard, J. E. (2019). Children and gender inequality: Evidence from denmark. *American Economic Journal: Applied Economics*, 11:181–209.

Kosse, F., Deckers, T., Pinger, P., Schildberg-Hörisch, H., and Falk, A. (2020). The formation of prosociality: Causal evidence on the role of social environment. *Journal of Political Economy*, 128:434–467.

Kotsadam, A. and Finseraas, H. (2011). The state intervenes in the battle of the sexes: Causal effects of paternity leave. *Social Science Research*, 40:1611–1622.

Kuchařová, V. (2009). Work-life balance: Societal and private influences. *Czech Sociological Review*, 45:1283–1310.

Lalive, R. and Zweimüller, J. (2009). How does parental leave affect fertility and return to work? evidence from two natural experiments*. *Quarterly Journal of Economics*, 124:1363–1402.

Liben, L. S., Bigler, R. S., and Krogh, H. R. (2002). Language at work: Children’s gendered interpretations of occupational titles. *Child Development*, 73:810–828.

Mavrokonstantis, P. (2015). Modern family: Female breadwinners and the intergenerational transmission of gender norms.

Muellerova, A. (2017). Family policy and maternal employment in the czech transition: a natural experiment.

MŠMT (2024a). Performance statistics of public and private colleges and universities.

MŠMT (2024b). School and school facilities registry.

Nollenberger, N., Rodríguez-Planas, N., and Sevilla, A. (2016). The math gender gap: The role of culture. *American Economic Review*, 106:257–261.

OECD (2015a). Frascati manual 2015: Guidelines for collecting and reporting data on research and experimental development.

OECD (2015b). What are the benefits of isced 2011 classification for indicators on education?

Oreopoulos, P., Brown, R. S., and Lavecchia, A. M. (2017). Pathways to education: An integrated approach to helping at-risk high school students. *Journal of Political Economy*, 125:947–984.

Osikominu, A., Grossmann, V., and Osterfeld, M. (2019). Sociocultural background and choice of stem majors at university. *Oxford Economic Papers*.

Patnaik, A. (2019). Reserving time for daddy: The consequences of fathers’ quotas. *Journal of Labor Economics*, 37:1009–1059.

Pei, Z., Lee, D. S., Card, D., and Weber, A. (2021). Local polynomial order in regression discontinuity designs. *Journal of Business Economic Statistics*, pages 1–9.

Petts, R. J., Knoester, C., and Waldfogel, J. (2020). Fathers’ paternity leave-taking and children’s perceptions of father-child relationships in the united states. *Sex Roles*, 173–188.

Rege, M. and Solli, I. F. (2013). The impact of paternity leave on fathers' future earnings. *Demography*.

Resnjanskij, S., Ruhose, J., Wiederhold, S., Woessmann, L., and Wedel, K. (2024). Can mentoring alleviate family disadvantage in adolescence? a field experiment to improve labor market prospects. *Journal of political economy*, 132:1013–1062.

Riegle-Crumb, C. (2005). Affirmative action is dead. *Contemporary Sociology: A Journal of Reviews*, 34:249–250.

Saxonberg, S. and Sirovátka, T. (2006). Failing family policy in post-communist central europe. *Journal of Comparative Policy Analysis: Research and Practice*, 8:185–202.

Schier, U. (2020). Female and male role models and competitiveness. *Journal of Economic Behavior Organization*, 173:55–67.

Schneeweis, N. and Zweimüller, M. (2009). Girls, girls, girls: gender composition and female school choice. *Economics of Education Review*, Eslevier., pages 482–500.

Sundström, M. and Duvander, A.-Z. (2002). Gender division of childcare and the sharing of parental leave among new parents in sweden. *European Sociological Review*.

Tamm, M. (2019). Fathers' parental leave-taking, childcare involvement and labor market participation. *Labour Economics*, 59:184–197.

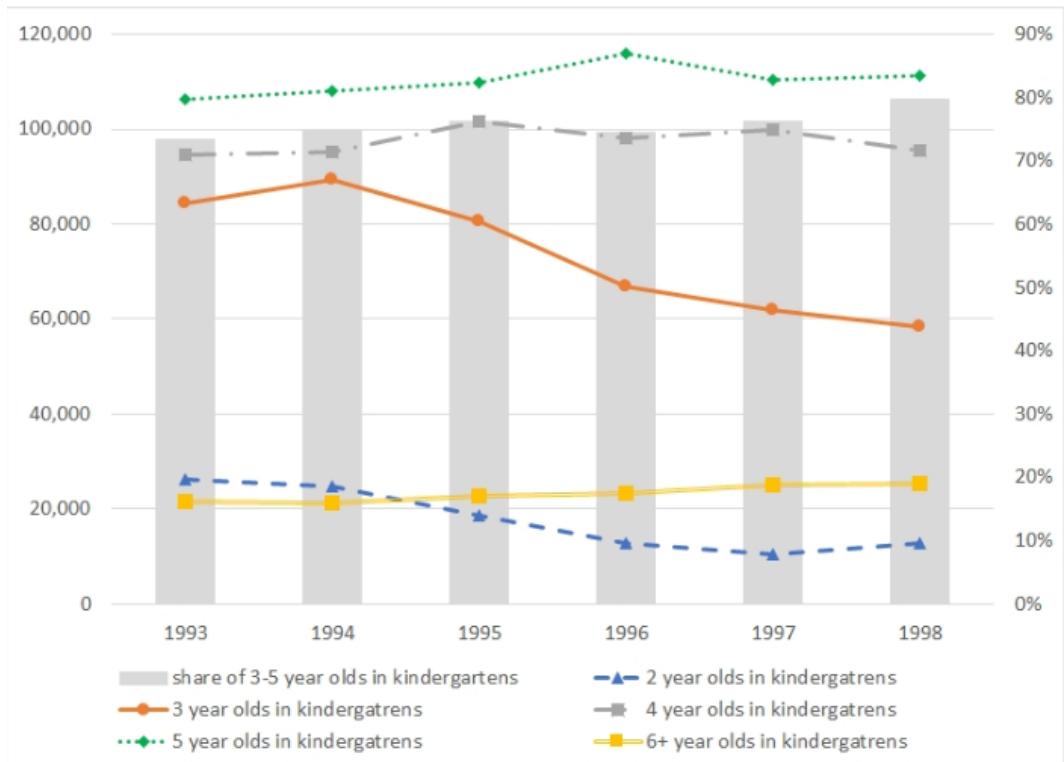
Tidball, E. M. (1985). Baccalaureate origins of entrants into american medical schools. *Journal of Higher Education* 56(4), 385–402.

Waldfogel, J. (2007). Parental work arrangements and child development. *Canadian Public Policy / Analyse de Politiques*, 33:251–271.

World Bank (2023). Gender-based employment segregation: Understanding causes and policy interventions.

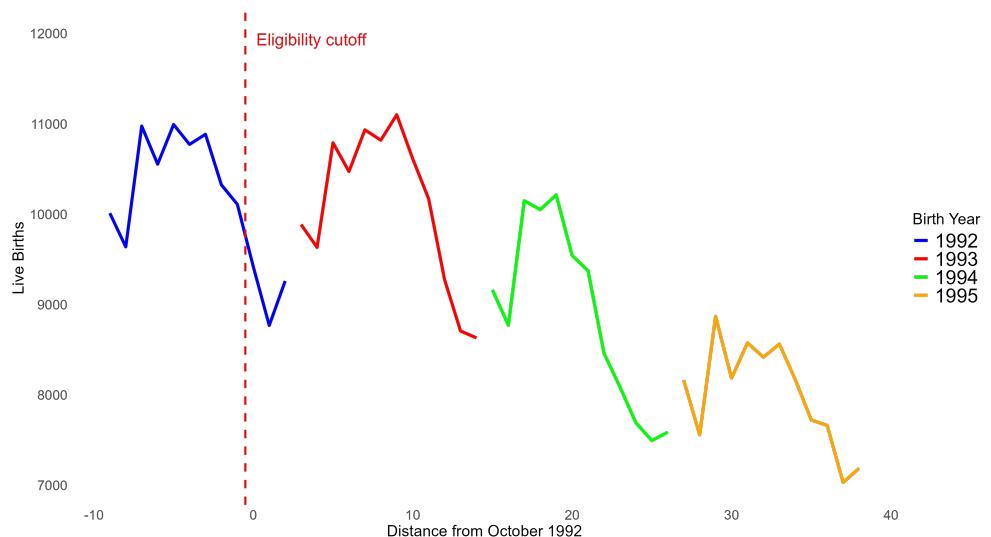
Appendix

Figure A1: Source: Bičáková and Kalíšková (2022)



Note: The figure shows the total number of children enrolled in public kindergartens by their age (age is reported as of September 1 in each calendar year) on the left vertical axis. The right vertical axis illustrates the ratio of children aged 3-5 enrolled in public kindergartens to all children aged 3-5 in the population (shown in grey bars)

Figure A2: Overall births by month and year of birth



Note: This figure shows the frequency of all births in the Czech Republic from 1992 to 1995 for each month of birth (CZSO, 2024). Birth patterns follow a seasonality which peaks during Spring and drops during Winter.

Table A1: Female ratio of graduates in the years prior to my sample and research-intensity score according to FORD classification

Program (ISCED 4)	FORD	Female Share of Graduates
1 Electricity and energy	2.20	4.55
2 Electronics and automation	2.20	6.62
3 Database and network design and administration	1.20	6.82
4 Fisheries	4.10	8.30
5 Mechanics and metal trades	2.40	9.18
6 Software and applications development and analysis	1.20	9.41
7 Motor vehicles, ships and aircraft	2.30	19.05
8 Forestry	4.10	19.59
9 Transport services	5.70	19.67
10 Protection of persons and property	5.60	22.70
11 Materials (glass, paper, plastic and wood)	2.50	24.67
12 Building and civil engineering	2.10	26.18
13 Physics	1.30	27.53
14 Engineering and engineering trades not elsewhere classified	2.11	27.85
15 Wholesale and retail sales	5.20	37.50
16 Sports		38.09
17 Mining and extraction	2.70	43.91
18 Religion and theology	6.30	46.03
19 Architecture and town planning	6.40	46.63
20 Earth sciences	1.50	46.95
21 Mathematics	1.10	48.12
22 Audio-visual techniques and media production	6.40	48.93
23 Philosophy and ethics	6.30	50.68
24 Economics	5.20	50.99
25 Chemical engineering and processes	2.30	54.34
26 Law	5.50	55.26
27 Environmental protection technology	2.70	58.29
28 Fashion, interior and industrial design	6.40	58.72
29 History and archaeology	6.30	58.86
30 Music and performing arts	6.40	59.23
31 Political sciences and civics	5.60	60.57
32 Management and administration	5.20	61.65
33 Hotel, restaurants and catering		63.52
34 Environmental sciences	1.50	63.80
35 Finance, banking and insurance	5.20	65.20
36 Chemistry	1.30	65.60
37 Statistics	1.10	65.77
38 Accounting and taxation	5.20	66.15
39 Journalism and reporting	5.80	66.57
40 Sociology and cultural studies	5.40	66.95
41 Crop and livestock production	4.10	68.41
42 Fine arts	6.40	68.63
43 Marketing and advertising	5.20	68.79
44 Library, information and archival studies	5.80	68.92
45 Biochemistry	1.60	71.02
46 Biology	1.60	73.48
47 Psychology	5.10	74.94
48 Food processing	2.90	75.64
49 Child care and youth services	3.50	77.19
50 Travel, tourism and leisure		77.56
51 Horticulture	4.10	79.42
52 Education science	5.30	80.05
53 Medical diagnostic and treatment technology	3.40	80.64
54 Literature and linguistics	6.20	81.38
55 Social work and counselling	3.50	82.56
56 Therapy and rehabilitation	3.30	83.28
57 Veterinary	4.30	83.86
58 Language acquisition	6.20	84.38
59 Teacher training without subject specialization	5.30	88.67
60 Training for pre-school teachers	5.30	97.22
61 Nursing and midwifery	3.30	97.58

Table A2: Balance check on Gender and NUTS2 residence

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Gender	Prague	Central Bohemia	Central Moravia	Moravian-Silesian	Northeast	Southeast	Southeast	Southwest
0.003	0.017	0.003	-0.006	-0.005	-0.013	-0.006	0.003	
(0.008)	(0.005)**	(0.005)	(0.005)	(0.005)	(0.006)*	(0.006)	(0.004)	
Pre-treatment mean	0.562	0.101	0.102	0.133	0.133	0.083	0.180	0.061

Table A3: Probability to apply to highly female or male program, poly. order 2

	Highly female program		Highly male program	
	(1) Boys	(2) Girls	(3) Boys	(4) Girls
	-0.016 (0.005)***	0.005 (0.006)	0.013 (0.009)	0.005 (0.003)
Pre-treatment mean	0.047	0.177	0.181	0.027
Bandwidth (months)	10.7	18.9	12.9	11.6
Poly. order	2	2	2	2
Obs.	73982	162561	85655	104222

Signif. codes: 0.01 '***', 0.05 '**', 0.1 *'.

Note: Triangular weights are used. Robust standard errors are reported. I use data-driven bandwidth from Calonico et al. (2015)

Table A4: Probability to apply to highly female or male program, t-1

	Highly female program		Highly male program	
	(1) Boys	(2) Girls	(3) Boys	(4) Girls
	-0.003 (0.006)	-0.001 (0.008)	0.003 (0.012)	0.001 (0.003)
Pre-treatment mean	0.042	0.169	0.179	0.027
Bandwidth (months)	8.1	11.0	7.3	11.6
Poly. order	1	1	1	1
Obs.	65848	112205	58301	121419

Signif. codes: 0.01 '***', 0.05 '**', 0.1 *'.

Note: Triangular weights are used. Robust standard errors are reported. I use data-driven bandwidth from Calonico et al. (2015)

Table A5: Probability to apply to highly female or male program, September as cutoff

	Highly female program		Highly male program	
	(1) Boys	(2) Girls	(3) Boys	(4) Girls
	-0.002 (0.003)	-0.005 (0.005)	-0.013 (0.006)**	-0.002 (0.002)
Pre-treatment mean	0.045	0.179	0.186	0.028
Bandwidth (months)	9.5	14.7	9.5	15.8
Poly. order	1	1	1	1
Obs.	68238	129638	68238	137945

Signif. codes: 0.01 '***', 0.05 '**', 0.1 *'.

Note: Triangular weights are used. Robust standard errors are reported. I use data-driven bandwidth from Calonico et al. (2015)

Table A6: Attending an academic track, poly. order 2

	(1) Boys	(2) Girls
	-0.031 (0.012)**	-0.041 (0.014)***
Pre-treatment mean	0.376	0.418
Bandwidth (months)	10.6	7.1
Poly. order	2	2
Obs.	72048	61708

Signif. codes: 0.01 '***', 0.05 '**', 0.1 '*'

Note: Triangular weights are used. Robust standard errors are reported. I use data-driven bandwidth from Calonico et al. (2015)

Table A7: Attending an academic track, t-1

	(1) Boys	(2) Girls
	-0.001 (0.017)	-0.041 (0.024)*
Pre-treatment mean	0.357	0.411
Bandwidth (months)	5.6	2.5
Poly. order	1	1
Obs.	45287	20591

Signif. codes: 0.01 '***', 0.05 '**', 0.1 '*'

Note: Triangular weights are used. Robust standard errors are reported. I use data-driven bandwidth from Calonico et al. (2015)

Table A8: Attending an academic track, September as cutoff

	(1) Boys	(2) Girls
	0.022 (0.010)**	0.043 (0.009)***
Pre-treatment mean	0.360	0.411
Bandwidth (months)	6.8	7.2
Poly. order	1	1
Obs.	47873	61520

Signif. codes: 0.01 '***', 0.05 '**', 0.1 '*'

Note: Triangular weights are used. Robust standard errors are reported. I use data-driven bandwidth from Calonico et al. (2015)

Table A9: Applying to a STEM program, t-1

	(1) Boys	(2) Girls
	-0.013 (0.020)	-0.016 (0.010)
Pre-treatment mean	0.510	0.222
Bandwidth (months)	5.1	8.2
Poly. order	1	1
Obs.	39165	78414

Signif. codes: 0.01 '***', 0.05 '**', 0.1 '*'

Note: Triangular weights are used. Robust standard errors are reported. I use data-driven bandwidth from Calonico et al. (2015)

Abstrakt

Studie zkoumá, zda prodloužení poskytování celodenní péče o děti ze strany matek ovlivňuje profesní preference jejich dětí. Analyzuji přirozený experiment, v jehož rámci došlo v České republice k prodloužení rodičovského příspěvku o jeden rok. Tato změna vedla k tomu, že mnoho matek zůstalo déle mimo trh práce a čelilo vyšší pravděpodobnosti dlouhodobé nezaměstnanosti. Tento stav posílil tradičnější uspořádání rolí v domácnostech, v němž matka vystupuje především jako pečovatelka. Pomocí regression discontinuity design analyzuji pozdější profesní preference jejich dětí prostřednictvím přihlášek na vysoké školy. Zjišťuji, že chlapci, kteří byli také změně vystaveni v raném dětství, měli v dospělosti o 20 % nižší pravděpodobnost podání přihlášky do typických femininních oborů, zatímco u dívek nebyl pozorován žádný takový efekt. Zkoumám možné mechanismy, ale nenacházím důkazy o tom, že by změla ovlivnila studijní schopnosti dětí (měřené typem střední školy) ani jejich preference pro výzkumně a matematicky orientované studijní dráhy. Výsledky jsou tedy v souladu s interpretací, že delší expozice pobytu matky v domácnosti, která může posilovat tradiční genderové role, snižuje otevřenosť chlapců vůči pečujícím a ošetřovatelským profesím. Tato studie poskytuje první kauzální důkazy o tom, že délka mateřské péče může ovlivňovat genderově specifické volby profese.

Working Paper Series
ISSN 2788-0443

Individual researchers and the on-line versions of CERGE-EI Working Papers (including their dissemination) are supported by RVO 67985998 from the Economics Institute of the CAS

Specific research support and/or other grants are acknowledged at the beginning of the paper.

(c) Sofiana Sinani, 2026

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, including electronic, mechanical, or photocopy, recording, or other without the prior permission of the publisher.

Published by
Charles University, Center for Economic Research and Graduate Education (CERGE)
and
Economics Institute of the Czech Academy of Sciences (EI)
CERGE-EI, Politických vězňů 7, 111 21 Prague 1, Czech Republic
Phone: + 420 224 005 153
Email: office@cerge-ei.cz
Web: <https://www.cerge-ei.cz/>

Editor: Byeongju Jeong

The paper is available online at <https://www.cerge-ei.cz/working-papers/>.

Electronically published January 16, 2026

ISBN 978-80-7343-619-3 (Univerzita Karlova, Centrum pro ekonomický výzkum a doktorské studium)